Oweninny Wind Farm Development

Oweninny Power 2 Designated Activity Company (OP2DAC)

Planning Report for Section 146B Amendment Application to An Bord Pleanála (ABP) – to Amend ABP PA0029

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Change History of Report

Date	New Revision	Author	Summary of Change

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1 Introduction

1.1 Purpose of this 146B Application

The purpose of this application to An Bord Pleanála (ABP) is to seek an amendment under the provisions of Section 146B of the Planning and Development Act, 2000 (as amended), of the Oweninny Wind Farm development which has been consented under ABP Reference PA0029, PM0011, PM0013 and 307261-20 – see **Figure 1 Site Location Map**.

The proposed amendment involves the following:

- To construct a supplementary delivery route to bypass the Western Way Bridge on the N59. The proposed works are intended to further facilitate abnormal loads being delivered to the nearby Oweninny Wind Farm Phase 2 development, in particular wind turbine components.

The location of the above amendments can be seen within the overall context of the wind farm approved under the Parent Permission PA0029, on the attached **Figure 1 Site Location Map**.

This document details the amendments sought, the reasons for the amendments and provides planning and environmental information to support the application.

It is considered that the proposed amendments are non-material in nature and that Section 146B(3)(a) is the appropriate mechanism by which the Board should determine the application, this of course is a matter for the Board.

1.2 Previous 146B Applications

Previous 146B applications (ABP References PM0011, PM0013 and ABP-307261-20) were approved by ABP.

- PM0011 approved a fully underground cable (UGC) between Shranakilla Substation and Bellacorick Substation, which included crossings of the Srahnakilly Road and the Oweninny River, this has now been fully completed and energised.
- PM0013 approved amendments to Cloongullaun Bridge (over the River Moy) approximately 3.5km north west of Swinford town, County Mayo, in order to facilitate turbine delivery. This amendment was never implemented as an alternative delivery route was used.
- 307261-20 approved amendments to the grid connection between Phases 1 and 2 by permitting construction of radial underground cables from permitted but as yet unbuilt Turbine T82 to the existing Substation 1 (constructed as part of phase 1). This included a crossing of the Srahnakilly local road (L52925) and the Oweninny River (via the existing bridge, constructed as part of Phase 1), omission of Substation 2 and the omission of an overhead line (OHL) / underground cable (UGC) connection from Substation 2 to Bellacorick ESB Substation as approved under PA0029.

1.3 Application Contents

The following drawings and documents are included as part of the planning application. Refer to **Table 1** for a List of Planning Drawings.

Table 1 List of Planning Drawings

Drawing No.	Description	Scale
P000379-PM00-0010	SITE LOCATION MAP	1:50,000
P000379-PM00-0011	SITE LAYOUT	As shown
P000379-PM00-0012	VEHICLE SWEPT PATH	1:750

- **List of Figures**
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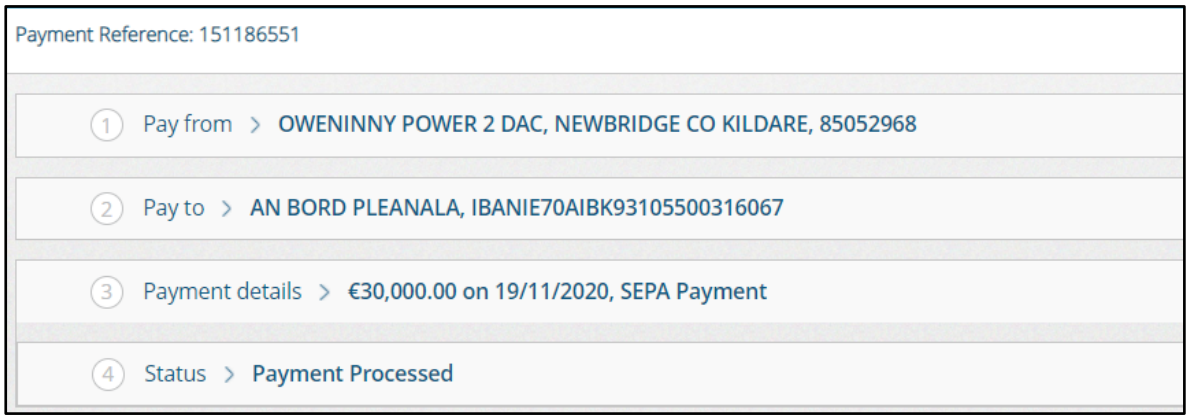
  - Appendix 2 Appropriate Assessment (AA)
  - Appendix 3 Construction Method Statement
  - Appendix 4 Built Heritage Statement
  - Appendix 5 Road Safety Audit

- **Application Fee**

The application fee of €30,000 has already been paid to ABP, on 19th November 2020 – see confirmation below.



1.4 Pre Planning Consultations

1.4.1 Mayo County Council

The proposed amendment has been discussed with Mayo County Council who are supportive of the application. The project was explained to MCC on a conference call meeting on 30th November 2020.

Issues raised at that meeting included the following:

- MCC expressed a preference for the access tracks to be retained after completion of the abnormal load deliveries and OP2DAC have confirmed that they are willing to facilitate this preference. The reason is that this will facilitate MCC in achieving a permanent bypass of the Western Way bridge at some future point. This bridge has been the location of accidents in the past and MCC have always had an objective to improve road safety in this area.
- Whilst the current design will facilitate the movement of abnormal loads associated with the wind farm, additional design work will be required along the N59 (outside the red line area of this application) and a larger culvert to ensure National Road Design standards can be met. This is outside the scope of this application but leaving the tracks in situ would facilitate MCC. However, if the Board require reinstatement, that will be implemented by OP2DAC.
- MCC advised that a Road Safety Audit should accompany the application.

An email from Paul Dolan, Head of Roads, Mayo County Council provides evidence of MCC support for this application. Paul Dolan stated that "*Based on the information attached and our discussions to date I can confirm that Mayo County Council are supportive of this proposal*".

1.4.2 Inland Fisheries Ireland (IFI)

ESB has consulted with Aisling Donegan from IFI on this proposal. IFI have no objections to this proposal, given that it is temporary in nature.

1.4.3 Office of Public Works (OPW)

The OPW has been consulted to access the requirement for a Section 50 application for the proposed crossing. They have confirmed that the temporary culvert does not require a Section 50 application. Also, they have confirmed that the culvert can be designed using the 30 year design storm.

1.4.4 National Parks and Wildlife Service (NPWS)

ESB has consulted with William Cormacan from NPWS on this proposal. NPWS has confirmed that they have no objections to this proposal, given that an AA Screening Report has been produced which states that "*we have demonstrated that the development, either individually or in combination with other plans or projects, would not be likely to have a significant effect on any Natura 2000 site*".

1.5 Reason for the Proposed Amendments

1.5.1 Background

Planning permission was granted for 61 turbines in June 2016 under ABP PA0029, indicatively split into Phases 1 and 2. This planning permission gives a 10 year duration to construct the wind farm (i.e. construction of Phases 1 and 2 must be completed by June 2026).

Indicative phasing was included as part of the planning application: Phase 1 (green) showed 30 turbines and Phase 2 (orange) showed 31 turbines. A third phase was withdrawn during the planning process – see Image 1 which shows the approved Phases 1 and 2 with indicative phasing – see **Image 1**.

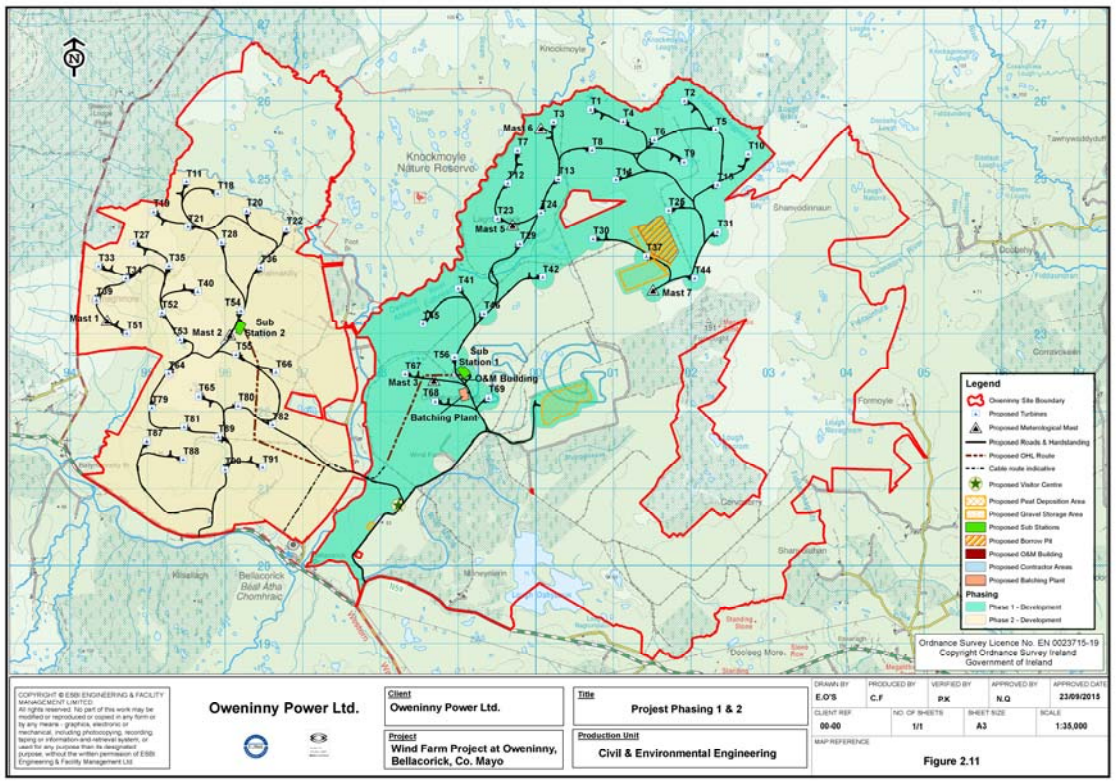


Image 1 **Indicative Project Phasing**

1.5.2 Basis for the Proposed Amendment

The rationale for the application is as follows:

- Based on the current road infrastructure, due to the horizontal alignment of the N59 at the proposed location, abnormal load deliveries to the wind farm development will be required to turn into the entrance to the Oweninny Phase 1 Wind Farm and reverse along a section of the N59 to the sharp right-hand bend on the N59 where it will negotiate a difficult right turn onto the R312, before proceeding on the N59 as shown in **Figure 1** below.

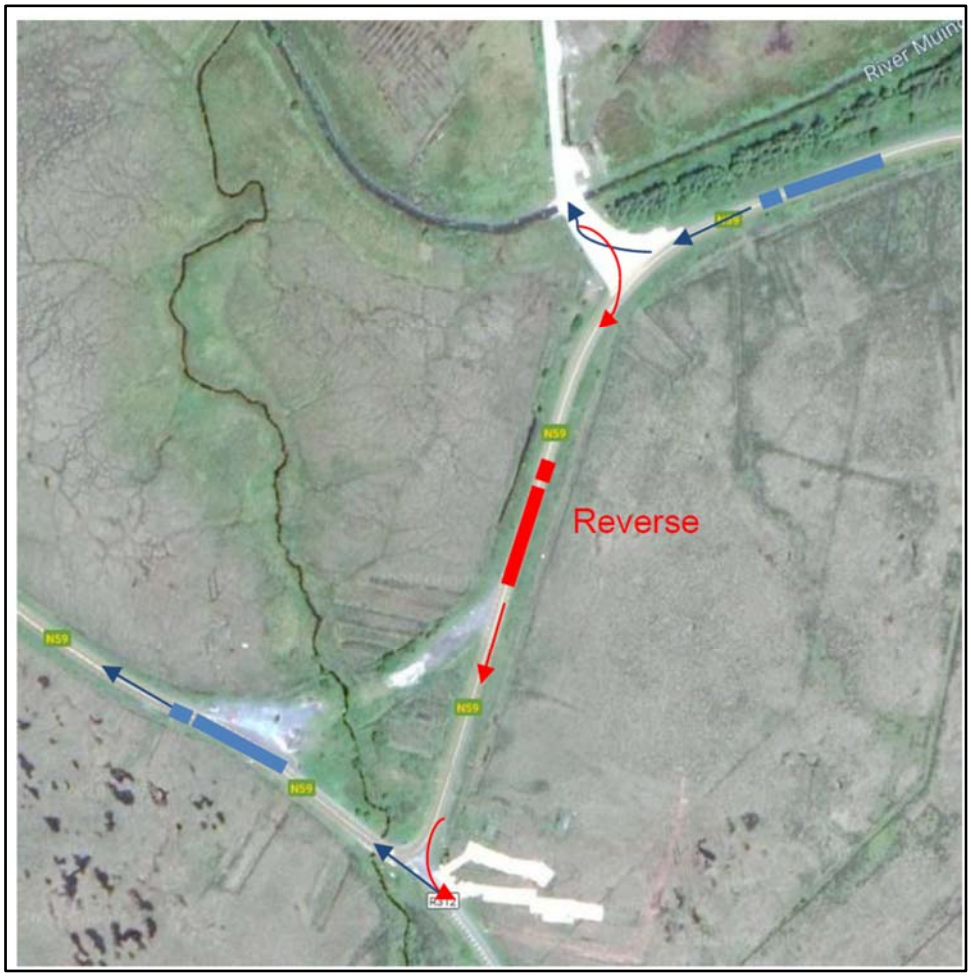


Figure 1 Current Abnormal Load Deliveries utilising N59

Whilst the existing situation is technically feasible, due to the size of the deliveries, and the number of abnormal load deliveries associated with this development, a less onerous route through this section of road is being sought as shown in **Figure 2**.

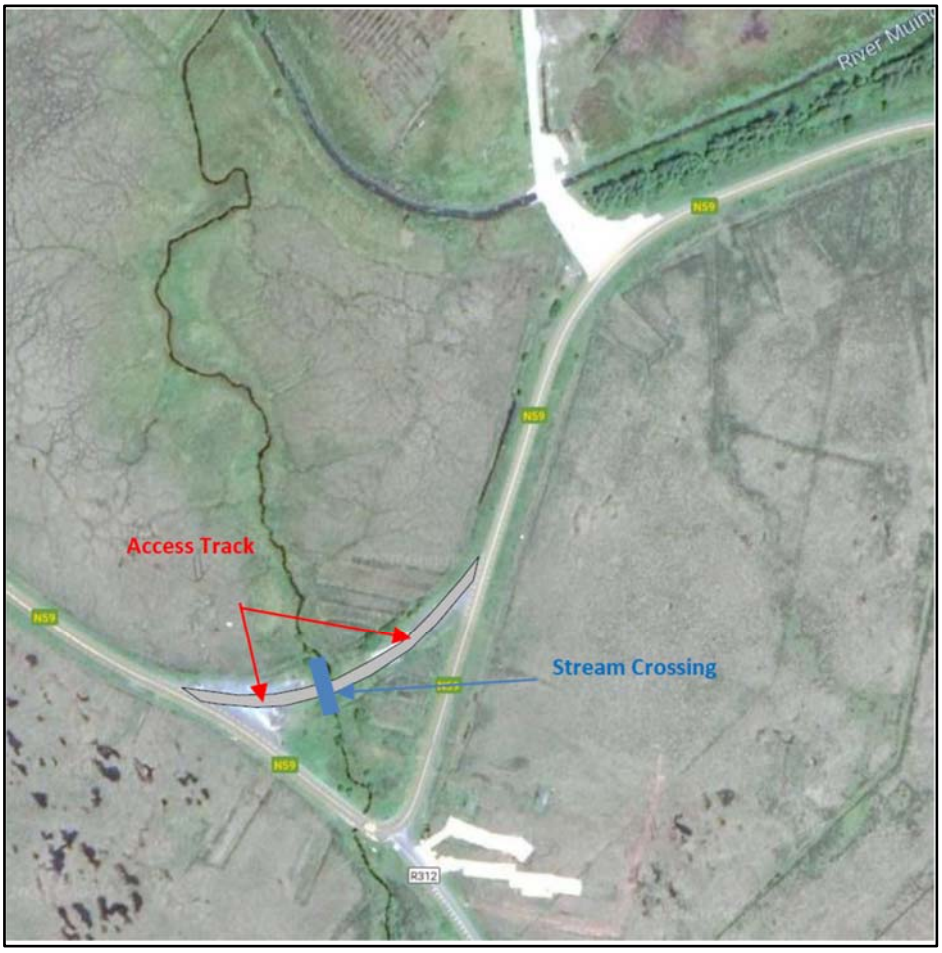


Figure 2 Proposed Supplementary Delivery Route

- There are existing relict tracks which were constructed in the 1980s by Mayo County Council as part of a road improvement/realignment scheme which was never completed; the extent of the associated disturbance works is very clear in an aerial photograph dating to 1995 – **Figure 3** and in recent photos **Figures 4, 5 and 6.**

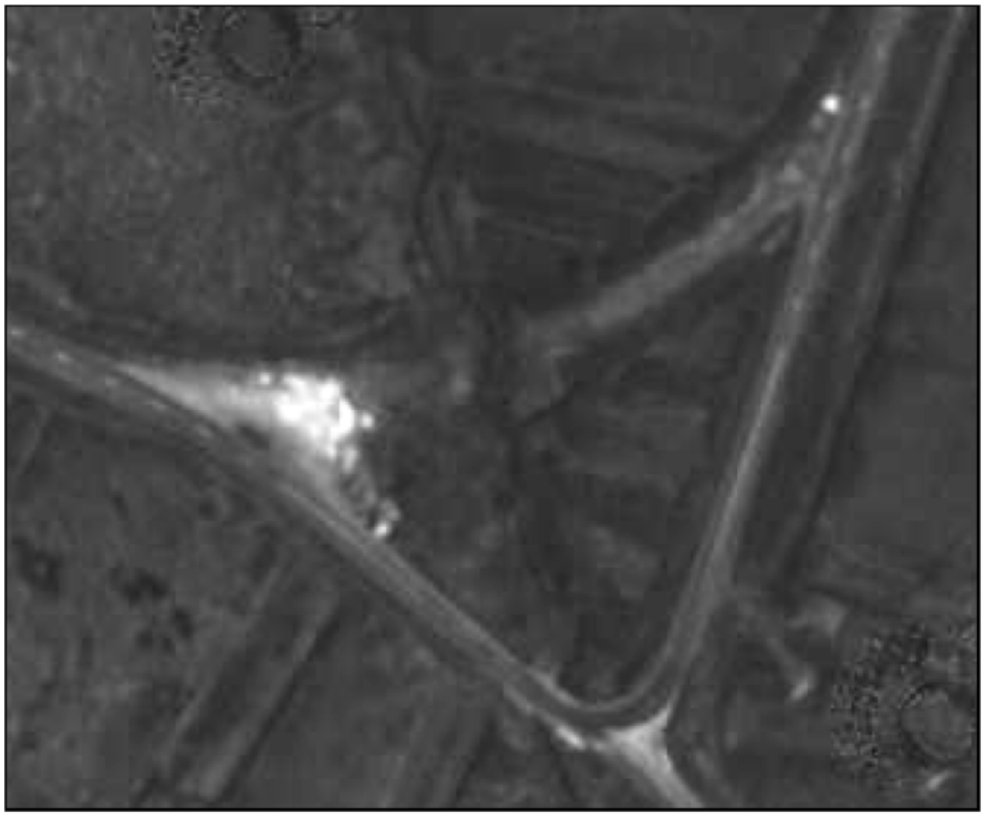


Figure 3 Aerial View of Proposed Works Area – 1995

Figure 4 View of Stream from North

Figure 5 Aerial Photograph of Proposed Site and immediate environs

Figure 6 General View of Proposed Site from Northeast (looking southwest)

1.5.3 Description of the Proposed Works

The proposed supplementary temporary access will consist of approximately 175m of access track and a stream crossing, provided primarily to facilitate abnormal load deliveries associated with the Oweninny Wind Farm Phase 2 as illustrated in **Figure 7**.

The track will be constructed on the existing access tracks where appropriate using stone and geocomposites as required and capped with a layer of Cl804.

The proposed stream crossing will be constructed using pipes. These pipes will be delivered to the site by lorry and lifted into place using certified lifting equipment e.g. excavator. The stream will be dammed temporarily upstream of the crossing and water pumped downstream of the crossing to facilitate the construction. Construction works will be completed cognisant of the overhead 110kV line and the appropriate precautions will be taken to ensure the works are completed safely.

Following hydrological and hydraulic assessments to a Q30 standard as agreed with the Office of Public Works (OPW), a pipe diameter of 1.8m is proposed. This will ensure no adverse effects to any third party will be caused upstream of the proposed installation. To mitigate against a flood event in excess of the Q30, the crossing and access tracks will be designed and constructed to facilitate flood waters overtopping the structure without any impacts on the nearby N59. This may be subject to change following detailed design.

The crossing will be suitable to carry the wind turbine abnormal load deliveries. An operational width of up to approximately 6m is envisaged. The length of the crossing will be circa 12.5m, however this will be determined by the depth from finished level to channel level and the combining multiples of concrete pipe standard units.

Full technical details of the construction methodology, based on best available information at this time, are contained in **Appendix 3 Construction Methodology.**

Figure 7 Proposed Development

1.5.4 Other Options Considered

The other option considered to cross this stream was a Bailey Bridge. However, the proximity of the 110 kV overhead lines to this area – see **Figure 8** , precludes the use of a Bailey Bridge over the stream, as it would not be possible to safely use the type of crane required to install such a bridge, therefore this option was ruled out.

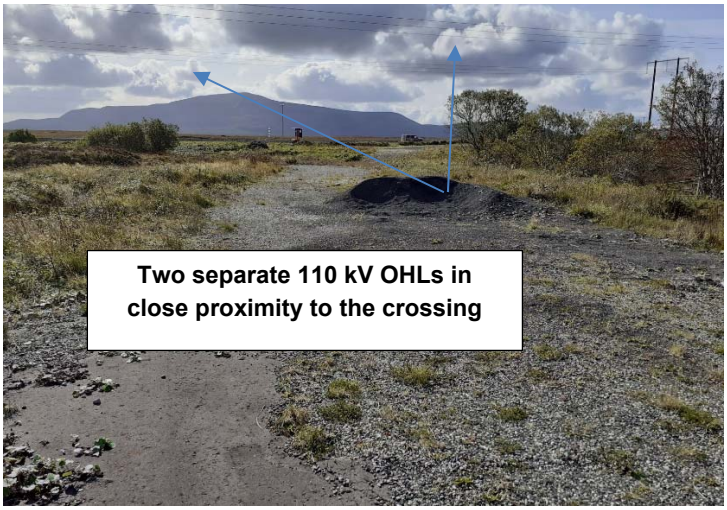


Figure 8 Proximity of OHLs

2 Planning Context

2.1 Project as Approved by ABP

The Oweninny Wind Farm Project was approved as Strategic Infrastructure Development (SID) under the Planning and Development Act 2000 (as amended) on 2nd June 2016 (ABP Reference PA0029) and amended by PM0011 (February 2017), PM0013 (July 2018) and ABP-307261-20 (July 2020).

The approved Oweninny Wind Farm Project comprises the following main elements:

- Phases 1 and 2 of the wind farm consisting of 61 turbines, crane hardstands at each turbine, construction of 49 km of new access tracks;
- Two electrical substations containing control buildings and substation, underground electrical cables linking the turbines with the control buildings, underground communication cables;
- Two 110 kV circuits (part underground cable and part overhead line) connecting the wind farm substations to the national electricity grid;
- Six permanent meteorological masts;
- An Operation and Maintenance facility;
- All related site works, and ancillary development including batching plant and borrow pits, gravel storage areas associated with the borrow pit and peat repository area;
- Visitor Interpretative Centre;
- Temporary works for Phase 1 and Phase 2 comprising 4 contractors' lay down areas; and
- Reuse of two number existing site entrances off the N59, signage at the main wind farm entrance and on the public road adjacent to the main entrance.

The Order issued under PA0029 contained 20 No. conditions of a standard nature for the type of wind farm development proposed. No additional conditions were attached for PM0011 and ABP-307261-20. Additional conditions were attached for PM0013 but this permission was never availed of.

The Board Orders are attached in **Appendix 1** of this planning report.

2.2 Inspectors Reports in Relation to 307261

This type of amendment has not arisen in the context of an amendment application on the project to date, so previous inspectors reports have not considered this type of issue.

However, culverts have been used in the construction of Phase 1 of the wind farm in a number of locations so the type of construction work is not new to the project and was assessed in the original parent permission PA0029.

However, of relevance to the current application is the manner in how the issues of materiality and EIA were considered by the Board in Reference 307261. The inspectors report in relation to 307261 (July 2020) considered the issues in relation to materiality and EIA as follows:

> ***6*** ***REQUEST DOCUMENTS***
>
> *6.1.1 The application is accompanied by:*
>
> *A Construction Method Statement, and drawings*
>
> *(Appendix 1) Board Orders*
>
> *(Appendix 2) Natura Impact Statement*
>
> *(Appendix 3) Construction Method Statement*

(Appendix 4) A Cultural Heritage Report

All documents are summarised in the inspector's report.

