NATURA IMPACT STATEMENT

Ballyteige Solar Farm Amendment (Planning ref. 2198)

Original report: 23/10/2020

Amendment: 20/11/2025

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1. EXECUTIVE SUMMARY

1.1. A Natura Impact Statement has been undertaken for the proposed solar farm amendment in the townlands of Ballyteige Little, Ballyteige Big and Colehill, Tullamore Co. Offaly (planning reference: 2198). This will assess whether there is connectivity with any European designated site within the Zone of Influence (ZoI) of the Application Site and whether the Proposed Amendment, either alone or in combination with other plans or projects, is likely to have any significant effects on any European site and subsequently whether any adverse effects upon the integrity of such sites will arise.

1.2. This document is intended to provide the competent authority, in this case Offaly County Council, as a public authority under the European Communities (Birds and Natural Habitats) Regulations 2011, as amended ("the 2011 Regulations"), with the necessary information to assist in fulfilling their obligations under Regulation 42 of the 2011 Regulations and the underpinning European legislation (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, 'the Habitats Directive').

1.3. Within the ZoI surrounding the Application Site there are six Special Areas of Conservation (SACs): Raheenmore Bog SAC, Charleville Wood SAC, Spilt Hills and Long Esker SAC, River Barrow and River Nore SAC, Clara Bog SAC and Lough Ennel SAC.

1.4. There are no Special Protection Areas (SPAs) identified within the projects ZoI.

1.5. The screening for Appropriate Assessment exercise has concluded that of the six European sites identified within the ZoI that likely significant effects (LSEs) arising as a result of the Proposed Amendment could not be excluded for two European Sites, namely the Charleville Wood SAC and the River Barrow and River Nore SAC. A hydrological pathway for potential impacts exists between the Application Site and Charleville Wood SAC and an ecological pathway for potential impacts exists between the Application Site and River Barrow and River Nore SAC.

1.6. With the implementation of best practice construction methods as detailed in **Technical Appendix 8: Outline Construction Environmental Management Plan** (OCEMP) which has been submitted as part of the consented solar farm, and discussed below, it can be concluded that there will be **no significant impacts** on the integrity of any European sites.

1.7. This conclusion is drawn when considering the project alone or in combination with other plans or projects.

2. INTRODUCTION

BACKGROUND

2.1. Neo Environmental Ltd has been appointed by Ballyteige Solar Limited (the "Applicant") to undertake a NaturaImpact Assessment for a Proposed Amendment to the consented BallyteigeSolar Farm (the "Proposed Amendment") in the townlands of Ballyteige Little, Ballyteige Big and Colehill Co. Offaly (the "Application Site").

2.2. Please see **Figure 203 of Volume 2** for the layout of the Proposed Development.

DEVELOPMENT DESCRIPTION

Site Description

2.3. The Application Site is located in a rural setting, approximately 4.8km east of Tullamore and 3.9km northwest of Ballinagar. The main Grand Canal runs in a general east to west direction, circa 150m to the south of the Proposed Development (at its closest point). A narrower section of the canal runs northwest to southeast to the west of, and paralleled to, the Wood of O road circa 350m to the east of the main application site. Centred at approximate Irish Grid Reference (IGR) N 39618 26489, the Application Site is relatively flat and lies at an elevation of approximately 68 – 74m above ordnance datum (AOD), covering a total area of circa 60.53ha.

2.4. Comprising 16 fields, the Application Site primarily consists of pastureland, with one field to the southwest corner under arable crop. Fields are bound by a mixture of trees, hedgerows and post-and-wire fencing. Access to the Application Site is gained from the Wood of O road to the east of the Application Site.