7.0 ASSESSMENT

Conclusion in relation to materiality

7.6.1. Although the proposal, particularly the 4260m radial cable route to be provided with 12 power cables and 3 communication cables and with joint bays at 600-800m intervals, is substantial, I am of the opinion, having fully considered the alterations and having considered the proposal as granted under PA0029, that the Board would not have determined PA0029 differently had the alterations, as now proposed, formed part of PA0029 at that application stage. In this regard, I consider it reasonable to conclude that the proposed alterations, subject of the request, do not constitute the making of a material alteration of the development as granted under PA0029.

7.6.2. As previously stated, it is open to the Board to invite submissions and have regard to those submissions, prior to making a decision on whether or not the proposed alterations are material. I recommend that the Board utilise the provisions of S146B(2) (b) and invite submissions from the public in relation to the issue of whether or not the proposed alterations are material.

Likelihood of a Significant Effect on the Environment

7.1.5. The topics addressed in the EIS on PA0029 have been reviewed in the context of the alterations proposed. As regards: -

• human beings - any additional impacts arising from works crossing the local road, would be mitigated as part of the CEMP;

• fauna and flora - no additional impact are identified outside of those identified in the original EIS;

• soil, water, air, climatic factors or the landscape - no additional impacts are envisaged outside of those identified in the original EIS;

• material assets, including the architectural and archaeological heritage, and the cultural heritage - the mitigation measures in relation to archaeological heritage protection are applicable; no other additional impacts are envisaged outside of those identified in the original EIS; and

• the inter-relationship between the above factors - no additional impacts are envisaged.

7.1.6. In my opinion no new considerations arise, in relation to impact on the environment, which were not considered in the assessment of impacts for PA0029, for which an EIA was conducted.

8 RECOMMENDATION

I recommend that the Board should decide that having regard to their nature and scale the proposed alterations do not constitute material alterations to the approved scheme.

The Board Direction noted the following:

The Board decided, at its meeting held on 23/07/2020, in accordance with section 146B(2)(b) of the Planning and Development Act 2000, as amended, not to invite submissions or observations from the public in relation to whether the proposed alteration would constitute the making of a material alteration to the terms of the development concerned,

AND WHEREAS the Board decided, in accordance with section 146B(2)(a) of the Planning and Development Act 2000, as amended, that the proposed alteration would not result in a material alteration to the terms of the development the subject of the permission,

AND WHEREAS, having considered all of the documents on file and the Inspector's report, the Board considered that the making of the proposed alteration would not be likely to have significant effects on the environment or on any European Site,

NOW THEREFORE, in accordance with section 146B(3)(a) of the Planning and Development Act 2000, as amended, the Board hereby alters the abovementioned decision so that the permitted development shall be altered in accordance with the plans and particulars received by An Bord Pleanála on the 27th day of May 2020.

Conclusions

It is clear from Planning Inspectors report for 307261 that the undergrounding of cables within the site was not considered material in the context of the overall project, as the amended works proposed in the application, which were limited in nature and extent, would not be likely to have any significant effect on the environment, or on any Natura 2000 site, or on any other aspect of the proper planning and sustainable development of the area, that would not differ in any significant way from the likely effects of the approved development.

2.3 Legislative Context

With reference to Section 146B of the Planning and Development Act, 2000 (as amended), it is understood that the proposed amendment, having regard to its limited nature and scale in the context of the overall approved development would constitute an alteration of PA0029 and that this case will be determined under the provisions of Section 146B(3)(b).

2.3.1 Environmental Impact Assessment Considerations

Legal opinion in relation to EIA has been sought for this Section 146B application which is detailed below.

In the context of EIA, there is a decision of the High Court (*South-West Regional Shopping Centre Promotion Association v An Bord Pleanála*) that confirms that modifications to an EIA Planning Permission can be screened for EIA and, if they pass the screening test, there is no need to carry out a full EIA. Accordingly, it is submitted that EIA is not required.

It is the role of ABP as the Competent Authority to carry out EIA screening. Information in this report and the application documents is provided to assist ABP in this regard.

2.3.2 Appropriate Assessment Considerations

The parent permission was the subject of a Stage 2 Approptiate Assessment (AA) by the Competent Authority (ABP) and planning conditions were attached in this context.

The current application is accompanied by a Stage 1 AA Screening Report which concludes the following:

> *2.5 Analysis of "In-Combination" Effects*
>
> *The Habitats Directive requires competent authorities to make an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.*
>
> *The principal other project that is relevant to the temporary bridge project is the actual parent Phase 2 project which will be under construction by the time the temporary bridge project is constructed (assuming planning permission is granted).*
>
> *As already noted, the permitted Phase 2 project has been approved by An Bord Pleanála and includes detailed mitigation measures as required to preserve water quality of the local rivers and streams. The Phase 2 build will adhere to all planning conditions and the Contractor will be obliged to follow all measures in the Construction Environmental Management Plan (CEMP).*
>
> *The present AA report has considered the proposed temporary bridge project in the context of relevant European sites within a 15 km radius of the bridge crossing location and concluded that the project would not adversely affect the conservation objectives of any of these sites.*
>
> *When both projects are considered together, it can be objectively concluded that there will not be any significant in-combination contribution by the proposed Western Way Bridge Bypass project on any European site or Annexed species.*

2.6 Screening Conclusion and Statement

A screening report for Appropriate Assessment has been prepared for a proposed project involving a temporary bridge crossing of a tributary stream of the River Muing, at Bellacorick, Co. Mayo.

The potential effects that may arise from construction and operation of the project on the Natura 2000 network have been examined by considering the potential for significant effects, alone or in-combination with other projects, on relevant European sites that occur in the wider area.

On the basis of the findings of this screening report for Appropriate Assessment, it is concluded that the project:

(i) is not directly connected with or necessary to the management of a Natura 2000 site, and

(ii) significant impacts on the Natura 2000 network are not foreseen.

Based on this information, and beyond reasonable scientific doubt, we have demonstrated that the development, either individually or in combination with other plans or projects, would not be likely to have a significant effect on any Natura 2000 site. Therefore, it is considered that a Stage 2 Appropriate Assessment is not required.

It should be noted that the AA Screening Report does not specify the requirement for mitigation measures, it provides for the following:

Environmental controls are described in Section 6 of the Construction Methodology. It is noted that the rigorous controls that will be applied to avoid impacts on surface waters during construction of the wind farm will apply to all aspects of construction and removal, if required, of the temporary supplementary route. Control measures will be provided in two ways, namely mitigation by avoidance and mitigation by engineering design. The following points are of particular relevance:

- *Construction works will be supervised and monitored by a suitably qualified ecologist(Ecological Clerk of Works) as required;*
- *Agreed drainage control measures will be put in place in advance of all other construction works;*
- *The access tracks to the temporary bridge will be profiled so that overtopping of the crossing may occur in the event of a flood event;*
- *Requirements as set out by Inland Fisheries Ireland (IFI) will be strictly adhered to.*

All of the environmental control measures are standard for the insertion of a culvert over a stream and all derive from details specified in *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites.*

3 Environmental Evaluation of Amendment

3.1 Introduction

The project has been previously the subject of both EIA and AA by ABP (PA0029) and the development which includes Phases 1 and 2 was approved following these processes.

Phase 1 of PA0029 commenced construction in 2017, Substation 1 was energised in June 2019 and the wind farm began commercial operation in early 2020.

Culverts have already been included and assessed in the Environmental Impact Statement (EIS) and documents submitted to ABP.

The proposed amendment is minor in nature but having regard to the location of the site for undergrounding and the ground disturbance as a result, it was considered prudent that a Appropriate Assessment Screening Report (**Appendix 2**), a Construction Method Statement (**Appendix 3**), a Built Heritage Statement (**Appendix 4**) and a Road Safety Audit (**Appendix 5**) be submitted as part of this 146B application. Any changes in impacts are evaluated relative to the approved wind farm.

3.2 Existing Environmental Context

Phase 1 of Oweninny Wind Farm commenced full construction in May 2017. During the construction of Phase 1, extensive environmental monitoring, management and reporting was a key feature of the construction process. These environmental actions included the following:

- A Project Monitoring Committee (PMC) which included representatives from Mayo County Council (MCC), National Parks & Wildlife Service (NPWS), Inland Fisheries Ireland (IFI) and local representatives was set up. This met on a quarterly basis to review all environmental monitoring that had taken place during the construction period.
- A monthly monitoring report was issued each month to MCC and submitted to all PMC Members, which included monitoring results for surface water, noise, ground water etc.

From this extensive monitoring and involvement with key stakeholders during Phase 1 construction a great deal of knowledge pertaining to the environmental condition on the wind farm site has been gained. Therefore, OP2DAC, the development company for Phase 2 of the project, has a thorough understanding of the methodologies required to construct the proposed development in this particular location in an environmentally sensitive manner. The monitoring data collated during the construction of Phase 1, including the guidance provided by the PMC will provide a comprehensive understanding of the requirements for the development of Phase 2 including the minor amendments proposed in this application, in an environmentally sensitive manner.

3.3 Conclusions of Appropriate Assessment

The Stage 1 AA Screening Report refer to **Appendix 2**, has considered the potential impacts of the stream crossing on the integrity of the relevant European sites.

This report concludes on the best scientific evidence that it can be clearly demonstrated that no elements of the project will result in any impact on the integrity or Qualifying Interests/Special Conservation Interests of any relevant European site, either on their own or in-combination with other plans or projects, in light of their conservation objectives and that specific mitigation measures are not required.

3.4 Ecological Assessment

As outlined above and in **Appendix 2 Appropriate Assessment Screening Report**

A screening report for Appropriate Assessment has been prepared for the proposed development. The potential effects that may arise from construction and operation of the project on the Natura 2000 network have been examined by considering the potential for significant effects, alone or in-combination with other projects, on relevant European sites that occur in the wider area.

On the basis of the findings of this screening report for Appropriate Assessment, it is concluded that the project:

(i) is not directly connected with or necessary to the management of a Natura 2000 site, and

(ii) significant impacts on the Natura 2000 network are not foreseen.

Based on this information, and beyond reasonable scientific doubt, we have demonstrated that the development, either individually or in combination with other plans or projects, would not be likely to have a significant effect on any Natura 2000 site. Therefore, it is considered that a Stage 2 Appropriate Assessment is not required.

Refer to **Figure 1 to 5** inclusive.

3.5 Built Heritage Statement

As outlined in **Appendix 4 Built Heritage Statement**

The subject works area is associated with the approved Oweninny Wind Farm (ABP Ref: PA0029), which was subject to a previous EIA, including a Cultural Heritage Study (Chapter 17). This study was consulted and updated by consultation with additional sources, together with a focused reconnaissance survey of the proposed works corridor and environs.

There are no previously recorded monuments or features of archaeological interest/potential located within, or in the immediate environs of, the proposed works. However, it is considered that there is increased potential the discovery of subsurface archaeological remains and/or artefacts within the proposed construction corridor, due to it location within a peatland environment although such potential is somewhat reduced given the disturbed nature of an extensive area within of the overall proposed works area.

A reconnaissance survey of the stream banks, together with a limited wade-survey at the proposed stream crossing, indicates that there are historic physical features (e.g. stepping stones, fording-points, etc.) associated with the stream, except for the Western Way Bridge located 80m downstream.

There are no protected or NIAH-listed structures of architectural heritage interest located along, or in the environs of, the proposed UGC route.

Given the nature of the proposed works, it is not considered that the works associated with the proposals will cause any direct impacts to any previously identified archaeological monuments or designated structures of architectural heritage interest.

However, given the archaeological potential of the in-situ areas of peatland within the extent of the overall works area, together with the potential for the recovery of archaeological artefacts within the bed of the stream, the following mitigation measures will be undertaken as part of the overall construction process:

- All excavations requiring the removal of peat will be monitored by a suitably qualified and experienced archaeologist.
- Following drainage/dewatering of the stream at the proposed crossing area, the stream bed will be visually inspected and raked-over in order in retrieve any possible artefacts of archaeological/historic interest that might be contained within such material. Removal of the stream-bed material will be monitored by the archaeologist and the further raked-through upon deposition at the agreed storage area

3.6 Road Safety Audit

A Stage 1/2 Road Safety Audit (RSA) was undertaken by PMCE at the site during December 2020 which included a site visit by the RSA Team on 8th December.

A number of items were established by the Road Safety Audit (RSA) Team which required action in order to improve the safety of the scheme and minimize collision occurrence. The following problems were highlighted by the RSA Team:

- Sufficiency of the barrier at the access/egress points from the temporary haul route onto the N59.
- The road layout may not accommodate the swept paths of heavy vehicles delivering turbine components.
- The slope of the embankment from the edge of the haul route and the risk of increased injury severity to vehicle occupants should an errant vehicle descend the slope.
- Its unclear if the fence/barrier is passively safe.
- The safety berm at the bridge crossing on the haul route may not be of sufficient height to protect work operatives.
- Lack of warning signs of Heavy Vehicle movements on the approaches to the temporary haul route.
- Possibility of stationary vehicles on the N59 while gates are being opened/closed.

Recommended actions were established by the RSA team for each of these problems.

ESB-EMP have responded to each of these problems and recommendations by completing the Feedback Form attached in Appendix C of the RSA. The alternative measures and/or reasons for not accepting some of the recommendations have been accepted by the RSA Team.

Refer to **Appendix 5 Road Safety Audit.**

3.7 Other Environmental Considerations

Table 3.1 details other environmental considerations that have been evaluated as part of this 146B application. Any changes in impacts are evaluated relative to the approved wind farm.

Table 3.1 Other Environmental Considerations

Environmental Topic	Evaluation
Human Beings	There is a potential for improvements in road safety both during delivery of turbine components and in the longer term if the bridge bypass becomes permanent.
Biodiversity	Refer to **Sections 3.4** above and **Appendix 2**
Soils and Water	There will be no change in impacts
Air and Climate	There will be no change in impacts
Landscape and Visual	There will be no change in impacts
Built Heritage	There will be no change in impacts
Traffic	There is a potential for improvements in road safety both during delivery of turbine components and in the longer term if the bridge bypass becomes permanent. Refer to **Section 3.6** above and **Appendix 5.**

3.8 Environmental Conclusions

There is no likelihood of a significant effect on the environment occurring as a result of the proposed alterations to the permitted development.

4 Conclusions

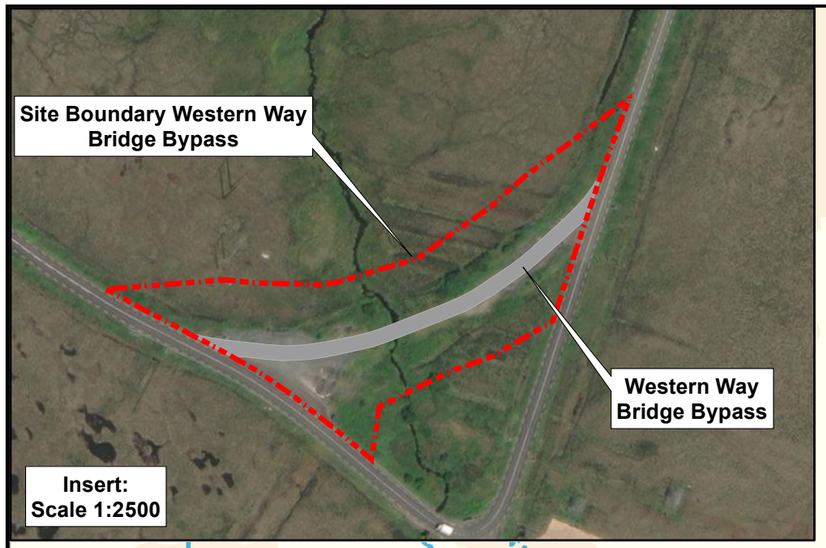
The purpose of this application is to seek an amendment under the provisions of Section 146B of the Planning and Development Act, 2000 (as amended), of the Oweninny Wind Farm development which has been consented under ABP Reference PA0029, PM0011 and PM0013.

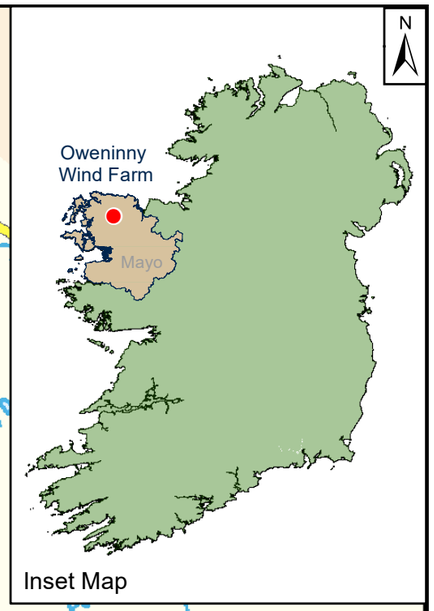
The parent permission for the wind farm was the subject of EIA and AA by the Board and permission was granted subject 20 No. conditions of a standard nature for the type of wind farm development proposed. The proposed amendment will be carried out in accordance with all environmental commitments, mitigation measures and planning conditions contained in PA0029.

From the extensive monitoring during Phase 1 construction a great deal of knowledge pertaining to the environmental condition on the wind farm site has been gained. Therefore, OP2DAC has a thorough understanding of the methodologies required to construct the proposed development in this particular location in an environmentally sensitive manner.

It is considered that the amended works proposed in this application, which are limited in nature and extent, would not be likely to have any significant effect on the environment, or on any Natura 2000 site, on or any other aspect of the proper planning and sustainable development of the area, that would differ in any significant way from the likely effects of the approved development.

Figures 1 - 6





Sheskin

Windfarm Planning Boundary

Oweninny Phase 2

Oweniny River

A T

Furnought

151

Doobehy

Largan

N59

River

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13

Bellacorrick

WESTERN WAY BRIDGE BYPASS (SEE INSET)

Lough Dahybaun

6

Eskeragh Br

Dooleeg

Dumha Liag

Gortr

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 1 2 3 4 km

Legend

- Site Boundary
- Western Way Bridge Bypass
- Oweninny Wind Farm Boundary
- Phase 2 - Development

ESB Bord na Móna Partners in Natural Energy — Oweninny Wind Farm

Client: Oweninny Power 2 DAC

Project: Oweninny Wind Farm Development - Section 146B Application

Title: Figure 1- Site Location Map

Production Unit: Civil & Environmental Engineering

DRAWN BY	PRODUCED BY	VERIFIED BY	APPROVED BY	APPROVED DATE
E.O'Shea	E.O'Shea	M.Hogan	B.Allen	08/12/2020

CLIENT REF.	NO. OF SHEETS	SHEET SIZE	SCALE
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MAP REFERENCE

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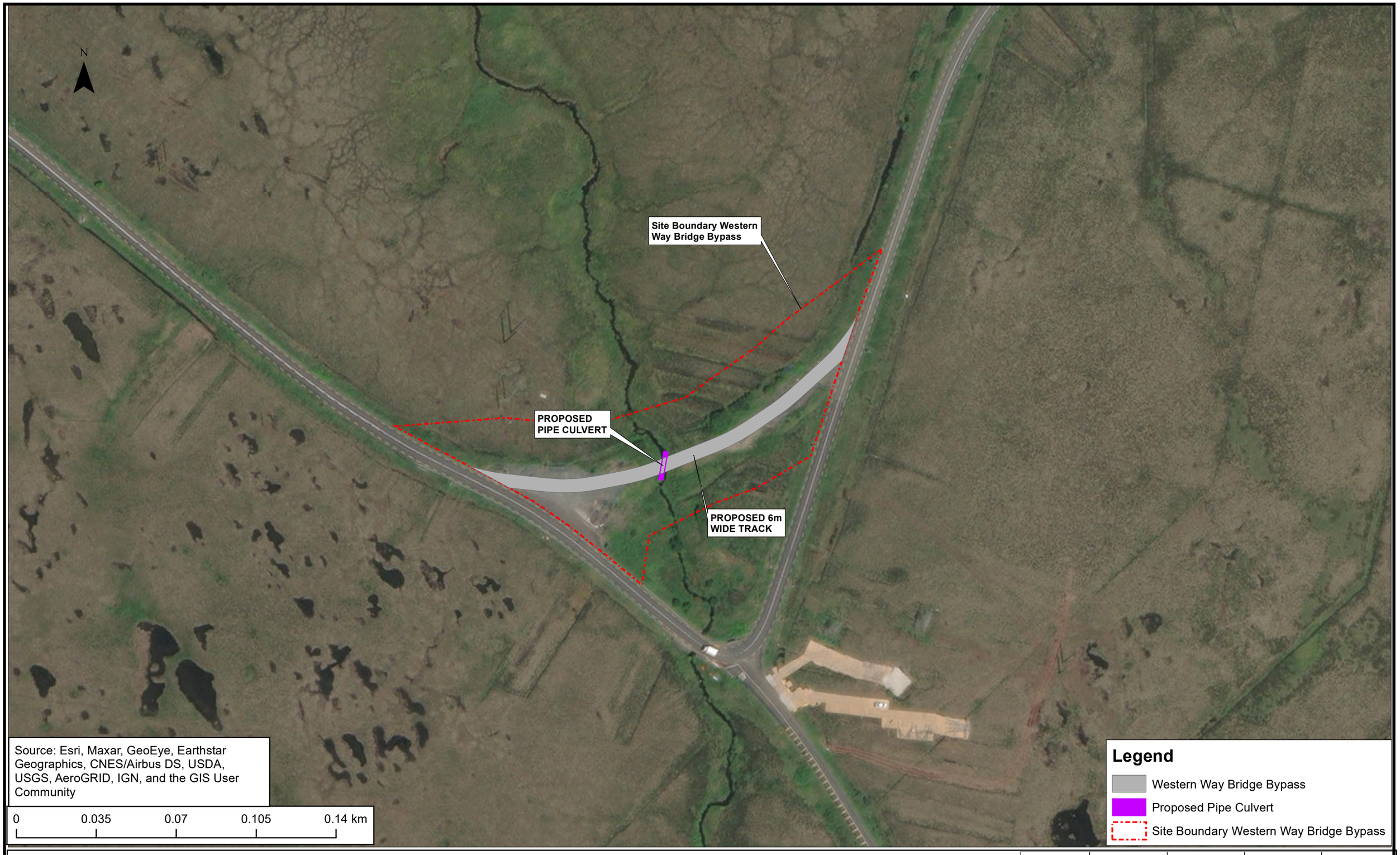

ESB BORD NA MÓNA Partners in Natural Energy OWENINNY Wind Farm

Client
Oweninny Power 2 DAC

Project
Oweninny Wind Farm Development - Section 146B Application

Title
Figure 2-
Site Layout Map

Production Unit
Civil & Environmental Engineering

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E.O'Shea	E.O'Shea	M.Hogan	B.Allen	09/12/2020

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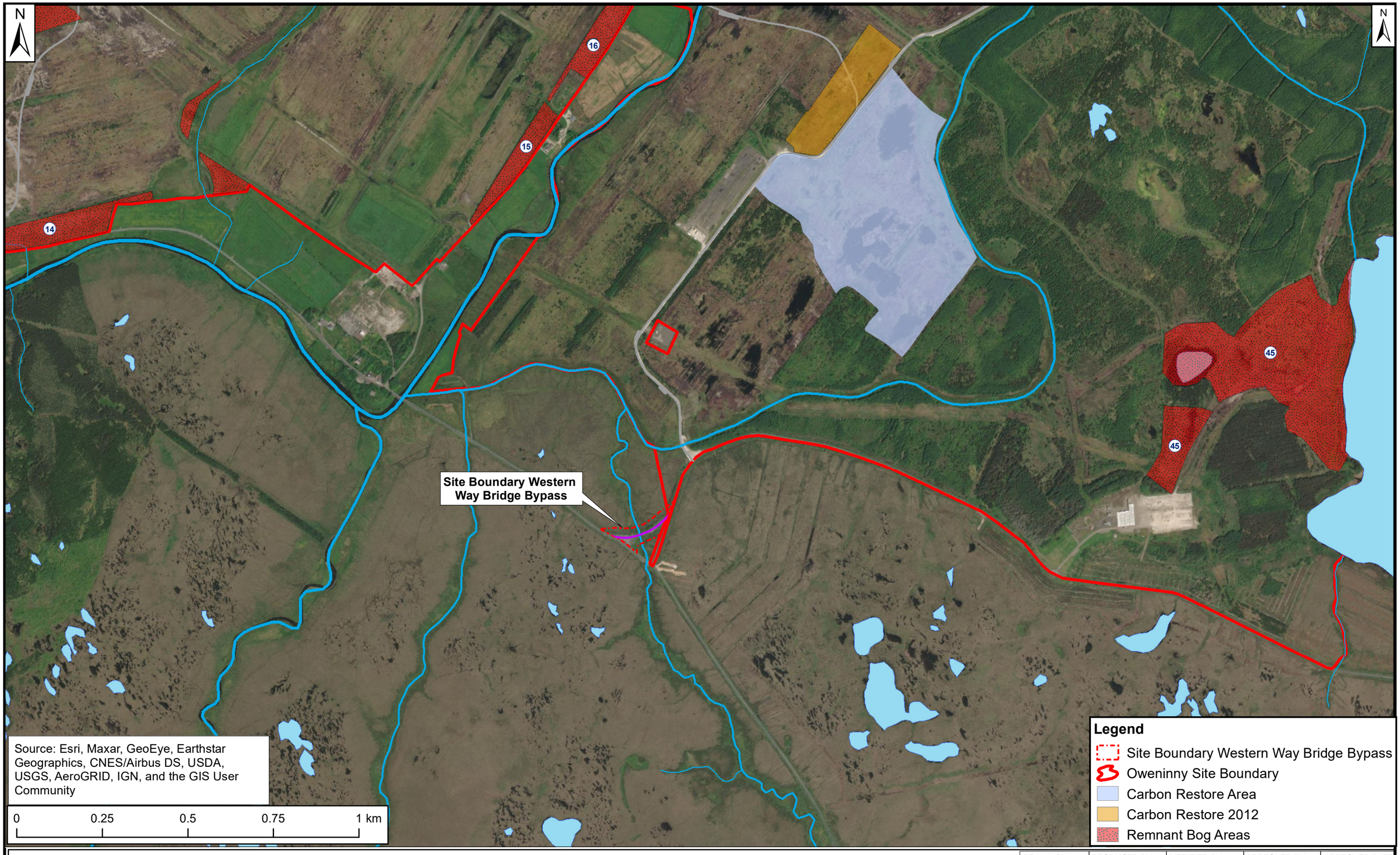