ADOPTED DESIGN PRINCIPLES

2.3. Measures incorporated into the Proposed Development design include the following:

- A 5m buffer from hedgerows.
- 2m Buffer from Field Drains
- Tree Buffers dependant on height
- 10m OPW Drain Buffers

- 10m Buffer for overhead lines
- 30m Badger Sett Buffer

PROPOSED AMENDMENT

2.5. Overall, the proposed footprint constitutes a relatively small percentage of the total area of the Application Site (60.53ha):

- 22,191.3m2 for infrastructure (c. 3.67% of the Application Site area); and
- 167.5m2 for piling (c. 0.03% of the Application Site area).

2.6. The total ground disturbance area resulting from the Proposed Development is therefore 22,358.8m2 or c. 3.69% of the Application Site area.

2.7. The Proposed Development will consist of an amendment to a previously consented development (planning reference: 2198). The proposed amendment seeks minor modifications to the Consented Development including the following:

- Removal of the 38kV substation and infrastructure within the most northern field (Field 1),
- Internal access track reduced from c.3.4km to c. 3.2km, relocated and tweaked to include turning areas,
- String inverters are used instead of combined central inverters and MV transformers. The central MV transformers remain, and increase from 11No. to 12 No., however there will be a reduction in their associated hardstanding areas,
- The number of string inverters is 128,
- Table layout updated (reduced),
- PV angle tilt reduced from 10º and 30º to 10º and 20º,
- Separation area between infrastructure and OHL towers increased,
- An additional badger sett buffer added (due to new sett found during updated Fossitt Habitat Survey),
- Temporary Construction Compound has been relocated from Field 1 to Field 4,

- Alter Condition No. 10 to increase the boundary fencing from 1.8m-2m high to 2.4m high and reduce in the perimeter fence length,
- CCTV number increase from 81 to 118 and their locations have been amended,
- Adjustment of the development period from 5 years to 10 years, and
- Alter Condition No. 11 to change the operational lifetime from 35 years to 40 years.

2.8. The Application Site was initially deemed an acceptable location for solar development in 2022 when Offaly County Council ('OCC') provided a grant of permission for a solar PV development proposed by the Applicant on 60.53 hectares of land in the townlands of Ballyteige Little, Ballyteige Big and Colehill, Tullamore, Co. Offaly.

2.9. The original development proposal (planning reference: 2198) was granted permission following a comprehensive planning and environmental assessment process. The consented scheme comprised the construction of a solar PV energy development with a total site area of 60.53 hectares, to include a single storey electrical substation building, inverter substations, modules, solar PV ground mounted on support structures, a temporary construction compound, internal access tracks, security fencing, electrical cabling and ducting, CCTV and other ancillary infrastructure, drainage, additional landscaping and habitat enhancement as required and associated site development works relating to the access of the site. The operational lifespan was 35 years.

STATEMENT OF AUTHORITY

2.10. The assessment has been conducted by suitably qualified and experienced ecologists, and this work has been carried out in line with the relevant professional guidance, which is cited, where relevant, throughout this report.

2.11. Daniel Flenley, who is a former ecologist at Neo Environmental who worked on the original application, has 13 years of experience in ecological surveys and six years of experience writing assessments. Formerly a graduate member of the Chartered Institute of Ecology and Environmental Management (CIEEM), he is currently applying for full membership. Daniel has experience in undertaking and managing a range of surveys and assessments including Ecological Impacts Assessments, extended phase 1 habitat surveys and ornithological, and protected species surveys, for around 200 projects. These include a variety of development types such as energy, commercial, residential and transport infrastructure.

2.12. Dara Dunlop is a Principal Ecologist at Neo Environmental. Dara Dunlop is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM), has circa 6 years' experience in the ecology sector, including working for two ecological consultancies undertaking a range of protected species surveys and extended phase 1 habitat surveys for various project types including energy, residential, commercial and aggregate

across the UK and Ireland. Dara has authored a number of reports for various developments including EcIAs, Protected Species Reports, Appropriate Assessment and Natura Impact Statement Reports.

2.13. Kellie Kerr, who completed the amendment of this report, is an Assistant Ecologist with over 3 years of professional experience in the ecology and conservation sector. Kellie holds a BSc Environmental Science (Hons) with Diploma in Professional Practice, achieved qualifying Chartered Institute of Ecology and Environmental Management (CIEEM) membership and has valid Construction Skills Register (CSR), manual handling and first aid qualifications. Kellie has experience completing Phase 1, Fossitt, protected species surveys. Kellie has authored and co-authored ecological reports supporting various development types including Ecological Impact Assessment (EcIA), Biodiversity Management Plan (BMP), Natura Impact Statement (NIS)/ shadow Habitats Regulations Assessment (sHRA) as well as species specific reports.

2.14. Samuel O'Hara, who reviewed this report, is a Principal Ecologist at Neo Environmental who holds a BSc (Hons) in Ecology and has over ten years' experience in ecology consultancy and conservation. He is a protected species licence holder (bats, smooth newt, common lizard) who has extensive experience of habitat and protected species survey work throughout Britain and Ireland with a particular focus on habitat and botanical surveys. Samuel has produced a wide range of documents in support of planning submissions including ecological impact assessment (EcIA), Habitats Directive appraisals, protected species surveys reports, condition compliance reports, invasive species management plans and habitat management plans, among others. This includes planning applications across an array of sectors. Samuel is a full member of the CIEEM.

3. LEGISLATION

REQUIREMENT FOR APPROPRIATE ASSESSMENT

3.1. The requirement for Appropriate Assessment (AA) of plans or projects originates from Article 6 (3) and (4) of European Union (EU) Habitats Directive of the European Union (EU) Council Directive 92/43/EEC of 21 May 1992 (the 'Habitats Directive') and Council Directive 2009/147/EC on the conservation of wild birds (Codified version) (the 'Birds Directive'). This is implemented in Ireland through the European Communities (Natural Habitats) Regulations of 1997, and the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 (as amended).

3.2. In relation to the planning consent process, Part XAB of the Planning and Development Act 2000 – 2015 (as amended) Section 177U sets out the requirements for Screening for AA while Section 177V sets out requirements for undertaking the AA.

3.3. The wording of Article 6 (3) of the Directive is as follows:

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

3.5. As outlined in the European Commission document 'Assessment of plans and projects significantly affecting Natura 2000 sites'[1], any project that is not directly connected with or necessary to the management of a Natura 2000 site, but likely to have a significant effect upon it, either individually or cumulatively will be subject to Appropriate Assessment. Furthermore, the European Commission's most recent guidance on Article 6: "Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC"[2] has also been considered.

3.6. Where significant effects are uncertain or unknown at the screening stage an AA will be required, due to the requirement for adherence to the precautionary principle. The purpose

[1] European Commission (2021) *Assessment of plans and projects in relation to Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats directive 92/43/EEC*. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021XC1028%2802%29

[2] Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (European Commission, 2018)

of the Stage 1 Screening is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, alone or in-combination with other plans or projects, could give rise to likely significant effects on a European site in view of the site's conservation objectives.

3.7. There is no necessity to establish such an effect; it is merely necessary for the competent authority to determine that there may be such an effect. This AA Screening document has been submitted to the competent authority to assist them in reaching this determination. Conversely, if a project will have impacts on a site, but these impacts will clearly not affect or undermine those conservation objectives, it is not considered that it will have a likely significant effect on the site concerned.

3.8. The aim of Stage 2, 'Natura Impact Statement' (NIS) is to inform the assessment of the impacts of the Proposed Development on the integrity of the Natura 2000 site, considering the conservation objectives of the site and its ecological structure and function. This is done by considering the type of development and the conservation objectives of any Natura 2000 sites which may be impacted. The NIS will further assess connectivity between the development and the Natura 2000 sites and their qualifying interests.

3.9. In addition, s177(T)1(b) and (2) of the Planning and Development Act 2000 (as amended) sets out the requirements for an NIS and states:

"s177(T) (1)(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one F722 [European site], in view of the conservation objectives of the site or sites.

(2) Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one F722 [European site] in view of the conservation objectives of the site or sites."