ESB BORD NA MÓNA Partners in Natural Energy OWENINNY Wind Farm

Client
Oweninny Power 2 DAC

Project
Oweninny Wind Farm Development - Section 146B Application

Title
Figure 3 - Ecology Map

Production Unit
Civil & Environmental Engineering

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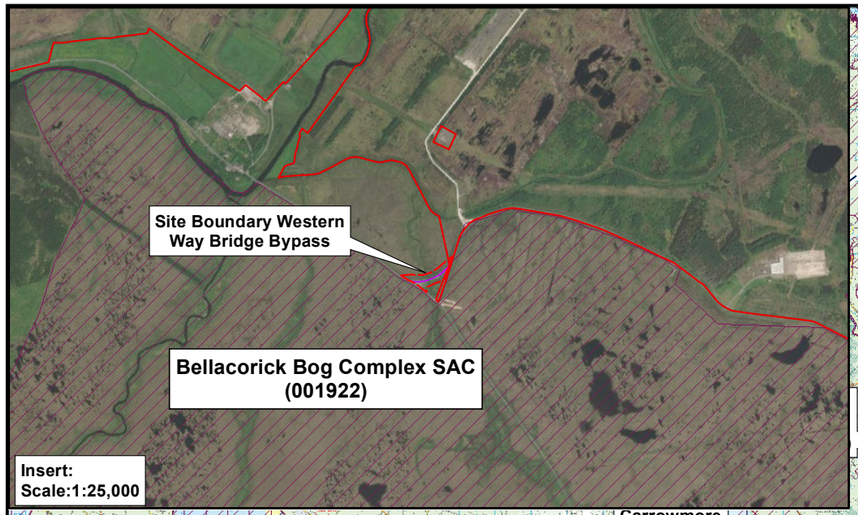

Illanmaster SPA(004074)
Glenamoy Bog Complex SAC(000500)
Glenamoy Bog Complex SAC(000500)
Killala Bay/Moy Estuary SPA(004036)
Lackan Saltmarsh and Kilcummin Head SAC(000516)
Glenamoy Bog Complex SAC(000500)
Killala Bay/Moy Estuary SPA(004036)
Killala Bay/Moy Estuary SAC(000458)
Killala Bay/Moy Estuary SPA(004036)
Killala Bay/Moy Estuary SAC(000458)
Carrowmore Lake SPA(004052)
Bellacorick Bog Complex SAC(001922)
Blacksod Bay/Broadhaven SPA(004037)
Bellacorick Iron Flush SAC(000466)
Mullet/Blacksod Bay Complex SAC(000470)
Carrowmore Lake Complex SAC(000476)
Bellacorick Bog Complex SAC(001922)
Blacksod Bay/Broadhaven SPA(004037)
Site Boundary Western Way Bridge Bypass (See Insert)
Bellacorick Bog Complex SAC(001922)
Lough Dahybaun SAC(002177)
River Moy SAC(002298)
Blacksod Bay/Broadhaven SPA(004037)
River Moy SAC(002298)
River Moy SAC(002298)
West Connacht Coast SAC(002998)
Doogort Machair/Lough Doo SAC(001497)
Bellacorick Bog Complex SAC(001922)
Blacksod Bay/Broadhaven SPA(004037)
Owenduff/Nephin Complex SAC(000534)
River Moy SAC(002298)
Lough Conn and Lough Cullin SPA(004228)
Lough Hoe Bog SAC(000633)
Doogort Machair SPA(004235)
Owenduff/Nephin Complex SPA(004098)
River Moy SAC(002298)
15 Kilometre Buffer
Newport River SAC(002144)
Newport River SAC(002144)

N

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 4 8 12 16 km

Department of Culture, Heritage and the Gaeltacht

Legend
- Site Boundary Western Way Bridge Bypass
- Western Way Bridge Bypass
- Oweninny Wind Farm Site Boundary
- 15km Buffer
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)

ESB BORD NA MÓNA OWENINNY Wind Farm
Partners in Natural Energy

Client
Oweninny Power 2 DAC

Project
Oweninny Wind Farm Development - Section 146B Application

Title
Figure 4 - Distribution of SACs & SPAs within 15 km radius of Oweninny site

Production Unit
Civil & Environmental Engineering

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E.O'Shea	E.O'Shea	M.Hogan	B.Allen	08/12/2020

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MAP REFERENCE
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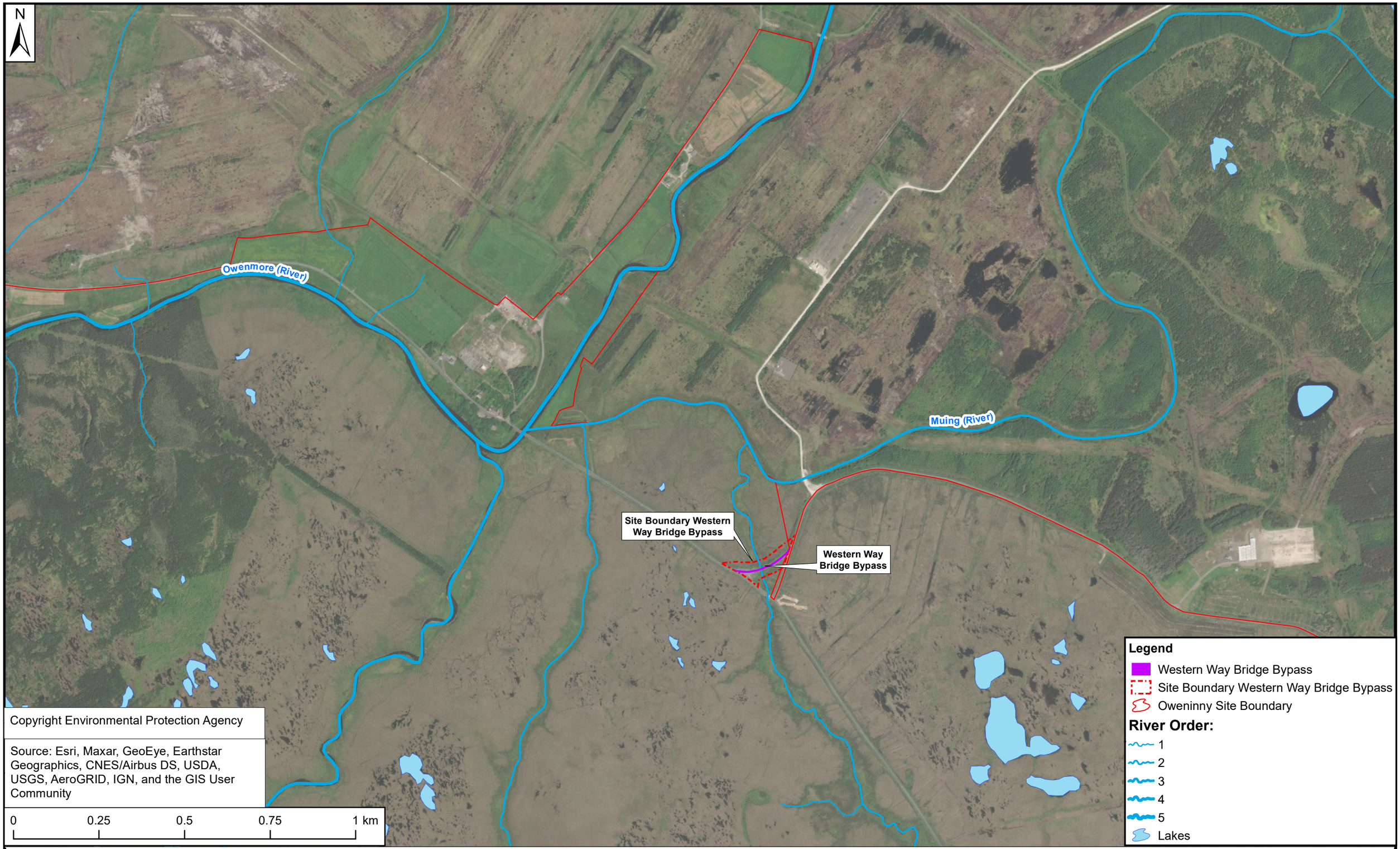

ESB Bord na Móna Partners in Natural Energy — Oweninny Wind Farm

Client
Oweninny Power 2 DAC

Project
Oweninny Wind Farm Development - Section 146B Application

Title
Figure 5 - Oweninny Rivers

Production Unit
Civil & Environmental Engineering

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E.O'Shea	E.O'Shea	M.Hogan	B.Allen	09/12/2020

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MAP REFERENCE

QE-000039-11-D460-003-005-000

Appendix 1

Board Orders PA0029, PM001, PM0013 & ABP-307261-20

Appendix 2

Appropriate Assessment Screening Report

OWENINNY WIND FARM PHASE 2

146B AMENDMENT APPLICATION

WESTERN WAY BRIDGE BYPASS

APPENDIX 2

REPORT FOR AA SCREENING

DECEMBER 2020

Prepared for

ESB Engineering & Major Projects,

by

BioSphere Environmental Services

29 La Touche Park, Greystones, Co. Wicklow

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1. INTRODUCTION

1.1 Background

The Oweninny Wind Farm project at Bellacorick, Co. Mayo has been previously the subject of both EIA and AA by An Bord Pleanála (ABP Planning ref. PA0029) and Phases 1 and 2 were approved following these processes. The main construction of Phase 1 was completed in 2019.

It is proposed to install a temporary crossing over a tributary stream to the River Muing, approximately 1 km east of the village of Bellacorick, to provide a supplementary delivery route for abnormal loads to the nearby Oweninny Wind Farm Phase 2 development. The proposed temporary crossing would be located approximately 80 m downstream of the existing stone bridge on the N59 and would be at the same location where ground works associated with an apparent planned new bridge took place in the past (pre-1995). This supplementary route is intended purely for wind farm construction vehicles and will not be accessible to the public. Whilst OPDAC are in a position to reinstate this land, Mayo County Council has expressed an opinion that this route should remain in situ to facilitate future projects.

The purpose of the present report is to provide the information required to assist An Bord Pleanála, the competent authority, to undertake a Screening Assessment and, if necessary, an Appropriate Assessment (AA). This will determine the effects, if any, on European sites as a result of the proposed project.

The requirements for an Appropriate Assessment are set out *under Article 6 of the EU Habitats Directive (92/34/EEC)*, transposed into Irish law through the *European Union (Birds and Natural Habitats) Regulations 2011-2015* and the *Planning and Development Act, 2000* (as amended).

The AA screening report has been prepared by Dr Brian Madden of BioSphere Environmental Services, in association with ESB. The report is based on a site survey in September 2020, previous knowledge of site (BioSphere Environmental Services are project ecologists for the Oweninny Wind Farm project), and a critical review of supporting technical documents notably:

- ***Appendix 3*** *Oweninny Wind Farm Phase 2, Construction Methodology for Western Way Bridge Bypass, Document no. P000379-CE23-0006.* Prepared by ESB Engineering & Major Projects, November 2020.

1.2 Regulatory Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as “The Habitats Directive” provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the

establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC) (better known as "The Birds Directive").

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (now termed Natura Impact Statement – see The Guidance for Planning Authorities issued by Department of Environment, Heritage and Local Government, December 2009):

> "*Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication 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 Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the AA process to the point, where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, no further practicable mitigation is possible, and if no alternative solutions are identified then the project may only proceed if it is required for imperative reasons of overriding public interest (IROPI test). The criteria for this test are outlined under Article 6 (4) of the Habitats Directive. In this case, all compensation measures necessary are required for any remaining adverse effects.

1.3 Stages of the Appropriate Assessment (AA)

This Appropriate Assessment Screening Report has been prepared in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland.* Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, 2009.
- *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Commission Environment DG, 2002.
- *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC.* Guidance issued by European Commission (21st November 2018).

There are up to four successive stages involved in the Appropriate Assessment process (European Commission 2002). The outcome at each stage determines whether the next stage in the process is required.

1. Appropriate Assessment Screening
2. Appropriate Assessment – Natura Impact Statement
3. Assessment of Alternatives in cases where significant impact cannot be prevented
4. Where no alternatives exist, an assessment of compensatory issues in the case of projects or plans which can be considered to be necessary for imperative reasons of overriding public interest (IROPI)

2. SCREENING FOR APPROPRIATE ASSESSMENT

Screening determines whether appropriate assessment is necessary by examining:

1. Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a Natura 2000 site.

2. Whether the project will have a potentially significant effect on a Natura 2000 site, either alone or in combination with other projects or plans, in view of the site's conservation objectives.

Screening involves the following:

i. Description of plan or project

ii. Identification of relevant Natura 2000 sites, and compilation of information on their qualifying interests and conservation objectives

iii. Assessment of likely effects – direct, indirect and cumulative – undertaken on the basis of available information as a desk study or field survey or primary research as necessary

iv. Screening Statement with conclusions

2.1 Description of the Project

Full outline technical details of the construction methodology, including the rationale for the project, are contained in the accompanying report prepared by ESB Engineering & Major Projects, (***Appendix 3 Oweninny Wind Farm Phase 2, Western Way Bridge Bypass Construction Methodology***). There follows an overview of the construction method from an environmental perspective. The proposed location for the crossing is shown in **Figure 1** and a schematic representation of the layout is presented in **Figure 2**.

As noted, the Planning Amendment proposes the construction of a temporary bridge on a tributary stream of the River Muing to provide a supplementary delivery route for abnormal deliveries associated with the Phase 2 development. The location is approximately 80 m downstream of the existing bridge on a sharp bend on the N59.

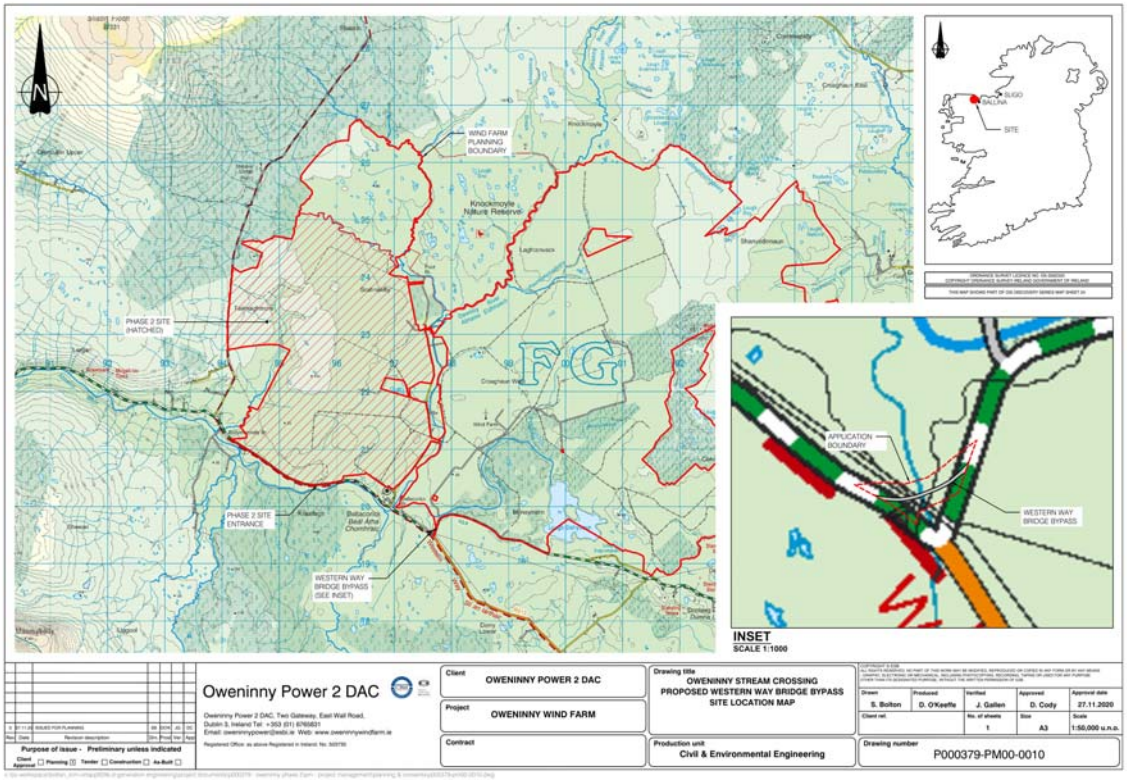

Figure 1 Proposed location for temporary alternative access.

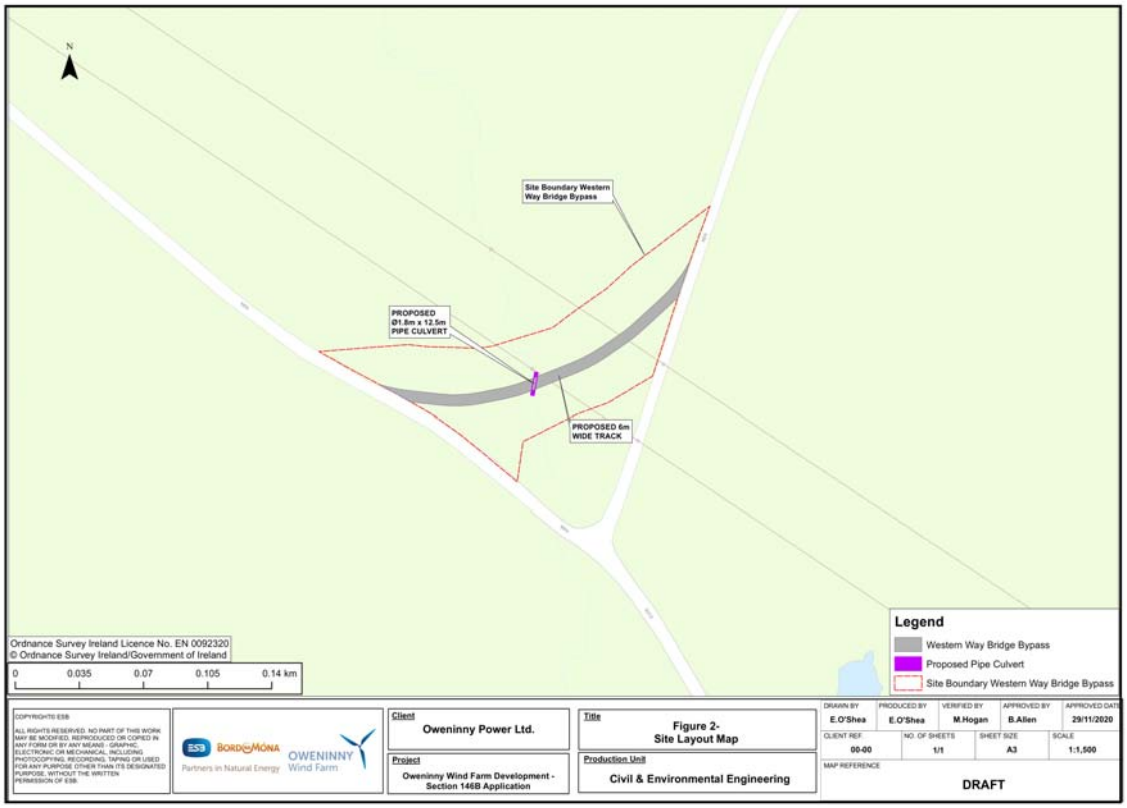

Figure 2 Schematic plan of the proposed crossing structure.

The proposed supplementary temporary access will consist of access tracks to and from the stream crossing and the N59 primarily to facilitate abnormal load deliveries associated with the Oweninny Wind Farm Phase 2.

Access tracks will be constructed from the N59 on the east side to the temporary crossing location and again from the temporary crossing to the N59 on the west side. These tracks will be constructed on the existing access tracks where appropriate using stone and geogrid as required and capped with a layer of Cl804. In the event that ABP only grant a temporary permission for these works, the access tracks will be removed, and the location will be reinstated to its current condition upon completion.

The proposed stream crossing will be constructed using pipes. These pipes will be delivered to the site by lorry and lifted into place using certified lifting equipment, *e.g.* excavator. The stream will be dammed temporarily upstream of the crossing and the stream will be pumped downstream of the crossing to facilitate the construction. Construction works will be completed cognisant of the overhead 110kV line and appropriate precautions will be taken to ensure the works are completed safely.

The diameter of the pipes will be sized accordingly upon completion of hydrological and hydraulic assessments to a Q30 standard as agreed with the Office of Public Works (OPW). This will ensure no adverse effects to any third party will be caused further upstream of the proposed installation. To mitigate against a flood event in excess of the Q30, the crossing and access tracks will be designed and constructed to facilitate flood waters overtopping the structure without any impacts on the nearby N59.

The crossing system shall be suitable to carry the wind turbine abnormal component vehicle loads. An operational width of up to approximately 6m is envisaged. The width of the crossing as installed will be determined by combining multiples of concrete pipe standard units.

From survey in September 2020, it is considered unlikely that trimming of vegetation to achieve sightlines on the approaches to the new crossing structure would be necessary as the N59 at this location is edged by grassy banks and bog, with scrub largely absent and no trees present. An example of the vegetation which skirts the road leading to the eastern access track (and within Bellacorick Bog Complex SAC) is shown in **Plate 1**.

Full technical details of the required site works are given in **Section 4** of the accompanying **Appendix 3 Construction Methodology** for the proposed temporary stream crossing. Environmental controls are described in Section 6 of the Construction Methodology. It is noted that the rigorous controls that will be applied to avoid impacts on surface waters during construction of the wind farm will apply to all aspects of construction and removal of the temporary supplementary route. Control measures will be provided in two ways, namely mitigation by avoidance and mitigation by engineering design. The following points are of particular relevance:

- Construction works will be supervised and monitored by a suitably qualified ecologist (Ecological Clerk of Works) as required;

- Agreed drainage control measures will be put in place in advance of all other construction works;
- The access tracks to the temporary bridge will be profiled so that overtopping of the crossing may occur in the event of a flood event;
- Requirements as set out by Inland Fisheries Ireland (IFI) will be strictly adhered to.

Plate 1 View of N59 roadside vegetation leading to the eastern access track for the new crossing structure (looking northwards from opposite the access track). The vegetation in the near side of the picture is within the Bellacorick Bog Complex SAC and is blanket bog with a grassy verge alongside the road – note absence of trees or scrub. (September 2020)

2.2 Ecological Description of the Proposed Project Site

The location of the 146B Amendment Application is on a tributary stream of the River Muing and is approximately 80 m downstream of the existing stone bridge over the stream.

Stream description
At the proposed crossing point, the stream is approximately 1.5 m in width and at time of survey had a depth of c.30 cm with good water clarity. The bed is of gravel. A general image of the stream is given in **Plate 2** and the exact location for the proposed crossing is shown in **Plate 3**.