3.10. In line with relevant case law, conclusions within the NIS which exclude the potential for adverse effects in site integrity must be drawn in the absence of reasonable scientific doubt.

Consideration of Mitigation Measures

3.11. The European Commission (EC 2001) states that mitigation should not be considered during the AA (i.e. Stage 1) Screening stage. On 12th April 2018, the Courts of Justice of the EU (CJEU) ruled in case C-323/17 (People over Wind v Coillte) that measures intended to avoid or reduce a proposed plan or project's harmful effects on a European site ('mitigation measures') cannot be considered during the Screening for AA stage.

3.12. Therefore, unless it can be shown that the proposed plan or project is not likely to give rise to a significant effect on the conservation objectives of the relevant European site, or if

reasonable uncertainty remains as to the absence of such effects, it is necessary to proceed to Stage 2 AA. Mitigation measures should be considered at Stage 2, when a 'full and precise analysis' can be carried out. This is contrary to the previous guidance whereby inherent mitigation at the screening stage could be considered.

3.13. Several subsequent judgements in both the Irish High Court and CJEU (IEHC 468 and C-721/21 'Eco-Advocacy') have since determined that measures for environmental protection which are included at the design phase, and which would be included irrespective of whether the project was determined to give rise to potential adverse effects upon a European site(s), may be considered at the screening stage. Where this is the case, such measures would be required to be sufficiently effective, based on practical experience, to offer no reasonable scientific doubt as to their effectiveness. These judgements are considered to offer reasonable precedent in respect of the specific measures relevant to those cases, namely the use of Sustainable Urban Drainage Systems (SUDs) to alleviate site run-off rates and associated water quality.

3.14. However, in line with relevant case law and adopting a robust and precautionary approach the Screening for Appropriate Assessment, set out within this document, does not include consideration of mitigation measures.

The Precautionary Principle

3.15. The Precautionary Principle, referenced in Article 191 of the Treaty on the Functioning of the EU, is defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as:

When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis.

3.16. The reasoned employment of the 'Precautionary Principle' is fundamental to every AA. The Precautionary Principle, is referenced in Article 191 of the Treaty on the Functioning of the EU, is defined by the European Commission, 20003 as, in practice:

Where preliminary objective scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen for the Community.

The Precautionary Principle should be considered within a structured approach to the analysis of risk which comprises of three elements: risk assessment, risk management, risk communication. The precautionary principle is particularly relevant to the management of risk.

3.17. The reasoned employment of the 'Precautionary Principle' is fundamental to every AA. The need to apply the precautionary principle in making any key decisions in relation to the tests

[3] ec.europa.eu/commission/presscorner/detail/en/ip_00_96

of Appropriate Assessment (AA) has been confirmed by the case law of the Court of Justice of the European Union (CJEU)[4]. At Stage 1 Screening, plans or projects that have no appreciable effect on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether a Stage 2 AA must be undertaken by the competent authority on the implications of the proposed development for the conservation objectives of a European site. Therefore, where significant effects are likely, uncertain or unknown at Stage 1 Screening, a Stage 2 AA will be required.

3.18. Case law has established that in order for a Stage 2 AA, to be lawfully conducted, it:

(i) must identify, in the light of the best scientific knowledge in the field, all aspects of the proposed development which can, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;

(ii) must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and

(iii) may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to the next stages where alternative sites, imperative reasons of overriding public interest, and compensatory measures are considered.

Consideration of Ex-Situ Effects

3.19. Member states are advised, within the European Commission's 2018 Notice[5], that the stipulations set out at Article 6(3) of the Habitats Directive should be applied to all types of development or other activities including where such proposals arise outside of European sites.

3.20. Case law[6] has established that in line with the requirements of Article 6(3) the Appropriate Assessment process must involve the cataloguing of all habitats and species for which the site is designated and furthermore identify and examine the implications of the plan or project for non-qualifying habitats or species or habitats within the site or outside of the site, where the impacts to such habitats or species are liable to affect the conservation objectives of the qualifying interests of the site in question.