This stream rises in bogland (Derry Lower) approximately 2.5 km south of the existing stone bridge at the N59. Commercial forestry has been planted in the area of the source of the stream but the remainder flows through blanket bog and flows close to the R312 road. After passing beneath the N59, the stream flows for a further 400 m approximately to join the River Muing. The Muing flows west for c.600 m and enters the Oweninny River at Bellacorick Bridge. The Oweninny merges with the Owenmore River just south of the bridge and then flows westwards towards Bangor (approximately 11 km distance). The Owenmore enters the sea at Tullaghan Bay, approximately 5 km west of Bangor. The various watercourses are shown in **Figure 3.**

Stream banks and adjoining areas
While surrounded by bog, the proposed access routes from both sides of the bridging point on the stream channel to the N59 have been previously disturbed and essentially comprise built and disturbed ground (BL3 & ED) from previous works (see **Plate 3**). From aerial imagery, it is apparent that these works took place prior to 1995. The ground here could now be described as a mix of Spoil and bare ground (ED2) and Recolonising bare ground (ED3). The previous works extended close to the stream banks (see **Plate 3**), with vegetation along the banks now dominated by rushes, bracken and species such as meadowsweet (*Filipendula ulmaria*). On the west side of the stream channel, the area extending to the N59 and the existing bridge is dominated by scrub, bracken and rank grasses. On the eastern side of the stream, the area extending to the N59 and the existing bridge is dominated by blanket bog that has been cut in the past (see **Figure 4** for overview of area).

Plate 2 View of tributary stream of River Muing c.5 m downstream of proposed crossing point. (September 2020)

Plate 3 View of location for proposed crossing over stream, looking eastwards from western side of stream (September 2020). Note existing built ground which extends to close to the stream banks.

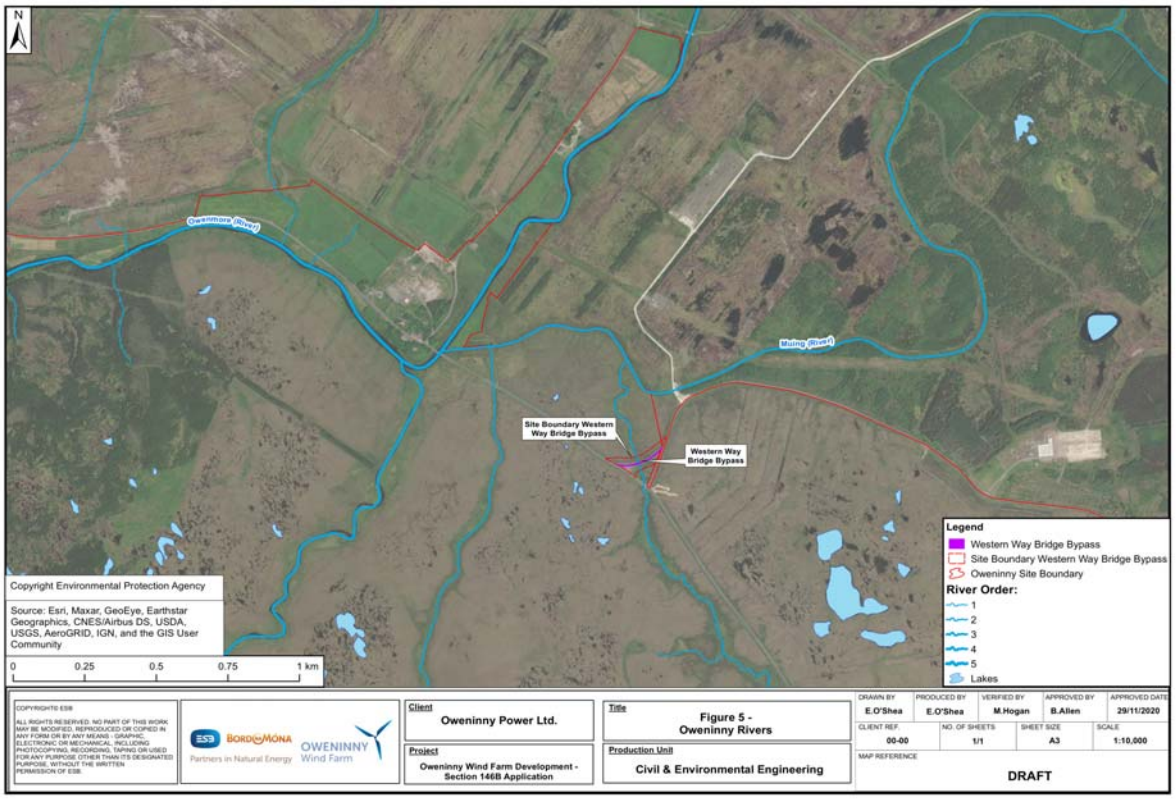

Figure 3 Drawing showing watercourses in vicinity of proposed crossing location.

Figure 4 Image showing proposed crossing location – note disturbed state of the bog at bridge location as a result of previous ground works and previous cutting.

2.3 European Sites Identification

In accordance with the European Commission Methodological Guidance (EC, 2002), consideration is given to European sites that could potentially be affected by the proposed project.

The "Guidance for Planning Authorities" (Department of Environment, Heritage and Local Government) notes the following in section 3.2.3 "Natura 2000 Sites":

"The second stage (of the AA Screening process) is an examination of what Natura 2000 sites might be affected. These sites should be identified and listed, bearing in mind the potential for a plan or project, whether it is within or outside a Natura 2000 site, to have direct, indirect or cumulative effects, and taking a precautionary approach so that a site is included if doubt exists".

The approach to screening is likely to differ somewhat between plans and projects, depending on scale and on the likely effects, but the following should be included:

a. *Any Natura 2000 sites within or adjacent to the plan or project area*
b. *Any Natura 2000 sites within the likely zone of impact of the plan or project. A distance of 15 km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson et al. 2006). For projects, the distance could be much less than 15 km, and in some cases less than 100 m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in-combination effects.*
c. *Natura 2000 sites that are more than 15 km from the plan or project area depending on the likely impacts and the sensitivities of the ecological receptors, bearing in mind the precautionary principle. In the case of sites with water dependent habitats or species, and a plan or project that could affect water quality of quantity, for example, it may be necessary to consider the full extent of the upstream and/or downstream catchment."*

While the proposed temporary Western Way bridge bypass application is a small scale development without the use of concrete etc., a precautionary approach is followed, with all Natura 2000 sites within an approximate 15km radius of the development site included in the assessment. In addition, the Blacksod Bay/Broadhaven Bay SPA is included as there is a theoretical hydrological linkage from the Muing tributary stream to Tullaghan Bay.

Sites identified are as follows (see **Figure 5**), with qualifying interests and linkages with the project site summarised in **Table 1**:

- Bellacorick Bog Complex Special Area of Conservation (code 01922)
- Bellacorick Iron Flush Special Area of Conservation (code 0466)
- Lough Dahybaun Special Area of Conservation (code 02177)
- River Moy Special Area of Conservation (code 02298)

- Carrowmore Lake Complex SAC (code 00476)
- Owenduff/Nephin SAC (00534)
- Glenamoy Bog Complex SAC (00500)
- Slieve Fyagh Bog SAC (00542)
- Newport River SAC (02144)
- Broadhaven Bay SAC (0472)
- Owenduff/Nephin Complex SPA (004098)
- Lough Carrowmore Lake SPA (004052)
- Blacksod Bay/Broadhaven Bay SPA (004057)
- Killala Bay/Moy Estuary SPA (004036)
- Lough Conn and Lough Cullin SPA (004228)

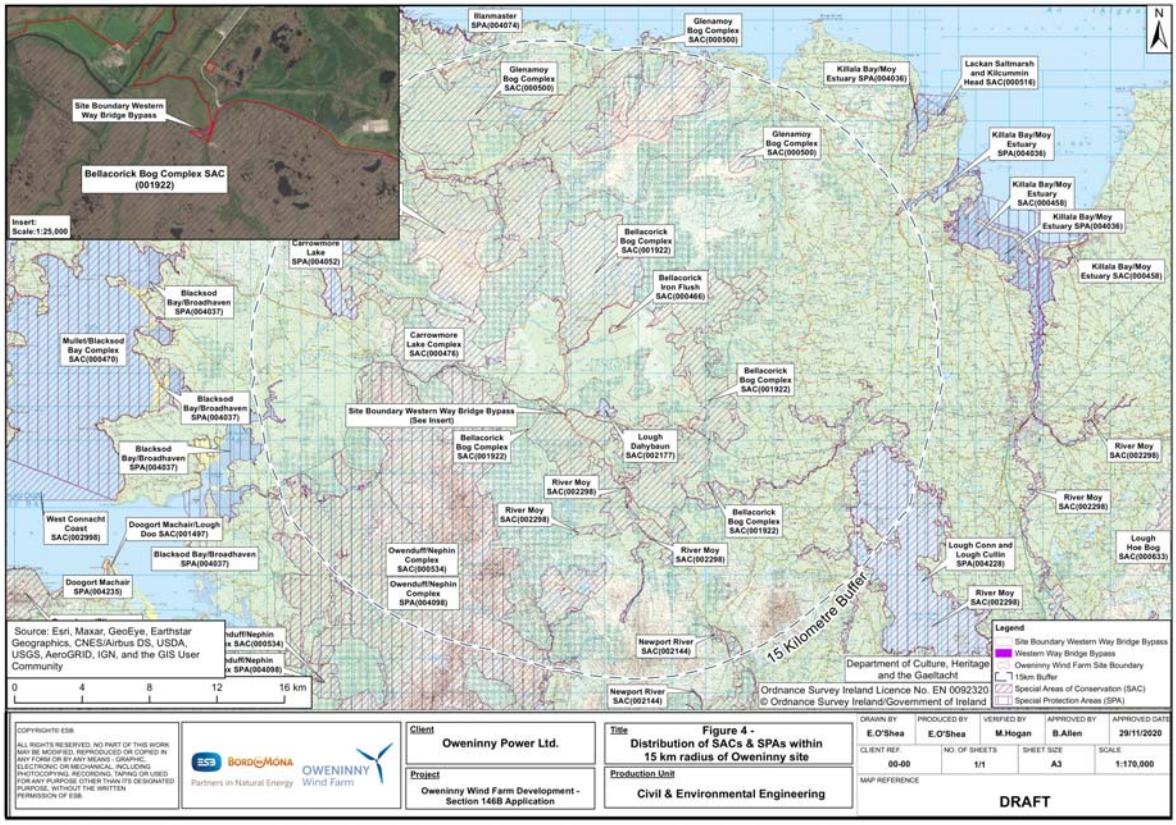

Figure 5 Map showing distribution of European sites within a 15 km distance of the Oweninny Wind Farm project site.

Table 1 Relevant European sites, reasons for designation, and summary of distances and linkages.

European Site	Reasons for designation (information correct as of 23rd November 2020) (*denotes a priority habitat)	Distance from temporary crossing location and summary of linkages
	SPECIAL AREAS OF CONSERVATION	
Bellacorick Bog Complex SAC (site code 001992)	*Vertigo geyeri* [1013] Marsh saxifrage (*Saxifraga hirculus*) [1528] Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with *Erica tetralix* [4010] Blanket bog (*active only) [7130] Depressions on peat substrates of the Rhynchosporion [7150] Alkaline fens [7230] According to this SAC's site Conservation Objectives document (Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, 2016), for each of the listed QIs, the Conservation Objective is to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	SAC occurs to east and south sides of N59 in the immediate vicinity of the location for proposed bridge. Project area hydrologically linked to SAC via Rivers Muing and Oweninny which flow into the Owenmore River at Bellacorick Bridge.
Bellacorick Iron Flush SAC (site code 000466)	Marsh saxifrage (*Saxifraga hirculus*) [1528] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Bellacorick Iron Flush SAC [00466]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	While SAC is within Phase 1 sector of Oweninny Wind Farm Site, project area is c.4 km southwest of the SAC and not connected hydrologically.
Lough Dahybaun SAC (site code 002177)	Slender Naiad *Najas flexilis* [1833] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Lough Dahybaun SAC [002177]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected.	Project area is 1.5 km west of Dahybaun, with no hydrological linkage
River Moy SAC (site code: 002298)	White-clawed crayfish (*Austropotamobius pallipes*) [1092] Sea lamprey (*Petromyzon marinus*) [1095] Brook lamprey (*Lampetra planeri*) [1096] Salmon (*Salmo salar*) [1106] Otter (*Lutra lutra*) [1355] Alkaline fens [7230] Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120]	Project area is at least 10 km to the northwest of the River Moy SAC, with no hydrological linkage (i.e. different catchments)

European Site	Reasons for designation (information correct as of 23rd November 2020) (*denotes a priority habitat)	Distance from temporary crossing location and summary of linkages
	Depressions on peat substrates of the Rhynchosporion [7150] Old sessile oak woods with Ilex and Blechnum in British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for River Moy SAC [002298]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected.	
Carrowmore Lake Complex SAC (site code: 00476)	Shining sickle moss (*Drepanocladus vernicosus*) [1393] Marsh saxifrage (*Saxifraga hirculus*) [1528] Blanket bog (*active only) [7130] Depressions on peat substrates of the Rhynchosporion [7150 According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Carrowmore Lake Complex SAC [00476]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected.	Project area is approximately 4 km east of Carrowmore SAC, with no hydrological linkage
Owenduff/Nephin SAC (site code: 00534)	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] Natural dystrophic lakes and ponds [3160] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Northern Atlantic wet heaths with Erica tetralix [4010] Alpine and Boreal heaths [4060] Juniperus communis formations on heaths or calcareous grasslands [5130] Blanket bogs (* if active bog) [7130] Transition mires and quaking bogs [7140] Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355] Drepanocladus vernicosus (Slender Green Feather-moss) [1393] Saxifraga hirculus (Marsh Saxifrage) [1528] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Owenduff/Nephin SAC [00534]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the	SAC adjoins Owenmore River just south of N59 road, with a distance of approximately 5 km between the SAC and the bridge location. Project area hydrologically linked to SAC via Rivers Muing and Oweninny which flow into the Owenmore River at Bellacorick Bridge.

European Site	Reasons for designation (information correct as of 23rd November 2020) (*denotes a priority habitat)	Distance from temporary crossing location and summary of linkages
	SAC has been selected.	
Glenamoy Bog Complex SAC (site code 00500)	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Machairs (* in Ireland) [21A0] Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with Erica tetralix [4010] Juniperus communis formations on heaths or calcareous grasslands [5130] Blanket bogs (* if active bog) [7130] Transition mires and quaking bogs [7140] Depressions on peat substrates of the Rhynchosporion [7150] Salmo salar (Salmon) [1106] Drepanocladus vernicosus (Slender Green Feather-moss) [1393] Petalophyllum ralfsii (Petalwort) [1395] Saxifraga hirculus (Marsh Saxifrage) [1528] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Glenamoy Bog Complex SAC [00500]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected	Project area is approximately 8 km from SAC, with no hydrological or other physical linkages.
Slieve Fyagh Bog SAC (site code 000542)	Blanket bogs (* if active bog) [7130] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Slieve Fyagh Bog SAC [00542]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected.	Project area is approximately 7 km to south east of SAC, with no hydrological or other physical linkages
Newport River SAC (site code: 002144)	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Salmo salar (Salmon) [1106] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Newport River SAC [002144]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected.	Project area is approximately 14 km from SAC, with no hydrological linkage
Broadhaven Bay SAC (site code: 472)	Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	Project area is approximately 14 km from SAC, with no hydrological or other physical linkages

European Site	Reasons for designation (information correct as of 23rd November 2020) (*denotes a priority habitat)	Distance from temporary crossing location and summary of linkages
	Submerged or partially submerged sea caves [8330] According to this SAC's site Conservation Objectives document (NPWS 2016, Conservation objectives for Broadhaven Bay SAC [00472]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) for each of the listed QIs, the Conservation Objective is to maintain the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected.	
	SPECIAL PROTECTION AREAS	
Owenduff/Nephin Complex SPA (site code 004098)	A098 Merlin *Falco columbarius* A140 Golden Plover *Pluvialis apricaria* According to this SPA's site Conservation Objectives document (NPWS 2016, Conservation objectives for Owenduff/Nephin SPA 004098. Generic version 5.0, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed SCIs, the Conservation Objective is to maintain the favourable conservation condition of the species and wetland habitat for which the SPA has been selected.	SPA adjoins Owenmore River just south of N59 road, with a distance of approximately 5 km between the SPA and the bridge location. Project area linked to SPA via Rivers Muing and Oweninny River, which join the Owenmore River at Bellacorick Bridge.
Carrowmore Lake SPA (site code 004052)	Sandwich Tern (Sterna sandvicensis) [A191] According to this SPA's site Conservation Objectives document (NPWS 2016, Conservation objectives for Carrowmore Lake SPA 004052. Generic version 5.0, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed SCIs, the Conservation Objective is to maintain the favourable conservation condition of the species and wetland habitat for which the SPA has been selected	Project area is approximately 4 km east of Carrowmore SAC, with no hydrological linkage. Project area does not have suitable habitat for Sandwich Tern.
Blacksod Bay/Broadhaven Bay SPA (site code: 004037)	Great Northern Diver (Gavia immer) [A003] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Common Scoter (Melanitta nigra) [A065] Red-breasted Merganser (Mergus serrator) [A069] Ringed Plover (Charadrius hiaticula) [A137] Sanderling (Calidris alba) [A144] Dunlin (Calidris alpina) [A149] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Sandwich Tern (Sterna sandvicensis) [A191] Dunlin (Calidris alpina schinzii) [A466] Wetland and Waterbirds [A999] According to this SPA's site Conservation Objectives document (NPWS 2016, Conservation objectives for Blacksod Bay/Broadhaven Bay SPA 004057. Generic	While a hydrological linkage exists between the project area and the SPA, there is a distance of approximately 17 km between the two locations.

European Site	Reasons for designation (information correct as of 23rd November 2020) (*denotes a priority habitat)	Distance from temporary crossing location and summary of linkages
	version 5.0, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed SCIs, the Conservation Objective is to maintain the favourable conservation condition of the species and wetland habitat for which the SPA has been selected.	
Killala Bay/Moy Estuary SPA (site code: 004036)	A137 Ringed Plover Charadrius hiaticula A140 Golden Plover Pluvialis apricaria A141 Grey Plover Pluvialis squatarola A144 Sanderling Calidris alba A149 Dunlin Calidris alpina alpina A157 Bar-tailed Godwit Limosa lapponica A160 Curlew Numenius arquata A162 Redshank Tringa totanus A999 Wetlands According to this SPA's site Conservation Objectives document (NPWS 2016, Conservation objectives for Killala Bay/Moy Estuary SPA 004036. Generic version 5.0, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed SCIs, the Conservation Objective is to maintain the favourable conservation condition of the species and wetland habitat for which the SPA has been selected.	Project area is more than 15 km southwest of the SPA and is not hydrologically linked.
Lough Conn & Lough Cullin SPA (site code 004228)	A061 Tufted Duck Aythya fuligula A065 Common Scoter Melanitta nigra A182 Common Gull Larus canus A395 Greenland White-fronted Goose Anser albifrons flavirostris Wetland and Waterbirds [A999] According to this SPA's site Conservation Objectives document (NPWS 2016, Conservation objectives for Lough Conn & Lough Cullin SPA 004228. Generic version 5.0, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs), for each of the listed SCIs, the Conservation Objective is to maintain the favourable conservation condition of the species and wetland habitat for which the SPA has been selected.	Project area is more than 15 km northwest of Lough Conn and does not have any hydrological linkages.

2.4 Identification and Assessment of Potential Impacts

Impacts are considered in the context of the **Source-Pathway-Receptor** (S-P-R) conceptual model for environmental management risk assessment. This provides a systematic means of determining and evaluating the nature, effect and extent of exposure a vulnerable receptor may experience in relation to a particular hazard. For a risk to exist there must be a source (or hazard or pressure), a pathway, and a receptor (or target) (Daly, 2004). An environmental hazard is an event, or continuing process, which if realised will lead to circumstances having the potential to degrade, directly or indirectly, the quality of the environment (Royal Society, 1992). A pathway is a route by which a particle of water, substance or contaminant moves through the environment and comes into contact with, or otherwise, affects a receptor (Environment Agency, 2001).

From the perspective of AA Screening, the following are important attributes of the proposed project:

(i) the location of the proposed works outside of a designated site,

(ii) the relatively small scale nature of the proposed project, i.e. a temporary bridge crossing over a tributary stream,

(iii) the linkage of the project to the Oweninny Wind Farm development which operates under rigorous planning conditions relating to the environment.

Taking the above into account, and considering the linkages between the project area and the identified European sites (see **Table 1**), it can be demonstrated with full scientific certainty that there is no Pathway between the Source (i.e. bridge project area) and Receptor (European site) for the following sites:

- Bellacorick Iron Flush Special Area of Conservation (code 0466)
- Lough Dahybaun Special Area of Conservation (code 02177)
- River Moy Special Area of Conservation (code 02298)
- Carrowmore Lake Complex SAC (code 00476)
- Glenamoy Bog Complex SAC (00500)
- Slieve Fyagh Bog SAC (00542)
- Newport River SAC (02144)
- Broadhaven Bay SAC (0472)
- Lough Carrowmore Lake SPA (004052)
- Killala Bay/Moy Estuary SPA (004036)
- Lough Conn and Lough Cullin SPA (004228)

For these 11 sites, it can be concluded with scientific certainty that the proposed project could not have impacts, direct or indirect, on the qualifying interests and the conservation objectives of any of these sites. Hence, it is considered with full scientific certainty that the above 11 sites can be Screened Out at this stage.

For each the remaining four sites listed below, there is a hydrological linkage (Pathway) between the project area (Source) and the European site (Receptor). Hence, the potential for impacts on the qualifying interests and general environmental quality of these sites is considered further. Site synopses for these sites are given in **Annex 1.**

- Bellacorick Bog Complex SAC (code 01922)
- Owenduff/Nephin SAC (00534)
- Owenduff/Nephin Complex SPA (004098)
- Blacksod Bay/Broadhaven Bay SPA (004037)

2.4.1 Bellacorick Bog Complex SAC

While the work area for the proposed temporary crossing is not within the designated site, the SAC includes the lands to the east and south of the N59 road.

> **Note re. SAC boundary and N59 road**
> The boundary of the Bellacorick Bog Complex SAC extends into the road carriageway along the road stretch to the east of the stream, i.e. section running south towards N59/R312 junction (see http://webgis.npws.ie/npwsviewer/). From the NPWS website, it is apparent that the boundary coincides with the edge of the road as shown on the (now dated) Ordnance Survey 6 inch map and thus the SAC would include modern upgrades to the road.

Direct impacts on the SAC are not anticipated as all works will be confined to the specific works area, with construction traffic arriving and departing from the site strictly at the dedicated location along the N59. It is noted that there are no entry points to the SAC from the N59 in this area.

A hydrological linkage exists between the works area and the Owenmore River below Bellacorick Bridge via the River Muing and River Oweninny, with a distance of approximately 1 km from proposed crossing point to the Owenmore. With the requirement for instream works during the culverting process and with construction of two sections of access road, there is potential for contaminants, mainly suspended solids, to enter the local watercourses and ultimately the Owenmore River. The Owenmore River forms the boundary to the SAC along the 1 km section (approximately) west of Bellacorick bridge. Such contaminants could affect aquatic life of the watercourses.

However, the potential for material to enter the local rivers is negligible as environmental controls which will be implemented during the Phase 2 wind farm construction (as contained in PA0029) will also be strictly applied to the temporary bridge crossing project. These are summarised in **Section 6** of the accompanying **Appendix 3 Construction Methodology**, with measures that include, as considered relevant, the use of silt fences, silt traps and check dams. Emphasis will also be placed on prevention of hydrocarbon releases to local watercourses.

Also, as already noted, the construction will be supervised and monitored by a suitably qualified ecologist (Ecological Clerk of Works), who will be required to be fully appraised of all of the ecological undertakings as detailed in EIS which accompanied the planning application documents for the overall wind farm project. In addition, details of the methods for environmental control used with success during the Phase 1 wind farm construction will be made available to the ECoW.

It is noted that even if some material was to enter the local watercourses and the Owenmore River, the actual qualifying interests of the SAC, as listed below, would not be affected as these are not associated directly with the river system.

Vertigo geyeri [1013]
Marsh saxifrage (*Saxifraga hirculus*) [1528]
Natural dystrophic lakes and ponds [3160]
Northern Atlantic wet heaths with *Erica tetralix* [4010]
Blanket bog (*active only) [7130]
Depressions on peat substrates of the Rhynchosporion [7150]
Alkaline fens [7230]

From the above, it can be concluded that with best practice methods adhered to during the construction of the temporary crossing, the potential for the project to impact upon the qualifying interests of the Bellacorick Bog Complex SAC is not significant. In particular, additional mitigation to that already in force during the parent wind farm construction is not required for the temporary stream crossing project.

2.4.2 Owenduff/Nephin SAC

The Owenmore River, which is linked to the temporary bridge site via the Rivers Muing and Oweninny, skirts parts of the northern boundary of the Owenduff/Nephin SAC and for a short stretch the SAC overlaps with the river channel. With the requirement for instream works during the culverting process and with construction of two sections of access road, there is potential for contaminants, mainly suspended solids, to enter the local watercourses and ultimately the Owenmore River. The section of the Owenmore River which skirts the SAC is at a closest distance of approximately 5 km from the temporary bridge site. The entry of contaminants to the Owenmore River could potentially affect the following qualifying interests of the SAC:

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]
Salmo salar (Salmon) [1106]
Lutra lutra (Otter) [1355]

However, the potential for material to enter the local rivers is negligible as environmental controls which will be implemented during the Phase 2 wind farm construction (as contained in PA0029) will also be strictly applied to the temporary bridge crossing project. These are summarised in **Section 6** of the **accompanying Appendix 3 Construction Methodology**, with measures that include, as considered relevant, the use of silt fences, silt traps and check dams. Emphasis will also be placed on prevention of hydrocarbon releases to local watercourses.

Also, as already noted, the construction will be supervised and monitored by a suitably qualified ecologist (Ecological Clerk of Works), who will be required to be fully appraised of all of the ecological undertakings as detailed in EIS which accompanied the planning application documents for the overall wind farm project. In addition, details of the methods for environmental control used with success during the Phase 1 wind farm construction will be made available to the ECoW.

From the above, and taking into account that there is a 5 km distance between the works area and the SAC, it can be concluded that with best practice methods adhered to during the construction of the temporary crossing, the potential for the project to impact upon the relevant qualifying interests of the Owenduff/Nephin SAC is not significant. In particular, additional mitigation to that already in force during the parent wind farm construction is not required for the temporary stream crossing project.

2.4.3 Owenduff/Nephin SPA

The Owenmore River, which is linked to the temporary bridge site via the Rivers Muing and Oweninny, skirts parts of the northern boundary of the Owenduff/Nephin SPA and for a short stretch the SAC overlaps with the river channel. With the requirement for instream works during the culverting process and with construction of two sections of access road, there is potential for contaminants, mainly suspended solids, to enter the local watercourses and ultimately the Owenmore River. The section of the Owenmore River which skirts the SAC is at a closest distance of approximately 5 km from the temporary bridge site. The entry of contaminants to the local watercourses could potentially affect the aquatic life of the rivers, including the section of the Owenmore alongside the Owenduff/Nephin SPA.

However, the potential for material to enter the local rivers is negligible as environmental controls which will be implemented during the Phase 2 wind farm construction (as contained in PA0029) will also be strictly applied to the temporary bridge crossing project. These are summarised in Section 6 of the accompanying Construction Methodology, with measures that include, as considered relevant, the use of silt fences, silt traps and check dams. Emphasis will also be placed on prevention of hydrocarbon releases to local watercourses.

Also, as already noted, the construction will be supervised and monitored by a suitably qualified ecologist (Ecological Clerk of Works), who will be required to be fully appraised of all of the ecological undertakings as detailed in EIS which accompanied the planning application documents for the overall wind farm project. In addition, details of the methods for environmental control used with success during the Phase 1 wind farm construction will be made available to the ECoW.

It is noted that even if some material was to enter the local watercourses and the Owenmore River, the actual Special Conservation Interests of the SPA, as listed below, would not be affected as these two species are not associated with watercourses

A098 Merlin *Falco columbarius*

A140 Golden Plover *Pluvialis apricaria*

From the above, it can be concluded that with best practice methods adhered to during the construction of the temporary crossing, the potential for the project to impact upon the

Special Conservation Interests of the Owenduff/Nephin SPA is not significant. In particular, additional mitigation to that already in force during the parent wind farm construction is not required for the temporary stream crossing project.

2.4.4 Blacksod Bay/Broadhaven Bay SPA

The Owenmore River, which is linked to the temporary bridge site via the Rivers Muing and Oweninny, reaches the sea at Tullaghan Bay, which is within the Blacksod Bay/Broadhaven Bay SPA. With the requirement for instream works during the culverting process and with construction of two sections of access road, there is potential for contaminants, mainly suspended solids, to enter the local watercourses and ultimately Tullaghan Bay. The entry of contaminants to the local watercourses could potentially affect the estuarine life of Tullaghan Bay, which provides habitat for the various Special Conservation Interests of the SPA (see Table 1). However, it is noted that there is a distance of approximately 17 km of river channel from the temporary bridge site to Tullaghan Bay.

The potential for material to enter the local rivers is negligible as environmental controls which will be implemented during the Phase 2 wind farm construction (as contained in PA0029) will also be strictly applied to the temporary bridge crossing project. These are summarised in Section 6 of the accompanying Construction Methodology, with measures that include, as considered relevant, the use of silt fences, silt traps and check dams. Emphasis will also be placed on prevention of hydrocarbon releases to local watercourses.

Also, as already noted, the construction will be supervised and monitored by a suitably qualified ecologist (Ecological Clerk of Works), who will be required to be fully appraised of all of the ecological undertakings as detailed in EIS which accompanied the planning application documents for the overall wind farm project. In addition, details of the methods for environmental control used with success during the Phase 1 wind farm construction will be made available to the ECoW.

It is considered that even if some material was to enter the local watercourses from the works area, the amount that would enter the Tullaghan Bay system would be negligible due to the distance (c.17 km) between the two locations.

From the above, it can be concluded that with best practice methods adhered to during the construction of the temporary crossing, and taking into account the substantial distance between the temporary bridge location and the SPA, the potential for the project to impact upon the Special Conservation Interests of the SPA is not significant. In particular, additional mitigation to that already in force during the parent wind farm construction is not required for the temporary stream crossing project.

2.5 Analysis of "In-Combination" Effects

The Habitats Directive requires competent authorities to make an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.

The principal other project that is relevant to the temporary bridge project is the actual parent Phase 2 project which will be under construction by the time the temporary bridge project is constructed (assuming planning permission is granted).

As already noted, the permitted Phase 2 project has been approved by An Bord Pleanála and includes detailed mitigation measures as required to preserve water quality of the local rivers and streams. The Phase 2 build will adhere to all planning conditions and the Contractor will be obliged to follow all measures in the Construction Environmental Management Plan (CEMP).

The present AA report has considered the proposed temporary bridge project in the context of relevant European sites within a 15 km radius of the bridge crossing location and concluded that the project would not adversely affect the conservation objectives of any of these sites.

When both projects are considered together, it can be objectively concluded that there will not be any significant in-combination contribution by the proposed Western Way Bridge Bypass project on any European site or Annexed species.

2.6 Screening Conclusion and Statement

A screening report for Appropriate Assessment has been prepared for a proposed project involving a temporary bridge crossing of a tributary stream of the River Muing, at Bellacorick, Co. Mayo.

The potential effects that may arise from construction and operation of the project on the Natura 2000 network have been examined by considering the potential for significant effects, alone or in-combination with other projects, on relevant European sites that occur in the wider area.

On the basis of the findings of this screening report for Appropriate Assessment, it is concluded that the project:

(i) is not directly connected with or necessary to the management of a Natura 2000 site, and

(ii) significant impacts on the Natura 2000 network are not foreseen.

Based on this information, and beyond reasonable scientific doubt, we have demonstrated that the development, either individually or in combination with other plans or projects, would not be likely to have a significant effect on any Natura 2000 site. Therefore, it is considered that a Stage 2 Appropriate Assessment is not required.

2.7 References

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European Commission (1996). *Interpretation Manual of European Union Habitats*. Version Eur 15. European Commission, DG XI.

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.ANNEX 1

SITE SYNOPSES

Site Name: Bellacorick Bog Complex SAC

Site Code: 001922

Bellacorick Bog Complex is a large peatland site in Co. Mayo, situated on a low-lying undulating plain and consisting of two large areas separated by an area of forestry. The larger of the two areas extends from south of Bellacorick eastwards, southeastwards and then north to Doobehy. The smaller area is situated 6 km south-east of Glenamoy and extends south to 3 km north of Bellacorick and east towards Doobehy. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3160] Dystrophic Lakes

[4010] Wet Heath

[7130] Blanket Bogs (Active)*

[7150] Rhynchosporion Vegetation

[7230] Alkaline Fens

[1013] Geyer's Whorl Snail (Vertigo geyeri)

[1528] Marsh Saxifrage (Saxifraga hirculus)

This site contains some of the most extensive areas of lowland blanket bog remaining in Ireland, with outstanding pool development. As well as typical lowland blanket bog vegetation, areas with intermediate bog characteristics are particularly well represented. These areas are typified by domes with raised bog species such as the bog mosses Sphagnum imbricatum, S. magellanicum and S. fuscum, and without Purple Moor-grass (Molinia caerulea). Excellent examples of transitions to minerotrophic flushes and fens are also a feature of the site. The site includes some excellent examples of dystrophic lakes. Included here are the numerous sizeable lakes and large inter-connecting pool systems which characterise the blanket bog plateaux. This habitat type is particularly well represented at this site, with some the finest remaining examples in the country. They are typically species-poor, and many are completely devoid of macrophyte vegetation. Those with vegetation contain species such as Bog-sedge (Carex limosa), Bogbean, Many-stalked Spike-rush (Eleocharis multicaulis) and bladderworts (Utricularia spp.). Pool size and pattern is diverse, ranging from concentric strings of pools to large, irregularly shaped lakes with eroding peaty margins. Many contain vegetated and ungrazed islands.

Rhynchosporion vegetation is a feature of many of the pool areas at the site and also of areas of wet, quaking peat where White Beak-sedge (Rhynchospora alba) is typically dominant. In such areas there is often a luxuriant growth of the bog mosses Sphagnum cuspidatum and/or S. auriculatum. Other characteristic species of the pools and moss lawns include Bogbean (Menyanthes trifoliata), Common Cottongrass (Eriophorum angustifolium) and sundews (Drosera anglica and D. intermedia).

Spring-fed species-rich flushes are a significant feature of this site and occur throughout the bog complex. Many of these flushes are very large. Some of these are iron- flushed, notably those at Brackloon Lough on the eastern margin of the site. The vegetation supported by these flushes include poor fen, rich fen and swamp carr communities. The site contains the largest assemblage of intact fen vegetation in Ireland. Some of the flushes are dominated by sedges (Carex spp.), with Common Reed (Phragmites australis) and Great Fen-sedge (Cladium mariscus) or Soft Rush (Juncus effusus) with a thick Sphagnum layer underneath. Black Bog-rush (Schoenus nigricans) and Purple Moor-grass have been recorded from the iron-rich flushes. Occasional clumps of willow (Salix spp.) also occur. The flushes are also notable for the presence of several boreal relict mosses and liverworts, particularly Homalothecium nitens, Leicolea rutheana and Paludella squarrosa. The moss Sphagnum warnstorfii has been reported from a fen south-west of Brackloon Lough.

A rare vascular plant species, Marsh Saxifrage (Saxifraga hirculus), occurs here at one of only very few known locations in Ireland. This species is listed on Annex II of the E.U. Habitats Directive, as well as on the Flora (Protection) Order, 1999.

Many of the bogland areas are traversed by river and stream channels with diverse associated vegetation. An extensive collapsed swallow-hole system is found at Shralahy with mature Rusty Willow (Salix cinerea subsp. oleifolia) and Rowan (Sorbus aucuparia) occurring.

The site also contains rushy fields, cut-away bog and small areas of scrub and wet woodland. Good examples of wet heath vegetation occur occasionally on sloping ground and on elevated mounds of mineral soil that are scattered throughout the lowland blanket bog-covered plains. These are particularly evident in the Owenboy Nature Reserve and along some of the steeper stream valley sides. These areas are typically dominated by Heather (Calluna vulgaris), with Cross-leaved Heath (Erica tetralix) and the bog moss Sphagnum capillifolium also present.

The site supports a population of the rare snail, Vertigo geyeri, a species that is listed on Annex II of the E.U. Habitats Directive.

The main threats to the integrity of the site are turf- cutting and afforestation. Overgrazing has impacted negatively on the quality of the site in some places. The site includes several well-documented sites of considerable conservation significance, e.g. Formoyle, Brackloon and Cloonoragh flushes and the Owenboy and Knockmoyle-Sheskin Nature Reserves. These areas are still intact and remain of unique scientific and conservation interest. The site complex also includes important peatland sites: Tawnaghs Bog, Eskeragh Bog, Sranacally Bog, Derry Upper Bog, Derry Lower Bog, Bellacorick Bog and Dooleeg Beg Bog. Some recent afforestation has occurred on Eskeragh and Sranacally Bogs. In general, these bogs have a good range of blanket bog habitats and occasional rare plant species.

The site is one of the largest tracts of lowland blanket bog in the country, with the finest examples of intact pool systems. It is considered to be of international importance due to the extent of the individual areas of bog and the wide variety of habitats present and because of the presence of a number of rare and threatened plant and animal species.

Site Name: Owenduff/Nephin Complex SAC

Site Code: 000534

This large area of relatively intact blanket bog and mountains incorporates the catchment of the Owenduff River and much of the Nephin Beg Mountain range, and is situated in Co. Mayo. Lough Feeagh, which is located approximately 5 km northwest of Newport Town, lies in the south-east corner of the site. From here, the site extends northwards to the Owenmore River and almost to the town of Bangor Erris, and westwards to the townland of Ballycroy. Within the site, the terrain varies enormously from the peaks of the Nephin Beg Mountains, which reach a maximum altitude of 717 m, to areas where the land slopes westwards to the floodplain of the Owenduff River. The upper slopes of the mountains in the Owenduff/Nephin complex carry wet heath and cliff vegetation, and patches of upland grassland are frequent. The presence of small corrie lakes and rock basin lakes adds to the habitat diversity of the mountains. Along its southern and eastern limits the site is bounded by coniferous plantations and/or the high mountain slopes of the Nephin Begs. Along its northern and western margins the site is fringed by agricultural land reclaimed from bog or from wet floodplain vegetation.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3110] Oligotrophic Waters containing very few minerals

[3160] Dystrophic Lakes

[3260] Floating River Vegetation

[4010] Wet Heath

[4060] Alpine and Subalpine Heaths

[5130] Juniper Scrub

[7130] Blanket Bogs (Active)*

[7140] Transition Mires

[1106] Atlantic Salmon (Salmo salar)

[1355] Otter (Lutra lutra)

[1393] Slender Green Feather-moss (Drepanocladus vernicosus)

[1528] Marsh Saxifrage (Saxifraga hirculus)

The lower mountain slopes of this site are covered with blanket bog, with a broad representation of good quality bog habitats occurring. There are continuous tracts of vegetation dominated by Purple Moor-grass (Molinia caerulea), Black Bog-rush (Schoenus nigricans) and Deergrass (Scirpus cespitosus). In places, the flat surface is differentiated into an undulating micro-topography of hummocks and wet hollows, formed by a variety of bog moss species, including Sphagnum imbricatum and S. fuscum. Extensive pool systems occur, where large peaty ponds are scattered over the bog. Typically, Bogbean (Menyanthes trifoliata) and spike-rush (Eleocharis sp.) colonise the

pools, and frequently also Water Lobelia (Lobelia dortmanna), Pipewort (Eriocaulon aquaticum) and Yellow Water-lily (Nuphar lutea). Large hummocks lie between the pools, colonised by Heather (Calluna vulgaris), Hare's-tail Cottongrass (Eriophorum vaginatum), and occasionally, Crowberry (Empetrum nigrum).

Around the many small streams and flushes which cross the bog, the vegetation is quite different. There is frequently a wet quaking mat of Sphagnum moss (including S. recurvum var. tenue), which is colonised by a range of higher plants, including Bogsedge (Carex limosa), Marsh Cinquefoil (Potentilla palustris), Ragged-Robin (Lychnis flos-cuculi) and Cranberry (Vaccinium oxycoccos). These minerotrophic flushes also contain a rich and varied moss and liverwort flora. The rare moss Tomentypnum nitens has been recorded in two flushes on this site. Areas such as these, some of which can be classified as transition mire (a habitat listed on Annex I of the E.U. Habitats Directive), occur in several parts of the site.

The remote upland areas along the eastern and southern fringes of this site contain approximately 15 oligotrophic lakes, many of which are fine examples of corrie lakes, backed by precipitous mountain cliffs (for example, Lough Anaffrin, Lough Adanacleeveen and Corryloughnaphuil Lough). The lakes vary greatly in size, ranging from a couple of hectares to approximately 25 ha. Most of these lakes are base-poor, and have little emergent vegetation. It is sometimes difficult to distinguish between small examples of oligotrophic lakes and dystrophic lakes, which by their nature are generally smaller, do not have a rocky bottom and have more sparse marginal flora. Typical plant species of oligotrophic lakes are Water Lobelia, Pipewort, Shoreweed (Littorella uniflora), spike-rush and Bulbous Rush (Juncus bulbosus).

Dystrophic lakes of various sizes are found in areas of low-lying blanket bog. These are extremely base-poor, have a peaty bottom and as a result, the water is often highly coloured by humic acids. A feature of these lakes is that there is usually an abrupt transition from blanket bog to open water, with little in the way of shallow lake margin present. The vegetation of these nutrient-poor lakes is typically limited and sparse. Marginal vegetation may include narrow floating rafts of Bulbous Rush, White Beak-sedge (Rhynchospora alba) and Sphagnum cuspidatum. Small peaty islands in these lakes may support Crowberry and Juniper (Juniperus communis), both species which are generally uncommon in lowland blanket bogs. The Juniper often forms scrub, but this is relatively rare, and is confined to the larger and ungrazed islands.

The Owenduff River and its tributaries flow through this site, and this system is one of the best examples in the country of a large, base-poor river catchment which is largely intact (i.e. not afforested). The vegetation of the river itself is quite limited in most places, with Bulbous Rush being the dominant vascular plant, with some Broad-leaved Pondweed (Potamogeton natans) present also. Riverbank and streamside flora often consists of acid wet grassland. Common species here include Bog Pimpernel (Anagallis tenella), Self-heal (Prunella vulgaris) and Common Sedge (Carex nigra). Ivy-leaved Bellflower (Wahlenbergia hederacea) occurs along the banks of the Owenduff River. This species is scarce in Ireland and mostly found in south-eastern and south-western counties.

Wet heath is likely to be widespread throughout this site, and is found in mosaic and transition with the lowland blanket bog. It is mainly found were peat is shallower, and Cross-leaved Heath (Erica tetralix) is characteristic.

The mountain tops, cliffs and crags support a high-level rocky vegetation. Quartzites prevail and typically support species-poor vegetation communities. Where outcrops of mica schist occur, a more diverse flora is found. The following arctic-alpine plant species have been recorded from the site: Starry Saxifrage (Saxifraga stellaris), Roseroot (Rhodiola rosea), Mountain Sorrel (Oxyria digyna), Brittle Bladder-fern (Cystopteris fragilis), Purple Saxifrage (Saxifraga oppositifolia), Alpine Meadow-rue (Thalictrum alpinum), Alpine Saw-wort (Saussurea alpina), Bearberry (Arctostaphylos uva-ursi)

and Dwarf Willow (Salix herbacea). Alpine and subalpine heath typically occurs at high altitudes on thin, peaty soils with bare rock often evident. As well as the specialist species listed above, typical dominant species are Heather, Bilberry (Vaccinium myrtillus), Heath Rush (Juncus squarrosus), Crowberry, Tormentil (Potentilla erecta) and the moss Racomitrium lanuginosum.

Marsh Saxifrage (Saxifraga hirculus) has been recorded in two flushes on this site. This species is legally protected under the Flora (Protection) Order, 1999, and is one of the rarest flowering plants in Ireland. It is listed in Annexes II and IV of the E.U. Habitats Directive. Its decline in Ireland is due to the drainage and exploitation of its peatland habitat. Two other legally protected species have been recorded at the site: Bog Orchid (Hammarbya paludosa) and Marsh Clubmoss (Lycopodiella inundata). Slender Green Feather-moss (Drepanocladus vernicosus), a rare moss listed on Annex II of the E.U. Habitats Directive, also occurs on the site (last recorded in 1995).

Greenland White-fronted Goose regularly visit this site in winter. Up until 1990/91 numbers of around 50 geese were recorded. Since that time the flock has been partially displaced to an adjacent sub-flock's range (on the Mullet Peninsula), largely due to winter shooting and increased human disturbance. Currently numbers of 12- 17 birds are recorded, mostly confined to the area of Lough Feeagh and neighbouring Altaconey Bog. Golden Plover breed here in summer, and the area is used as feeding grounds by Merlin which nest in the nearby conifer plantations. These three species are listed in the Red Data Book and are included on Annex I of the E.U. Birds Directive.

The site provides extensive areas of habitat for Otter, a species that is listed on Annexes II and IV of the E.U. Habitats Directive. The Owenduff River system holds an important population of Atlantic Salmon, another species listed on Annex II. Spawning occurs on the Owenduff, the Tarsaghaun River to the east, the Glenadeeghan and the Baunduff/Scardaun, mainly in the upper reaches.

The site is heavily stocked with sheep. Cattle graze the riversides, but sheep penetrate into the uninhabited valleys and mountain slopes. Blanket bogs are sensitive to damage from over-grazing - the cover of Sphagnum mosses can be depleted and peat erosion can occur. Damage is currently severe on the slopes west of Lough Feeagh, where it has contributed to a recent decline in the numbers of Greenland White-fronted Goose which feed there. Peat erosion also threatens water quality in the rivers, which may in turn affect the fish population. Currently, fishing (Brown Trout and Atlantic Salmon) is a popular activity on the site and, together with game-shooting, attracts significant numbers of tourists to the region.

The Owenduff/Nephin Complex is one of the best and largest examples of intact blanket bog in the country. The range and quality of habitats present here is excellent, and a number of rare and protected plant and animal species occur. The Owenduff River system is the largest in the country which remains virtually free of conifer plantations. The site is a striking wilderness of bog and mountain, a unique landscape which is of international ecological importance.

Version date: 02.12.2015 4 of 4 000534_Rev15.Docx

SITE NAME: BLACKSOD BAY/BROAD HAVEN SPA

SITE CODE: 004037

Situated in the extreme north-west of Co. Mayo, this site comprises a number of bays and inlets including Sruwaddacon Bay, Moyrahan Bay, Traw-Kirtaun, Blind Harbour, Tullaghan Bay, and the various sheltered bays and inlets in Blacksod Bay, including Trawmore Bay, Feorinyeeo Bay, Saleen Harbour, Elly Bay and Elly Harbour. At low tide extensive areas of intertidal sand and mudflats are exposed. These support a well-developed macro-invertebrate fauna. Talitrid amphipods occur in decomposing seaweed on the strand line, whilst polychaete worms (Arenicola marina), bivalves (Cerastoderma edule) and crustaceans, such as Urothoe brevicornis, Ampelisca brevicornis and Bathyporeia pilosa, are common in the middle shore. Eelgrass (Zostera marina) occurs at several localities. Salt marshes, which are often on a peat substrate, fringe parts of the site and provide useful roosts for the wintering waterfowl. Also included within the site are two small lakes on the Mullet Peninsula, Cross Lough and Leam Lough, and some areas of machair at Fahy, Doolough, Dooyork and Srah.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Northern Diver, Light-bellied Brent Goose, Common Scoter, Red-breasted Merganser, Ringed Plover, Sanderling, breeding Dunlin (subsp. schinzii), Dunlin, Bar-tailed Godwit, Curlew and Sandwich Tern. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site supports an excellent diversity of wintering waterfowl species and is one of the most important wetland complexes in the west. It has internationally important populations of Great Northern Diver (67) and Light-bellied Brent Goose (279) – all figures are five year mean peaks for the period 1999/2000 to 2003/04. The site also supports nationally important populations of Common Scoter (510), Red-breasted Merganser (83), Ringed Plover (590), Sanderling (171), Dunlin (1,255), Bar-tailed Godwit (664) and Curlew (567). Other species which occur include Shelduck (30), Mallard (84), Red-throated Diver (12), Oystercatcher (471), Golden Plover (947), Grey Plover (50), Knot (160), Redshank (161), Turnstone (62), Black-headed Gull (220) and Common Gull (355).

A number of wader species breed within the areas of machair in the SPA, including a nationally important population of Dunlin (subsp. schinzii) – 24 pairs (3 survey mean, 1985-2009). Inishderry Island has a nationally important breeding colony of Sandwich Tern, with 114 pairs present in 1994 and 81 pairs in 1995. The terns at this site are considered to be the same population that nested at Carrowmore Lake in the past. It also has nesting Common Tern and Arctic Tern (total for the two species of 42 pairs in 1995), and a colony of Black-headed Gull (100 individuals in 1995). Little Tern has also bred in small numbers in the past (6 pairs in 1984).

Blacksod Bay/Broad Haven SPA is of high ornithological importance for its excellent diversity of wintering waterbirds, including internationally important populations of Great Northern Diver and Light-bellied Brent Goose, and nationally important populations of seven other species. Of particular note is the usage of the site by over 4% of the all-Ireland population of Ringed Plover. It is also a nationally important breeding site for Sandwich Tern and Dunlin (subsp. schinzii). It is of note that eight of the species that occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Great Northern Diver, Red-throated Diver, Golden Plover, Dunlin (subsp. schinzii), Bar-tailed Godwit, Sandwich Tern, Common Tern and Arctic Tern. Blacksod Bay and Broad Haven is a Ramsar Convention site.

SITE NAME: OWENDUFF/NEPHIN COMPLEX SPA

SITE CODE: 004098

This large area of relatively intact blanket bog and mountains incorporates the catchment of the Owenduff River and much of the Nephin Beg Mountain range in Co. Mayo. Lough Feeagh, which is located approximately 5 km north-northwest of Newport, lies at the south-east corner of the site. From here, the site extends northwards to the Owenmore River and almost to the town of Bangor Erris, and westwards to the townland of Ballycroy. Within the site the terrain varies enormously, from the peaks of the Nephin Beg Mountains, which reach a maximum altitude of 717 m, to the low-lying floodplain of the Owenduff River in the western sector. Along its southern and easterly limits, the site is bounded by coniferous plantations and/or the high mountain slopes of the Nephin Begs. Along its northern and western margins, the site is fringed by agricultural land reclaimed from bog or from wet floodplain vegetation. The upper slopes of the mountains support wet heath, upland grassland and cliff vegetation. The lower mountain slopes are covered with blanket bog, with a broad representation of good quality bog habitats occurring.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Merlin and Golden Plover. The Owenduff/Nephin Complex SPA supports an excellent diversity of bird species characteristic of blanket bog and mountain habitats. Merlin nests within the site (population conservatively estimated at between 4 and 8 pairs). This small falcon has a preference for heather bog areas, particularly marginal zones between blanket bog and heath/upland grassland. The Merlins hunt small birds, especially Meadow Pipits. A nationally important population of Golden Plover also breeds within the site (15 pairs in 2004). The high cliffs and crags provide good nesting sites for Peregrine (3 known breeding territories) whilst the extensive boglands provide foraging terrain.

Greenland White-fronted Goose also utilises the site in winter. The population is a sub-flock of the main Bog of Erris population (4 other sub-flocks). Eighteen bogland feeding areas, scattered over 200 km2 , are known as well as some wet grassland and lake sites. The birds utilise the many small lakes and the open bogland for roosting. Red Grouse occurs on the bogs throughout the site, particularly where there is a good cover of Heather (Calluna vulgaris), which provides the principal food for the bird. A recent study showed that the species occurs at low densities, with 149-220 birds estimated to occur within the site. Red Grouse is considered to be a declining species in Ireland and is a Red List species. Widespread bird species which occur within the site include Meadow Pipit, Skylark, Wheatear, Raven, Hooded Crow and Kestrel.

The Owenduff/Nephin Complex SPA provides one of the best examples of blanket bog and upland bird communities in the country. Of particular importance is that there are four regularly-occurring species that are listed on Annex I of the E.U. Birds Directive (Greenland White-fronted Goose, Merlin, Peregrine and Golden Plover), as well as a good population of Red Grouse. Much of the site is a National Park and the Owenduff catchment is a Ramsar Convention site.

Appendix 3

Construction Method Statement

Oweninny Wind Farm Phase 2

Oweninny Power 2 DAC

Construction Methodology for Western Way Bridge Bypass

P000379-CE23-0006 Rev 01

Date: December 2020

ESB Engineering & Major Projects, One Dublin Airport Central, Dublin Airport, Cloghran, Co. Dublin.

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Document Title:	Construction Methodology for Western Way Bridge Bypass	
Document No.:	P000379-CE23-0006	
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Title:	Contracts Manager	
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Title:	Renewables Project Manager	

Change History

Date	New Revision	Author	Summary of Change
Nov 2020	00	D. O'Keeffe	First Issue
Dec 2020	01	D. O'Keeffe	Bord na Móna & MCC Comments

1 Executive Summary

This report has been prepared to provide information on the intended techniques to construct a supplementary delivery route to bypass the Western Way Bridge on the N59. The proposed works are intended to further facilitate abnormal loads being delivered to the nearby Oweninny Wind Farm Phase 2 development, in particular wind turbine components. This will include construction of access tracks and installation of temporary crossing over a tributary stream to the river Muing, approximately 1km East of the village of Bellacorrick Co. Mayo at the location shown in Figure 1. The crossing will comprise a concrete pipe structure.

The methodologies in this report are the current expected methodologies for installation of the temporary crossing. These approaches may require variation during detailed design and construction depending on the best working practices and preferred construction techniques of the selected contractor. However, it is considered that the methodologies described in this report are adequate for an understanding by the Consenting Authority for the proposed development.

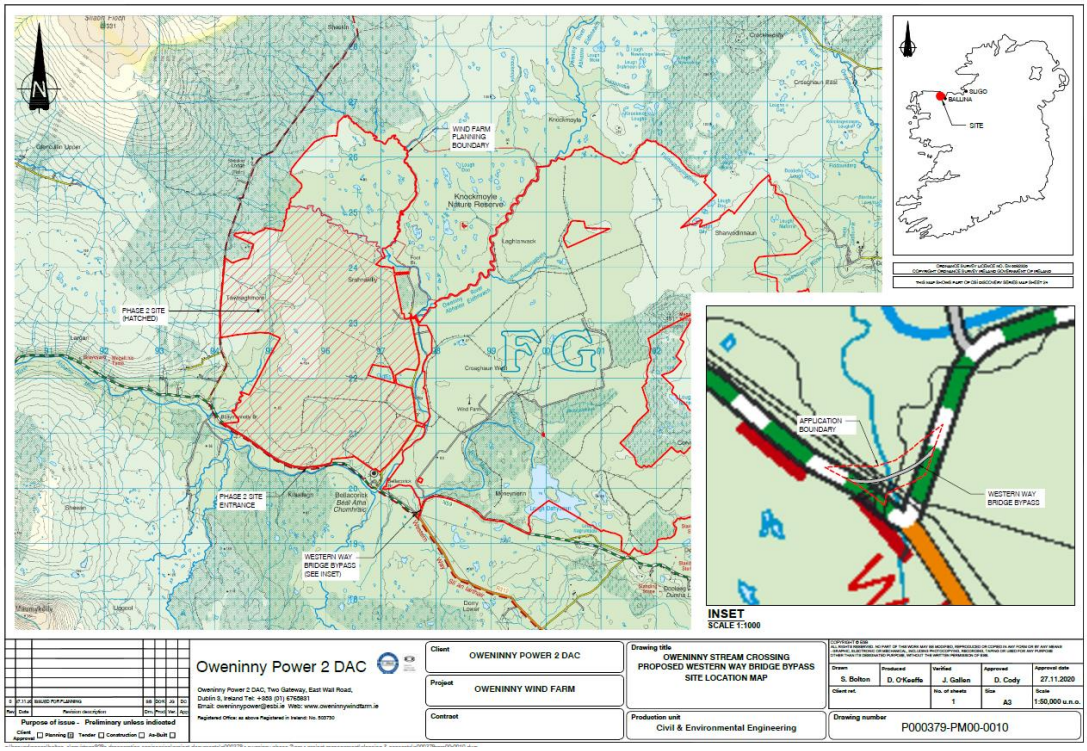

Figure 1 Western Way Bridge Bypass Location

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2 Introduction

The purpose of this document is to outline the expected construction methodology for access tracks and installation of a temporary crossing over a stream tributary to the River Muing, adjacent to Western Way Bridge. These works will be required primarily to facilitate abnormal load deliveries associated with the Oweninny Wind Farm Phase 2 development, in particular the delivery of wind turbine components.

Figure 2 Western Way Bridge Bypass site current condition

It is expected the delivery of each wind turbine will involve approximately 12 loads using articulated haulage trucks. Deliveries will likely comprise of towers (4), blades (3), nacelle (2), hub (1) and small parts (2). Delivery of components of the nacelle will involve the heaviest loads with delivery of turbine blades being the longest loads. Although the turbine blades are relatively light, it is the blade delivery that typically determines both vertical and horizontal alignment requirements during transportation.

Based on the current road infrastructure, due to the horizontal alignment of the N59 at the proposed location, as indicated in Figure 3, abnormal load deliveries to the wind farm development will be required to turn into the entrance to the Oweninny Phase 1 Wind Farm and reverse along a section of the N59 to the sharp right-hand bend on the N59 where it will negotiate a difficult right turn onto the R312, before proceeding on the N59. Due to the size of the deliveries, and the number of abnormal load deliveries associated with this development, a less onerous route through this section of road is being sought. Therefore, it is proposed to construct an access track to the North of the N59 to provide a more suitable alignment for abnormal load deliveries to the wind farm as indicated in Figure 4.

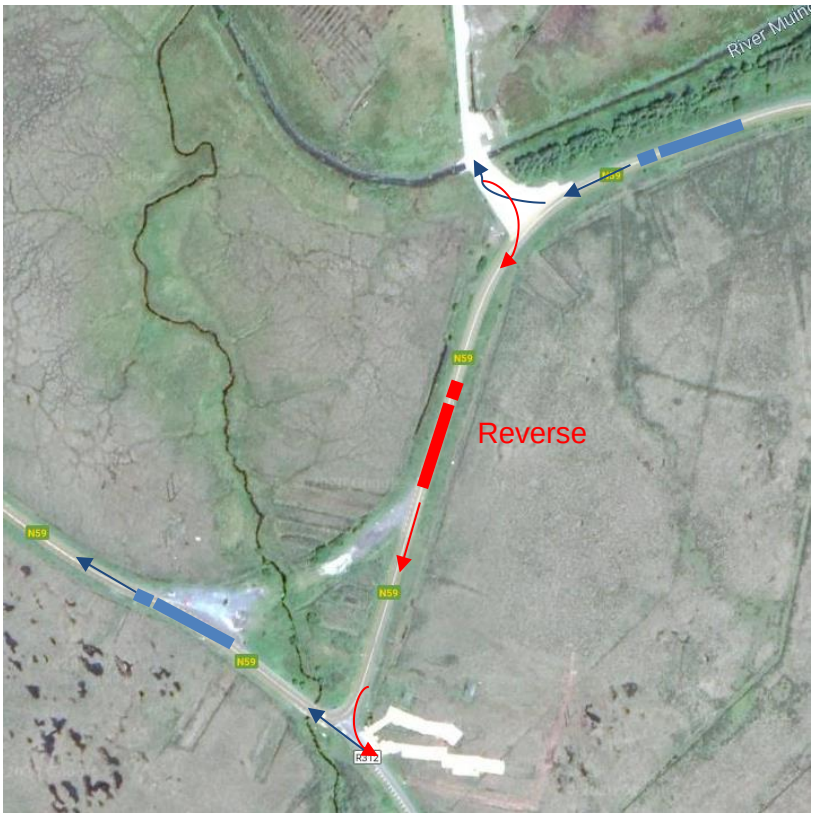

Figure 3 Current Abnormal Load Deliveries utilising N59

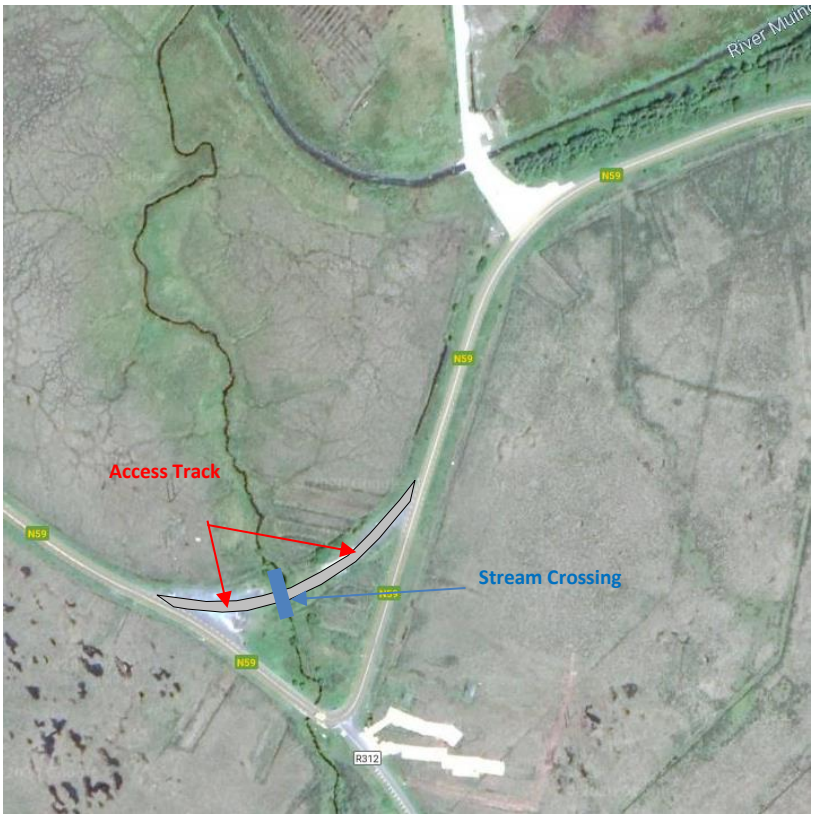

Figure 4 Proposed Supplementary Delivery Route

This supplementary access will remain in use for the duration of abnormal load deliveries to the wind farm. This is currently expected to be approximately 6 months, but the timescale may vary as the project progresses.

Upon completion of the abnormal load deliveries the temporary stream crossing will be removed, and the area will be reinstated to its current condition. Mayo County Council have expressed a preference for the access tracks to be retained after completion of the abnormal load deliveries and OP2DAC have confirmed that they are willing to facilitate this preference. However, if there is a requirement to reinstate the access track area that will be implemented.

It is anticipated the supplementary route will be used predominantly by transport vehicles engaged in the delivery of abnormal loads to the wind farm, in particular wind turbine components but it may also be used for other construction traffic in exceptional circumstances. This supplementary route is intended purely for wind farm construction vehicles and will not be accessible to the public.

3 Proposal Overview

The proposed supplementary temporary access will consist of approximately 175m of access track and a stream crossing, provided primarily to facilitate abnormal load deliveries associated with the Oweninny Wind Farm Phase 2.

The track will be constructed on the alignment of the existing access tracks, using stone and geocomposites as required, and capped with a layer of Cl804.

The proposed stream crossing will be constructed using pipes. These pipes will be delivered to the site by lorry and lifted into place using certified lifting equipment e.g. excavator. The stream will be dammed temporarily upstream of the crossing and water pumped downstream of the crossing, or a temporary bypass channel will be utilised to facilitate the construction. Construction works will be completed cognisant of the overhead 110kV line and the appropriate precautions will be taken to ensure the works are completed safely.

Following hydrological and hydraulic assessments to a Q30 standard as agreed with the Office of Public Works (OPW), a pipe diameter of 1.8m is proposed. This will ensure no adverse effects to any third party will be caused upstream of the proposed installation. To mitigate against a flood event in excess of the Q30, the crossing and access tracks will be designed and constructed to facilitate flood waters overtopping the structure without any impacts on the nearby N59. This may be subject to change following detailed design.

The crossing shall be suitable to carry the wind turbine abnormal load deliveries. An operational width of up to approximately 6m is envisaged. The length of the crossing will be circa 12.5m, however this will be determined by the depth from finished level to channel level and the combining multiples of concrete pipe standard units.

Whilst OP2DAC will remove the stream crossing following the completion of abnormal load deliveries, Mayo County Council have expressed a preference for the access tracks to remain in situ to facilitate future projects. If permission for these works is granted on the basis that the access tracks will be temporary, the tracks will also be removed after completion of abnormal load deliveries, and the location will be reinstated to its current condition.

4 Site Works

4.1 Temporary Access Construction

The principal on-site activities for the construction of the temporary crossing will be as follows:

- Temporary site entrances will be formed at the N59 with construction warning signs erected as necessary in advance, in accordance with details to be agreed with the Mayo County Council and as suggested by Transportation Infrastructure Ireland (TII) guidelines. The primary consideration in devising the temporary entrances will be to maintain road safety;
- A 6m wide access track will be constructed to the crossing location from the N59 by side-casting excavated material, grading and backfilling the formation with a layer of granular fill and geocomposites as required and a surfacing layer of Cl 804 fill. This form of construction of access tracks will be broadly similar to that applied in the main wind farm site, with surplus excavated material used to blend the embankment slopes. Track dimensions will be finalised on confirmation of wind turbine component requirements;
- The vertical alignment of the track at the junctions with the public road will be designed in order to prevent surface run-off flowing onto the public roads. Drainage will be provided as necessary to manage runoff. Any existing roadside drainage will be maintained;
- A suitably sized working area and hardstand will be developed (to a similar specification as the access tracks) on one bank of the stream to act as a works area, laydown area and storage area during construction;
- The stream will be dammed upstream and downstream of the crossing using sandbags or other appropriate measure to prevent siltation of the stream. Pumps or a temporary bypass channel shall be used to allow the stream water pass downstream of the crossing location. The pump, if used, will be placed on a drip tray to ensure no leakage from the pump can enter the stream;
- Once the stream has been temporarily dammed the formation level will be prepared to receive the concrete pipe sections. Each pipe section will be lifted into place using certified lifting equipment ensuring appropriate clearance to the 110kV overhead line is adhered to at all times. Pipe sections to be installed as per the manufacturer's guidelines;
- To provide the required embedment, the pipe invert level shall be 300mm below bed level. The pipe sections will be installed below the finished invert of the stream. Specific requirements as set out by Inland Fisheries Ireland (IFI) will be adhered to;
- Rock armour will be placed on the bank slopes to manage flow velocities and provide protection to the culvert inlet and outlet;
- Following the installation of the pipe culvert units, the access track will be constructed over the installed culvert. Stone berms (or suitable alternative) will be formed on either side of the access track to provide edge protection. These berms will be formed outside the required track width;

- The sandbags will be removed, and the stream allowed to flow along the original route through the new culvert.

4.2 Temporary Access Removal

It is expected that abnormal load deliveries to Oweninny Wind Farm Phase 2 will be completed over a period of approximately 6 months, but this timeline may be extended as the project progresses. Upon completion of abnormal load deliveries, the stream crossing will be removed and the required extent of the access track will be reinstated.

The principal site activities will be as follows:

- Culvert removal
- The required extent of the access track will be reinstated to its current condition;
- All material removed from the site may be stored on the main wind farm site for future use.

Spawning season constraints will be agreed in consultation with IFI, these will determine when the temporary stream crossing will be removed. Once the access track over the temporary stream crossing has been removed, a process similar to the crossing construction will be implemented to remove the pipe units.

- The stream will be dammed upstream and downstream of the crossing using sandbags or other appropriate measure. Pumps or a temporary bypass channel will be used to allow stream water pass downstream of the crossing. The pump, if used, will be placed on a drip tray to ensure no leakage from the pump can enter the stream;
- Once the stream has been temporarily dammed, the individual concrete units will be removed from the stream one at a time using certified lifting equipment ensuring appropriate clearance to the 110kV overhead line is adhered to at all times. All pipe sections may be taken to the windfarm site and stored for future use. The rock armour on the bank slopes will also be removed and the area will be reinstated to the preconstruction condition;
- After all the pipe sections have been removed, the stream channel will be reinstated using methodology approved by Inland Fisheries Ireland (IFI);
- The temporary site entrances from the N59 will be reinstated.

5 Operational Controls

Further to any controls arising from the Traffic Management Plan for construction of Oweninny Wind Farm Phase 2, the following operational controls will be implemented while the supplementary access is in use:

- Accesses from the N59 will be gated and will be adequately locked, other than when in use;
- Deliveries of abnormal loads will be subject to a schedule agreed with An Garda Sióchana and the Local Authority;
- Relevant statutory bodies will be briefed and updated on the schedule of deliveries and, subject to Garda advise, information will be advertised in the local press;
- Extendable trailers used for delivering abnormal loads will be retracted following delivery, so that use of the temporary crossing is not expected to be required on return journeys.

6 Environmental Controls

The earthworks required in removing vegetation cover and excavation of soils are recognised as a potential source of sediment laden run-off that requires control. Further to this, stockpiled excavated material can provide a point source of exposed sediment.

The rigorous controls that will be applied to avoid impacts on surface waters during construction of the wind farm will apply to all aspects of construction and removal of the temporary supplementary route. Control measures will be provided in two ways, namely mitigation by avoidance and mitigation by engineering design.

- Construction works will be supervised and monitored by a suitably qualified ecologist (Ecological Clerk of Works) as required;
- Agreed drainage control measures will be put in place in advance of all other construction works;
- The access tracks to the temporary bridge will be profiled so that overtopping of the crossing may occur in the event of a flood event; and
- Requirements as set out by Inland Fisheries Ireland (IFI) will be adhered to.

The Ecological Clerk of Work will be responsible for implementing the programme of ecological supervision/monitoring of the works. They will be responsible for; (i) ensuring the contractor implements the water quality protection measures during the construction phase; and (ii) monitoring and supervision of all works associated with the Western Way Bridge Bypass.

6.1 Silt Fences

- Silt fences will be installed downslope of an area where silt is being generated, for example see Figure 5. To be effective the silt curtain must contain the area where silt is generated and must terminate on high ground;
- Silt fences will be from geotextile type material and not a mesh. The base of the silt fence must be bedded at least 15 – 30 cm into the ground and staked at 2 metre intervals;
- Where suitable, the vegetated sod will be peeled back without detaching from the ground, geotextile inserted, and sod restored to hold the base in place;
- Once installed the silt curtain needs to be inspected regularly, daily during construction, weekly post construction for at least 1 month but particularly after heavy rains and periodically thereafter;
- In some circumstances water will build up behind these but suspended solids will generally settle to the bottom. Water can be released but not the suspended solids;
- In sensitive areas two lines of silt curtain/fence will be installed and
- Maintain a record of when silt fence was installed, inspected and removed.

Figure 5 Typical Silt Fences used on Oweninny Wind Farm Phase 1

6.2 Prevention of Hydrocarbon Releases to Watercourses

- All construction phase operatives will be given a comprehensive briefing on the importance of pollution control measures with specific emphasises on fuel, hydraulic oils and lubricants and contaminated run-off. Fuel delivery companies will be briefed on the procedures to be adopted when delivering to the construction compound or site location. All delivery trucks will be monitored for any hydraulic oil/diesel leaks. If leaks are found the related equipment will be removed from site immediately and repaired;
- Spill-kits and hydrocarbon absorbent packs will be stored in the work vehicles. Operators will be fully trained in the use of this equipment and a fuel/oil spill response plan will be developed for the construction works;
- Fuel, hydraulic oils and lubricants will be stored in bunded areas, to be provided in accordance with established best practice guidelines at the Contractors compound. The fuel bowser will be double skinned;
- Any materials contaminated in the refuelling area or during on location refuelling will be removed and disposed of in compliance with applicable legislation;

- Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in the designated bunded areas within the Contractors compound, where possible, and not on-site. If it is not practical to bring machinery to the refuelling point, fuel will be delivered by the fuel delivery truck or in a double-skinned mobile fuel bowser.

6.2.1 On site Refuelling Procedure

- Plant refuelling will be undertaken away from watercourses and roadside drainage;
- The plant operator will remove the spill kit and hydrocarbon absorbent packs from the storage compartment in the machine and place them near the refuelling point;
- The fuel truck/bowser operator will control the open/close valve at the refuelling point during the entire refuelling procedure to eliminate any over filling spillages;
- The fuel gun (open/close valve) and fuel tank nozzle area will be wiped clean with hydrocarbon absorbent pads on completion of the refuelling procedure.

6.3 Emergency Procedures

In the case of accidental release of pollutants to watercourse, the Contractor will immediately prevent any further silt/cement or other contaminants entering the watercourse. Oil booms will be used to contain spillage and a clean-up operation will be undertaken.
In the event that an accidental discharge occurs, the person responsible for the works shall notify Mayo County Council and the Inland Fisheries Ireland (IFI) as required.
An up to date list of Emergency Numbers will be provided to all operatives. This will include contact numbers for relevant personnel, the local authority and others in order to deal with any environmental pollution incident which may arise.

7 Conclusions

The temporary supplementary access to facilitate safer wind turbine component deliveries is considered uncomplicated. While detailed design may require minor alterations to the culvert design, it is anticipated the construction will follow that as outlined above and will be undertaken in a similar manner to other stream crossings to be constructed on the main wind farm site.

Upon completion of the abnormal load deliveries the temporary stream crossing will be removed, and the area will be reinstated to its current condition. Dependant on the nature of the granted planning permission, the access tracks may be retained as per Mayo County Council's request or removed and the area reinstated.

Appendix 4

Built Heritage Statement

BYRNE MULLINS & ASSOCIATES
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OWENINNY WIND FARM PHASE 2
BELLACORICK, CO. MAYO

Construction Methodology for Western Way Bridge Bypass

BUILT HERITAGE STATEMENT

Martin E. Byrne, MA, Dip. EIA Mgmt, MIAI.

1. INTRODUCTION

Oweninny Power 2 DAC (OP2DAC) c/o ESB Engineering & Major Projects, One Dublin Airport Central, Dublin Airport, Cloghran, Co. Dublin proposes to construct a supplementary delivery route to bypass the Western Way Bridge on the N59. The proposed works are intended to further facilitate abnormal loads being delivered to the nearby Oweninny Wind Farm Phase 2 development, in particular wind turbine components.

The proposed site location is adjacent the junction formed by the N59 Road (Crossmolina – Bangor Section) and the R312 Road (to Castlebar), approximately 1km east of the village of Bellacorick Co. Mayo – Figure 1.

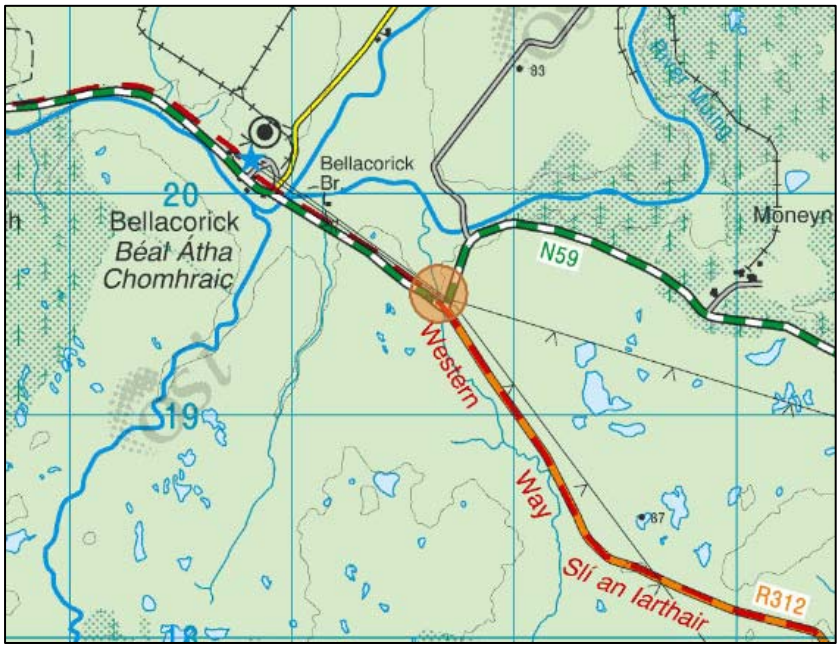

Figure 1 Location of Proposed Works

The proposed works area is in an area of peatland through which the stream runs in a general north-north-westerly direction to the River Muing (Figure 2; Plate 1); in addition, the proposed construction corridor includes relict tracks on both banks of the stream, which were formerly linked to the N59 Road (Figure 2; Plate 2). These relict tracks were constructed in the 1980s by Mayo County Council as part of a road improvement/realignment

scheme which was never completed; the extent of the associated disturbance works is very clear in a aerial photograph dating to 1995 – Figure 3.

Plate 1 View of Stream from north

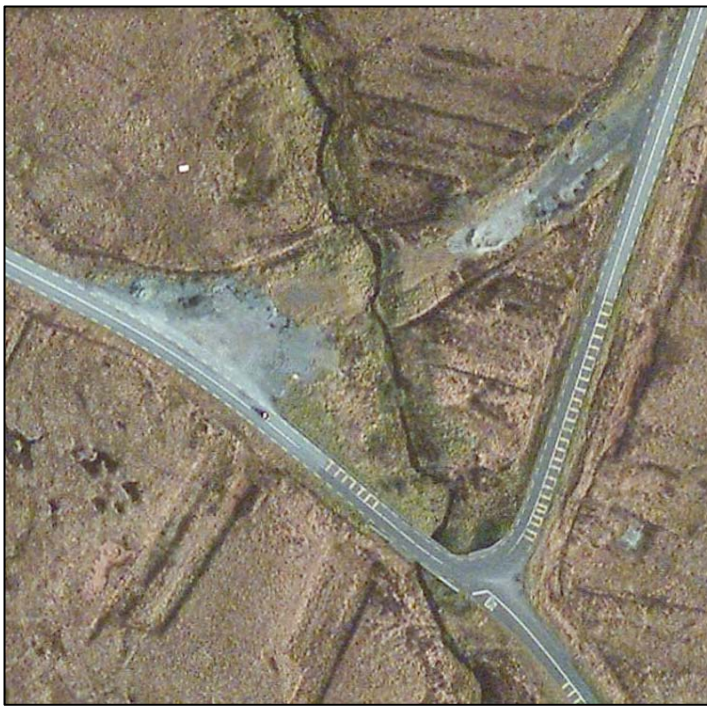

Figure 2 Aerial Photograph of Proposed Site and immediate environs

Plate 2 General View of Proposed Site from Northeast (looking southwest)

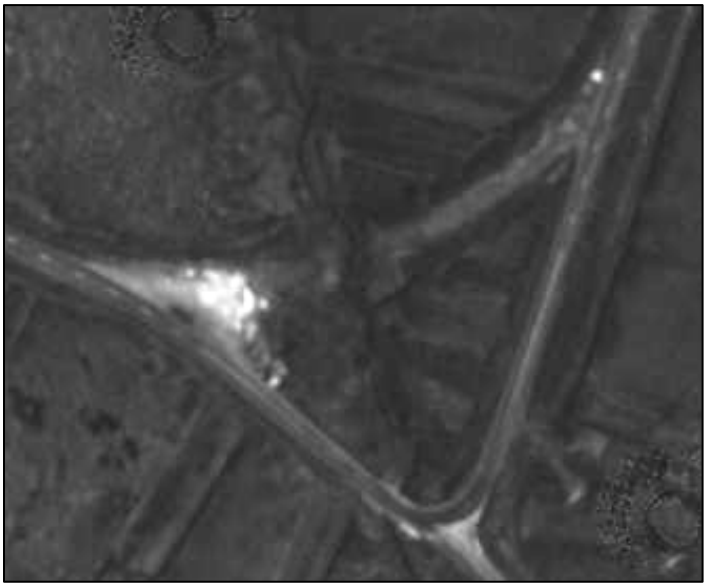

Figure 3 Aerial View of Proposed Works Area - 1995

The proposed construction methodology is detailed in the Construction Methodology Report prepared by ESB Engineering and Major Projects. In summary, the stream crossing will require the installation of concrete pipes into the stream (Figure 4) and the construction of access tracks to the east and west, linking with the N59 (Figure 5).

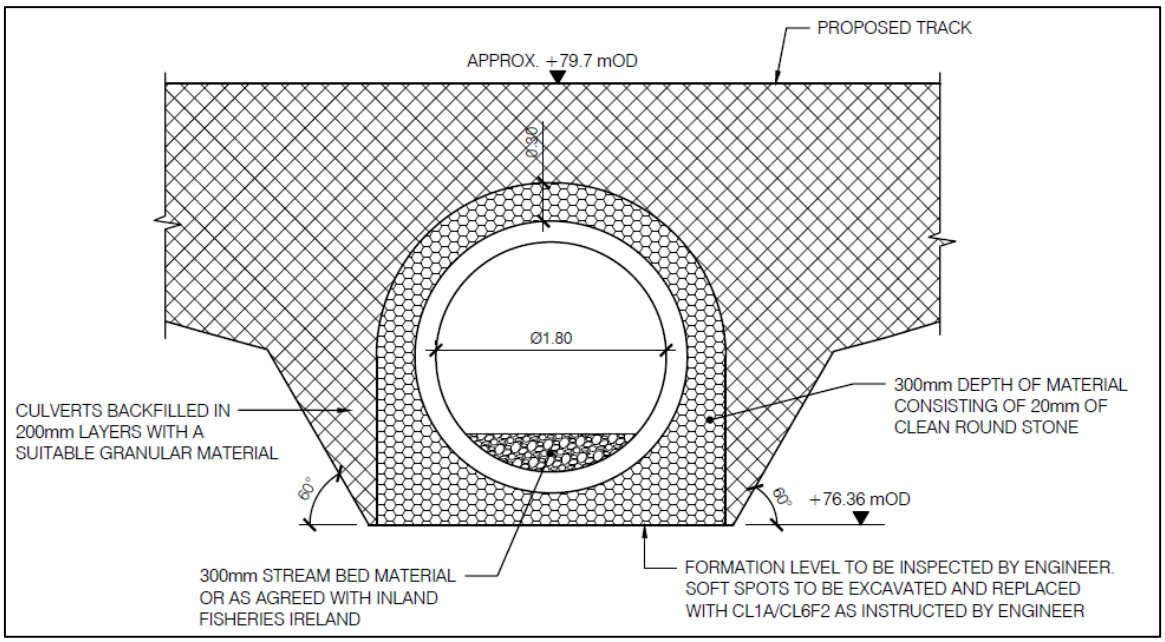

Figure 4 Proposed Stream Crossing (Section A – Figure 5)

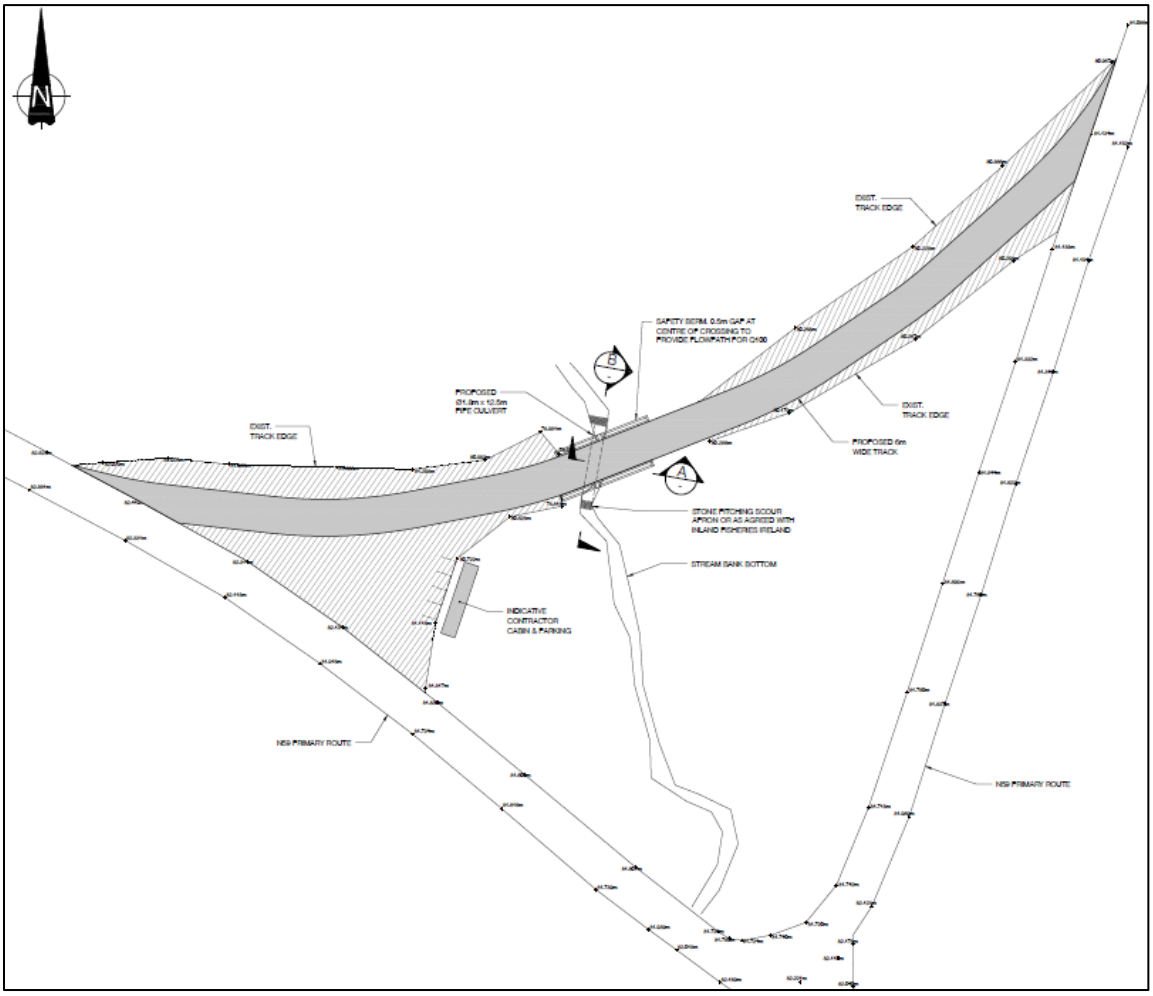

Figure 5 Proposed Layout Plan

2. BUILT HERITAGE

The proposed works area is outside the southern extent of the overall Oweninny Wind Farm, which was the subject of an EIA and AA by An Bord Pleanála (ABP Planning Ref: PA0029). For the purposes of the present proposals, the Cultural Heritage Chapter of the EIA was reviewed and the following sources were consulted:

- Record of Monuments and Places – Co. Mayo (RMP)
- Sites and Monuments Record (SMR) files of the Archaeological Survey of Ireland (ASI) – www.archaeology.ie
- *Excavations – Summary Accounts of Archaeological Excavations in Ireland* (www.excavations.ie)
- National Inventory of Architectural Heritage
- Mayo County Development Plan 2014-2020

2.1 Archaeological Heritage

Archaeology is the study of past societies through their material remains and the landscapes they lived in. "The archaeological heritage consists of such material remains (whether in the form of sites and monuments or artefacts in the sense of moveable objects) and environmental evidence" (DoAHG 1999, p9).

The statutory and administrative framework of development control in zone of archaeological potential or in proximity to recorded monuments has two main elements:

(a) Archaeological preservation and licensing under the National Monuments Acts and

(b) Development plans and planning applications under the Planning Acts.

(a) National Monuments Acts 1930 – 2004: Record of Monuments and Places (RMP)
Section 12 (1) of the National Monuments (Amendment) Act, 1994 provides that the Minister for the Environment, Heritage and Local Government shall establish and maintain a record of monuments and places where the Minister believes there are monuments, such record to be comprised of a list of monuments and relevant places and a map or maps showing each monument and relevant place in respect to each county of the State. This is referred to as the 'Record of Monuments and Places' (RMP), and monuments entered into it are referred to as 'Recorded Monuments'.

Section 12(3) of the National Monuments (Amendment) Act 1994 provides for the protection of monuments and places in the record, stating that
"When the owner or occupier (not being the Minister) of a monument or place which has been recorded under subsection (1) of this section or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Minister and shall not, except in the case of urgent necessity and with the consent of the Minister, commence work for a period of two months after having given the notice".

(b) Mayo County Development Plan 2014 - 2020
The following relevant Archaeological Heritage Objectives are set out in Section 4 of the Plan:

AoH-01 It is an objective of the Council to:
a) Protect the archaeological heritage and especially sites identified in the Record of Monuments and Places, National Monuments in the ownership or guardianship of the State, and National Monuments that are the subject of Preservation Orders, and to safeguard the integrity of the archaeological sites in their setting.
b) Require that planning applications within the zones of archaeological potential as outlined in the Record of Monuments and Places include an archaeological assessment as set out in the Development Guidance document accompanying this Plan.
c) Require that all large scale planning applications (i.e. development of lands on 0.5 ha or more in area or 1km or more in length) include an archaeological assessment as set out in the Development Guidance document accompanying this Plan.
h) Ensure the preservation of National Monuments that are the subject of Preservation Orders and features of archaeological interest in areas that are identified as Zones of Archaeological Potential in the Record of Monuments and Places.

In addition, Volume 2 of the Development Plan, titled *Planning Guidance and Standards For Development in Co. Mayo* includes the following with respect to Archaeological Heritage:

> Development proposals have the potential to impact on archaeological heritage. Therefore, in order to safeguard the integrity of the archaeological sites in their setting in the landscape an archaeological assessment shall be submitted for:
> - Developments that fall within the zones of archaeological potential as outlined on the Record of Monuments and Places.
> - Developments on land equal or greater to 0.5 hectares (in area) or 1km or more in length.
>
> All archaeological assessments shall be undertaken by a suitably qualified archaeologist and set out in accordance with the requirements of Mayo County Council.
>
> A site visit and a desk top study shall be undertaken. Pending the findings of the assessment, one and/or more of the following may be required as part of any development proposal within the Plan area:
> - geophysical and/or other non-invasive surveys (including architectural survey)
> - licensed pre-development testing
> - licensed archaeological excavation
> - archaeological monitoring of ground works
>
> A full underwater Archaeological Assessment (where appropriate) shall also be completed.

The Archaeological Assessment shall establish the extent of archaeological material associated with the archaeological site or monument and the potential impacts (if any) on the site or monument. The assessment shall also define the buffer area or area contiguous with the archaeological site or monument which will preserve the setting and visual amenity of the site or monument.

The area of the archaeological site or monument and its buffer zone shall not be included as part of the open space requirement demanded of a specific development but shall be additional to the required open spaces.

2.1.1 Terrestrial Archaeology

There are no previously identified monuments of archaeological interest/potential located within, or in the general environs of, the proposed works area.

A programme of Archaeological Monitoring with respect to the Upgrading of the Bellacorick-Castlebar 110kV OHL by Byrne Mullins & Associates in compliance with Condition 5 of the grant of planning from An Bord Pleanála (ABP Ref: PL 16.244534; Mayo Co. Co. Ref: P14/410), and under licence (Ref: 17E0176) from the Department of Arts, Heritage, Regional, Rural & Gaeltacht Affairs). In particular, nothing of archaeological interest/potential was noted during the monitoring of foundation and stay pit excavations associated with Structure 6, approximately 50m to the west of the proposed stream crossing. In addition, the installation of silt-trap fencing at the location of the proposed stream crossing was also inspected and nothing of archaeological interest was noted.

A programme of Archaeological Monitoring with respect to the Oweninny Wind Farm Phase 1 construction works was undertaken by Byrne Mullins & Associates in compliance with Condition 13 of the grant of planning from An Bord Pleanála (ABP) – Ref: PL.PA0029 and under licence (Ref: 17E0319) from the Department of Culture, Heritage and the Gaeltacht. No subsurface features of archaeological interest/potential were encountered during the monitoring of the works; however, a collection of 12 lithics were recovered the majority of which appear to represent a Neolithic or Chalcolithic/Bronze Age assemblage.

The siting preferences of particular monument types are well documented. Broadly speaking, the general landscape of the proposed development area offers a potential setting for the discovery of archaeological sites and remains, as follows:

- The subject lands and surrounding landscape offer many opportunities for the location of Fulachta Fiadh (prehistoric cooking sites). These sites are location specific, generally located close to rivers and streams or in wet marshy areas, and sometimes occur in groups.
- There is significant archaeological potential associated with Blanket Bog, with many formed on soils previously used by Neolithic farmers, classically demonstrated at Céide Fields, County Mayo and, to a lesser degree by the date-range of the artefacts recovered during the Phase 1 woks at the Oweninny Wind farm. In addition, exceptional powers of preservation make wetlands a unique archaeological resource. Consequently, there is potential for features such as field walls and prehistoric burial and settlement sites to be sited under blanket bog and for well-preserved artefacts, especially organic materials – arrowheads and axe-heads with intact wooden handles, clothing such as woollen caps and cloaks, 'bog-butter' - to be recovered from close to the surfaces of intact bogs. In addition, a growing number of human bodies – with skin, hair etc. relatively intact – have been recovered from blanket bogs in recent years.

2.1.2 Underwater Archaeology

Watercourses have always attracted human activity for a variety of reasons, as a source of water and food, as transport routes, as a source of energy and for their spiritual, religious or ritual associations. They also act as depositories for archaeological artefacts.

A reconnaissance survey of the stream banks, together with historic cartographic research, indicates that there are no associated features such as steppingstones or fording points associated with the stream, either at the

proposed crossing or wider environs and no underwater features were noted by a preliminary wade survey. The closest associated feature is the Western Way Bridge, approximately 80m downstream of the proposed stream crossing and constructed by the Mayo Grand Jury around 1820; it comprises a cut-stone structure with single rounded arch and stone parapet walls incorporating flat coping and provides a crossing over the stream for the N59 Road.

Plate 3 The Western Way Bridge – Upstream View

2.2 Architectural Heritage

Architectural heritage has several definitions and meanings for people. A useful rule of thumb (which is actually the legal situation) is set out in the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999 which provides the following definition:

a) Structures and buildings together with their settings and attendant grounds, fixtures and fittings,
b) Groups of such structures and buildings, and
c) Sites, which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

The Record of Protected Structures (RPS) of the Mayo County Development Plan 2014-2020 does not include any Protected Structures along, or in the environs of, the proposed works area; likewise, no structures of interest are included in the non-statutory National Inventory of Architectural Heritage (NIAH).

3. DISCUSSION

The subject works area is associated with the approved Oweninny Wind Farm (ABP Ref: PA0029), which was subject to a previous EIA, including a Cultural Heritage Study (Chapter 17). This study was consulted and updated by consultation with additional sources as listed above in Section 2, together with a focused reconnaissance survey of the proposed works corridor and environs.

As outlined above in Section 2.1 herein, there are no previously recorded monuments or features of archaeological interest/potential located within, or in the immediate environs of, the proposed works corridor. However, as further outlined in Section 2.1.1, it is considered that there is increased potential the discovery of subsurface archaeological remains and/or artefacts within the proposed construction corridor, due to it location within a peatland environment although such potential is somewhat reduced given the disturbed nature of an extensive area within of the overall proposed works area.

As noted in Section 2.1.2, a reconnaissance survey of the stream banks, together with a limited wade-survey at the proposed stream crossing, indicates that there are historic physical features (e.g. stepping stones, fording-points, etc.) associated with the stream, except for the Western Way Bridge located 80m downstream.

As outlined above in Section 2.2, there are no protected or NIAH-listed structures of architectural heritage interest located along, or in the environs of, the proposed UGC route.

Given the nature of the proposed works, it is not considered that the works associated with the proposals will cause any direct impacts to any previously identified archaeological monuments or designated structures of architectural heritage interest.

However, given the archaeological potential of the in-situ areas of peatland within the extent of the overall works area, together with the potential for the recovery of archaeological artefacts within the bed of the stream, the following mitigation measures will be undertaken as part of the overall construction process:

1. All excavations requiring the removal of peat will be monitored by a suitably qualified and experienced archaeologist.

2. Following drainage/dewatering of the stream at the proposed crossing area, the stream bed will be visually inspected and raked-over in order in retrieve any possible artefacts of archaeological/historic interest that might be contained within such material. Removal of the stream-bed material will be monitored by the archaeologist and the further raked-through upon deposition at the agreed storage area

Martin Byrne

27-11-2020

Appendix 5

Road Safety Audit

Oweninny Power 2 DAC

Oweninny Wind Farm (Phase 2)
Western Way Bridge Bypass

Stage 1 & 2 Road Safety Audit

P·M·C·E

December 2020

Oweninny Power 2 DAC

Oweninny Wind Farm (Phase 2)
Western Way Bridge Bypass

Stage 1 & 2 Road Safety Audit

Document Ref:	**P20-136-RSA-DD-RP-001**

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
2.0	AP	PJM	PJM	16th Dec. 2020	Final
1.0	AP	PJM	PJM	11th Dec. 2020	Draft Report

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1 Introduction

1.1 General

This report results from a Stage 1 & 2 Road Safety Audit on a proposed Western Way Bridge Bypass in connection with the Oweninny Wind Farm (Phase 2), and has been carried out at the request of Ms Áine Kenny of ESB Engineering and Major Projects.

The members of the Road Safety Audit Team are independent of the design team, and include: -

Mr. Peter Monahan
(BE MSc CEng FIEI RSACert)
Road Safety Audit Team Leader

Mr. Antonios Papadakis
(MSc, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during December 2020 and comprised an examination of the documents provided by the designers (see Appendix B). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 8th December 2020. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were considered to be low, pedestrian and cyclist volumes were low and traffic speeds were generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report and their locations are shown in Appendix D. Where problems are general to the proposals sample drawing extracts are within the main body of the report where considered necessary.

This has been carried out in accordance with the requirements of GE-STY-01024 - Road Safety Audit (December 2017), contained on the Transport Infrastructure Ireland (TII) Publications website.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety and considers the perspective of all road users. It has not been examined or verified for compliance with any other standards or criteria. The problems identified in this report are considered to require action in order to improve the safety of the scheme and minimise collision occurrence.

If any of the recommendations within this road safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observations are intended to be for information only. Written responses to Observations are not required.

1.2 Items Not Submitted for Auditing

Details of the following items were not submitted for audit; therefore no specific problems have been identified at this stage relating to these design elements, however where the absence of this information has given rise to a safety concern it has been commented upon in Section 3: -

- Vertical Alignment
- Horizontal Alignment
- Drainage
- Public Lighting

2 Project Description

2.1 General

It is proposed to construct a temporary haul-route, the Western Way Bridge Bypass, crossing near the existing N59/R312 Junction to facilitate abnormal load deliveries to the nearby Oweninny Wind Farm Phase 2 development, in particular the delivery of wind turbine generator components.

The N59 is a two-way single carriageway National Road, with a posted speed limit of 100 kph in the vicinity of the proposed temporary haul route. At this location the N59 is relatively lightly trafficked, with the nearest TII traffic counter at Moylaw, approximately 13.5km east of the site, indicating an AADT in 2019 of approximately 2,200 vehicles with 4.6% Heavy Goods Vehicles.

The existing horizontal alignment of the N59 at the junction location, includes a sharp bend approximately 1km east of Bellacorrick, such that abnormal load deliveries to the wind farm development cannot navigate the bend. Without the construction of the temporary Haul Road abnormal load vehicles would be required to perform a three-point turn at the existing entrance to the Oweninny Phase 1 Wind Farm, and then reverse along a section of the N59 as far as its junction with the R312, continue reversing onto the R312 before then continuing on the N59.

Due to the size of the deliveries, and the number of abnormal load deliveries anticipated for the development, these manoeuvres are considered to be unsafe. It is, therefore, proposed to construct a temporary haul route to the north of the N59/R312 Junction which would cross an existing stream at this location and which could accommodate the proposed abnormal loads. It is expected that two abnormal load deliveries to the development will be undertaken each week over a period of approximately 6 months. The deliveries will be undertaken at night, and be accompanied by a Garda escort.

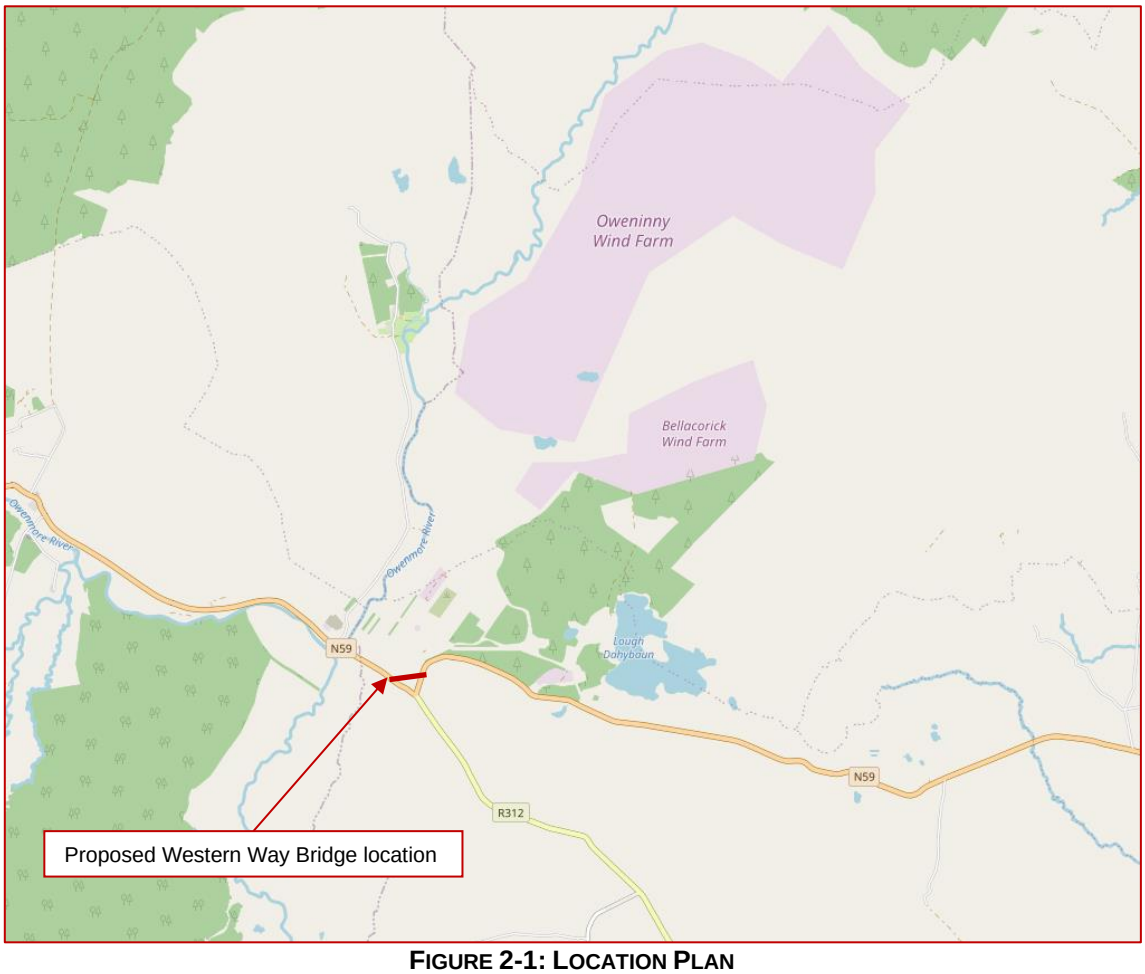


FIGURE 2-1: LOCATION PLAN

2.2 Collision History

The Road Safety Authority website (www.rsa.ie) was consulted to identify historical collisions in the vicinity of the proposed scheme. The website includes summary information on recorded collision occurrence for the period 2005 to 2016 (see Figure 2-2).

One Minor Injury collision was recorded on the N59 to the west of the proposed temporary haul route in 2014 involving a car, resulting in two Minor Injuries, and which occurred on a Saturday between the hours of 10:00 and 16:00.

The collision record does not indicate a collision cluster or pattern near the proposed Works.

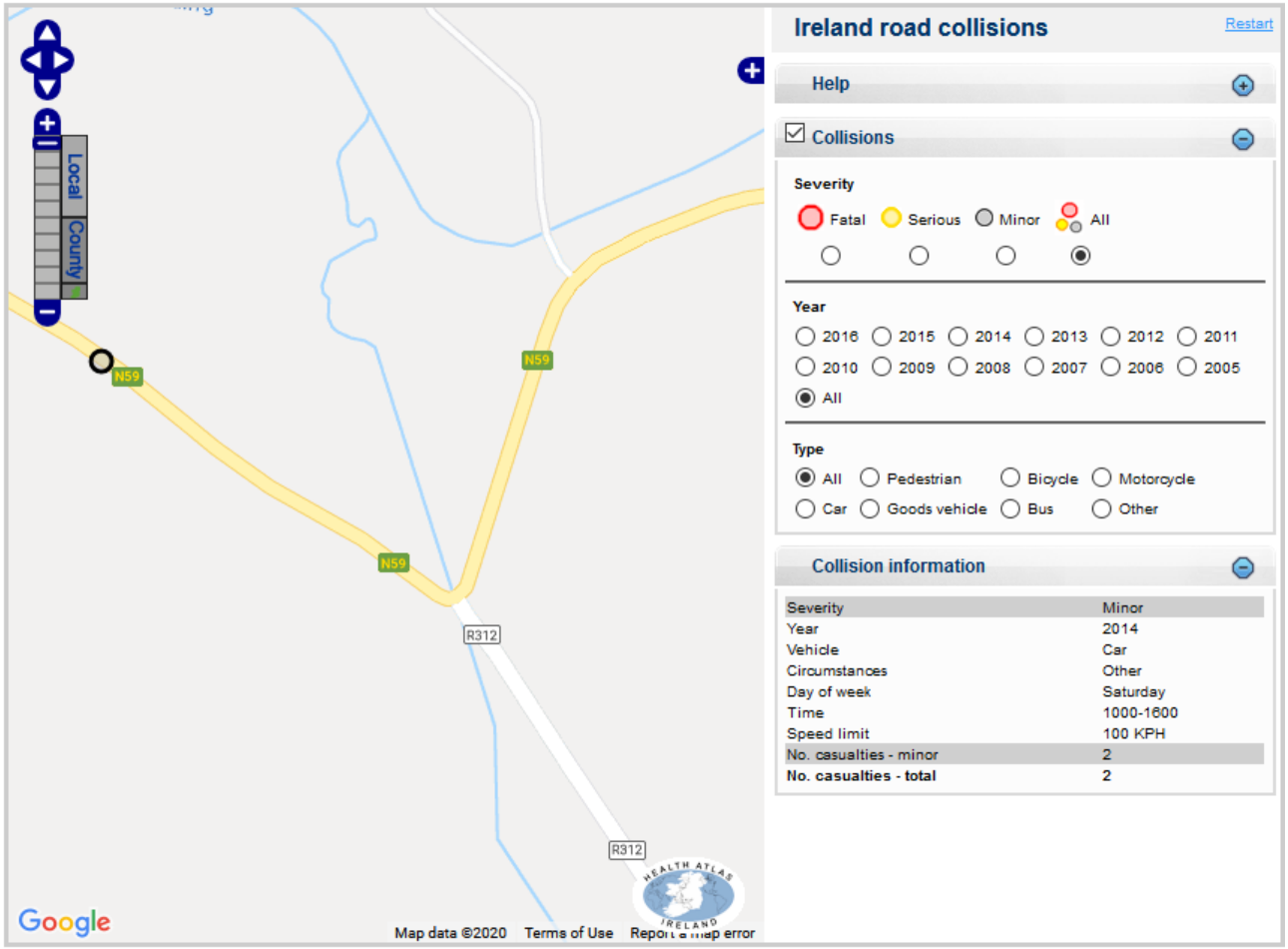


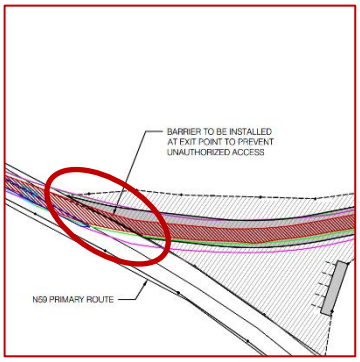
FIGURE 2-2: HISTORICAL COLLISIONS IN THE VICINITY OF THE SITE (SOURCE WWW.RSA.IE)

3 Main Report

3.1 Problem

Location: *P000379-PM00-0012*

Summary: *Unclear if the barrier indicated is sufficient to deter inadvertent or intentional attempts to use the temporary haul road.*



The temporary haul road could be mistaken as a realignment of the N59, or intentionally used by some drivers to reduce travel times, leading to possible collisions where the temporary route rejoins the National Road.

A barrier is indicated at the interface between the temporary haul road and the N59, however, it is unclear what form of barrier is proposed, and over what extents. It is unclear if the proposed barrier will be sufficient to deter drivers from accessing, or attempting to access, the temporary haul road. In addition, it is unclear how the barrier will be terminated and whether these terminals could present hazards to errant vehicles on the National Road will stop

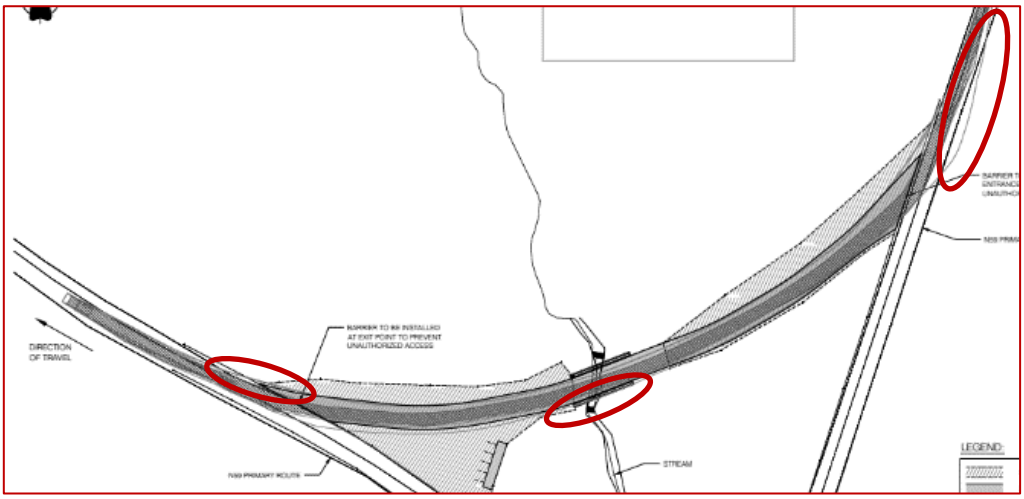
Recommendation

Ensure that the proposed barrier is sufficient to deter inappropriate access by vehicles or pedestrians, and that it extends over the full extent of the interface between the temporary road and the National Road. Care should be taken to ensure that the barrier terminals do not present a hazard to errant vehicles on the National Road.

3.2 Problem

Location: *P000379-PM00-0012*

Summary: *Road layout may not accommodate the swept path of Heavy Vehicles accessing/egressing the temporary haul route.*



The swept path analysis indicates some locations where the overhang of the abnormal load vehicle may be obstructed by existing roadside furniture items, such as the existing fence at the western tie-in with the N59 or the existing signs in the eastern verge of the N59 at the eastern tie-in with the N59, possibly resulting in material damage incidents.

Recommendation

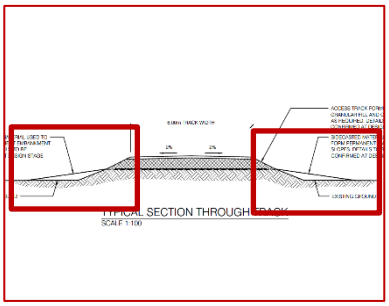
Ensure that the proposed road layout can safely accommodate the swept path of the vehicles intended to use the haul route.

3.3 Problem

Location: *P000379-PM00-0011*

Summary: *Risk of increased injury severity to vehicle occupants should an errant vehicle descend the slope if the embankment is steeper than 1V:3H.*

The "Typical Section Through Track" shows an embankment slope commencing directly from the edge of the carriageway. It is not clear what the proposed slope of the embankment will be, or what the overall embankment height will be.



There is a risk that if the slope is steeper than 1V:3H this would result in an increased injury severity to vehicle occupants should an errant vehicle leave the carriageway and descend the embankment.

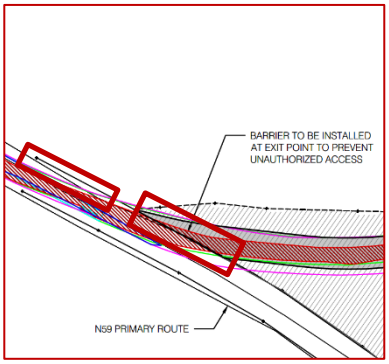
Recommendation

Provide an embankment slope no steeper than 1V:3H, and it would be preferable if a verge was provided alongside the carriageway to act as a buffer between the carriageway and the slope.

3.4 Problem

Location: *P000379-PM00-0011*

Summary: *Unclear if fence or proposed barrier is passively safe.*



The existing boundary along the northern side of the Site consists of a Timber Post & Wire fence. It is unclear what form any additional fencing to be provided as part of the Works will be. Should a non-passively safe fence type be installed within the clear zone of the National Road, this could result in increased injury severity outcomes for vehicle occupants should it be struck by an errant vehicle.

Recommendation

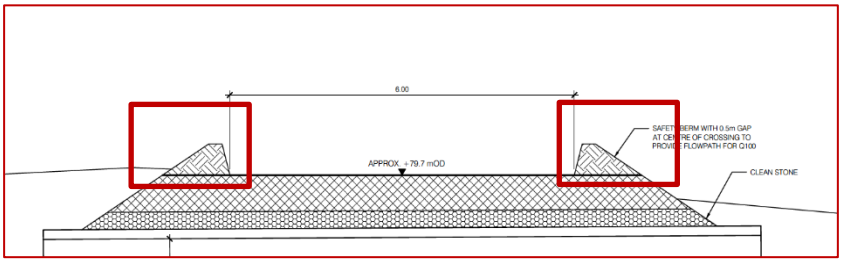
Provide passively safe fencing, or ensure that any fencing installed is located outside clear zone.

3.5 Problem

Location: *P000379-PM00-0011*

Summary: *Safety berm provided may be of insufficient height to safely protect for Works Operatives.*

A "Safety Berm" has been indicated on the approaches to, and across the proposed culvert, however the height of the berm has not been indicated. It is unclear if the berm is of sufficient height to prevent a Works Operative from inadvertently falling into the stream.



Recommendation

Either, ensure that the berm is of sufficient height to prevent an operative on foot from inadvertently falling into the stream or provide a pedestrian guardrail to the rear of the berm to prevent such an occurrence.

3.6 Problem

Location: *P000379-PM00-0011*

Summary: *Lack of warning signs of Heavy Vehicle movements on the approaches to the temporary haul route.*

Drivers using the N59 may not anticipate vehicles accessing/egressing from the temporary haul route, which may result in inappropriate approach speeds, late braking and rear-end or side-on collisions.

Recommendation

Depending on the projected frequency of bypass utilisation, provide temporary or permanent warning signs for drivers using the N59 warning of the upcoming Works Access and to expect slow-moving HGVs entering or exiting the temporary haul route.

3.7 Problem

Location: *P000379-PM00-0011*

Summary: *A vehicle stationary within the National Road while the gates are being opened/closed could present a hazard to through traffic on the National Road.*

It is unclear if gates will be provided where the temporary haul route ties in with the existing National Road. Where gates are to be provided, there is a risk that a stationary vehicle at the gates may encroach into the National Road while the gates are being opened/closed, presenting a potential hazard to through traffic on the N59.

Recommendation

Gates, if proposed, should be setback sufficiently to allow a vehicle to pull off of the National Road carriageway while the gates are being opened/closed.

4 Observations

4.1 The proposed temporary Route interfaces with the N59 over a significant distance, in particular at the western tie-in. It is noted from the drawing that there will be parking & facilities for a Contractor. The extended interface could result in Works traffic entering/exiting the site over a relatively long & poorly defined interface area. The Works Access/Egress locations should be well-defined with adequate visibility to/from them along the National Road approaches.

4.2 During the design development care should be taken to ensure that the amended road layout will adequately shed surface run-off, and does not result in ponding within the access or verge where it may encroach into the traffic lane.

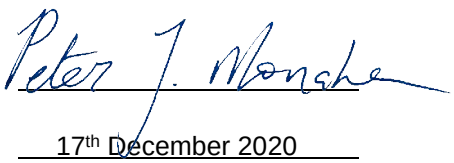
5 Road Safety Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions, which we would recommend should be studied for implementation.

No one on the Road Safety Audit Team has been involved with the design of the scheme.

ROAD SAFETY AUDIT TEAM LEADER

Peter Monahan Signed: 

Dated: 17th December 2020

ROAD SAFETY AUDIT TEAM MEMBER

Antonios Papadakis Signed: 

Dated: 17th December 2020

Appendix A – Road Safety Audit Brief Checklist

Have the following been included in the audit brief?: (*if 'No', reasons should be given below)*

		Yes	No
1.	The Design Brief	☑	☐
2.	Departures from Standard	☐	☑
3.	Scheme Drawings	☑	☐
4.	Scheme Details such as signs schedules, traffic signal staging	☐	☑
5.	Collision data for existing roads affected by scheme	☑	☐
6.	Traffic surveys	☐	☑
7.	Previous Road Safety Audit Reports and Designer's Responses/Feedback Form	☐	☑
8.	Previous Exception Reports	☐	☑
9.	Start date for construction and expected opening date	☐	☑
10.	Any elements to be excluded from audit	☐	☑

Any other information?

(if 'Yes', describe below)

☐ ☑

Appendix B – Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Oweninny Stream Crossing, Proposed Western Way Bridge Bypass Site Location Map	**P000379-PM00-0010**	-
Oweninny Stream Crossing, Proposed Western Way Bridge Bypass Site Layout	**P000379-PM00-0011**	-
Oweninny Stream Crossing, Proposed Western Way Bridge Bypass Vehicle Swept Path	**P000379-PM00-0012**	-

Appendix C – Feedback Form

Road Safety Audit Feedback Form

Scheme: Oweninny Wind Farm Phase 2

Route No.: N59

Audit Stage: Stage 1 & 2 Road Safety Audit **Date Audit Completed:** 10/12/2020

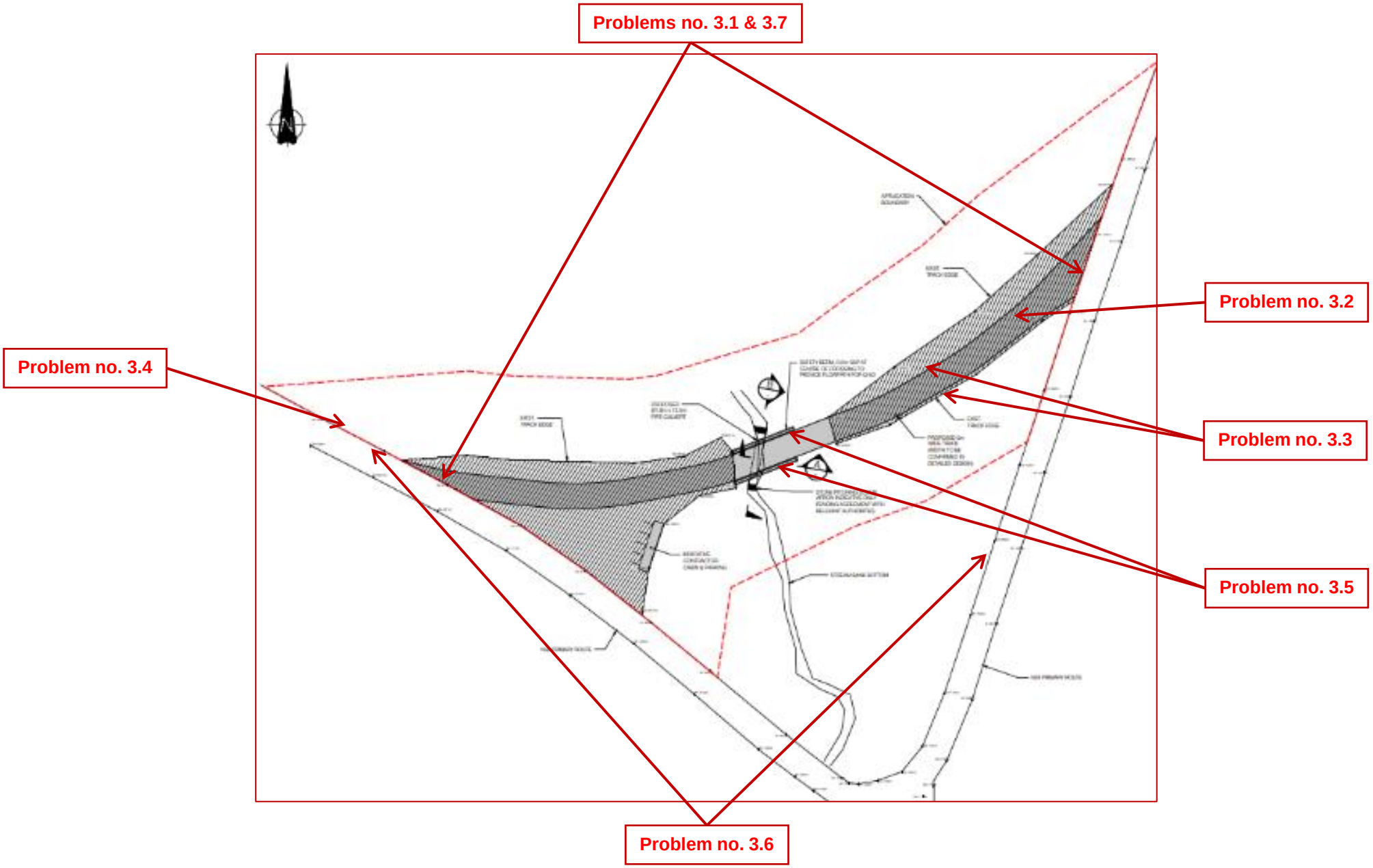
	To Be Completed By Designer			To Be Completed By Audit Team Leader
Paragraph No. in Safety Audit Report	**Problem Accepted (Yes/No)**	**Recommended Measure(s) Accepted (Yes/No)**	**Describe Alternative Measure(s). Give reasons for not accepting recommended measure**	**Alternative Measures or Reasons Accepted by Auditors (Yes/No)**
3.1	Y	Y	Temporary barriers (e.g. water-filled barriers) will be used.	
3.2	Y	N	Existing furniture (e.g. signs) will be repositioned where required, or taken down temporarily and re-erected immediately after convoy passes.	Y
3.3	Y	N	Width of existing temporary route will remove the need for any slopes to the side of the new temporary carriageway, except on immediate approach to new culvert. Works Contractor will be responsible for Operative safety measures at this location.	Y
3.4	Y	Y		
3.5	Y	N	Works Contractor will be responsible for Operative safety.	Y
3.6	Y	N	Route will be used at night by convoy with Garda escort. No temporary signage considered necessary.	Y
3.7	Y	Y		

Signed: Danny O'Keeffe Designer **Date** 17/12/2020

Signed: Peter J. Monahan Audit Team Leader **Date** 17/12/2020

Signed: Employer **Date** 17/12/2020

Appendix D – Problem Locations


Problems no. 3.1 & 3.7
Problem no. 3.2
Problem no. 3.4
Problem no. 3.3
Problem no. 3.5
Problem no. 3.6