[4] Case C-258/11 CJEU 11 April 2013

[5] European Commission Notice C 33/01 (2019) Managing Natura 2000 sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC

[6] Case C-461/17 ("Brian Holohan and Others v An Bord Pleanala")

3.21. In light of this, consideration has been given in the Habitats Directive Appraisals, to the potential of the Proposed Development to give rise to adverse effects to non-qualifying species and habitats present within or outside of the European sites, where such effects would have potential to affect the relevant qualifying features of the sites.

4. ASSESSMENT METHODOLOGY

Relevant Guidance

4.1. A range of relevant guidance has been published by statutory bodies in respect of the methodology used in the completion of the Habitats Directive Appraisals. The following guidance documents have informed the approach taken to assessment within the Habitats Directive appraisals including definitions, assessment criteria and the application of relevant legal 'tests':

- European Commission Notice C 437/01 (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission Notice C 33/01 (2019) Managing Natura 2000 sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC.
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory measures, Overall coherence, Opinion of the Commission. (2007/2012).
- Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg (EC, 2000).
- Interpretation manual of European Union Habitats. Version EUR 28. Publications Office of the European Union, Luxembourg (EC, 2018).
- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a).
- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010);

Stages of Appropriate Assessment

4.2. Appropriate Assessment is a staged procedure, necessitating four possible sequential stages. The guidelines of this assessment are presented in the publication 'Assessment of plans and projects significantly affecting Natura 2000 sites' (EC, November 2021)[7].

4.3. The stages are as follows:

- Stage 1 Screening: To first determine whether the plan or project is directly or indirectly connected to or necessary for the management of a European Site and subsequently (where it is not) to assess, in light of objective criteria, whether the plan or project, alone or in-combination with other plans or projects, is likely to give rise to significant effects on a European site in view of the relevant site's conservation objectives.

- Stage 2 Natura Impact Statement: Where likely significant effects upon European sites could not be excluded at the previous stage, Stage 2 will assess the potential of the plan or project to give rise to adverse effects upon the integrity of the European site(s). This assessment must be undertaken in view of the site-specific conservation objectives of the relevant European site and, where reasonable scientific doubt remains, the application of the precautionary principle, as discussed above. Where possible, the NIS will identify and describe appropriate mitigation to remove the potential for adverse effects on any European site(s).

- Stage 3 Consideration of Alternative Solutions: Where adverse effects on the integrity of any European site(s) are anticipated or cannot be excluded in the absence of reasonable scientific doubt despite the application of mitigation measures, the proposal should progress to Stage 3 and consideration of alternative solutions. Case law has established that such an assessment should not include considerations of cost. Furthermore, if alternative solutions are available which would not give rise to an adverse effect on the integrity of a European site(s) or would have a less damaging effect on such sites then this alternative option should necessarily be adopted by the competent authority.

- Stage 4 Consideration of IROPI: The final stage, following a determination that no less damaging alternatives are available, involves an examination of whether the plan or

7 Assessment of plans and projects significantly affecting Natura 2000 sites' EC (October 2021). Available at: Commission notice Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC 2021/C 437/01 - Publications Office of the EU

project is proposed for imperative reasons of overriding public interest (IROPI). In such circumstances the proposal may be consented in spite of associated adverse effects upon a European Site(s), where no less damaging solution exists. In such circumstances, the Member State must take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected.

Source – Pathway - Receptor Model

4.4. The 'source-pathway-receptor' conceptual model is a tool used for environmental assessment. In order for an effect to occur, all elements of this model must be linked. The removal or absence of one of the elements of the model results in there being no potential for the effect in question to occur. For example:

- Source(s), e.g., blasting.
- Pathway(s) e.g., air (noise and vibration effects transmitted through this pathway).
- Receptor(s) e.g., nesting birds.

4.5. For an NIS, this model is focused solely on the qualifying interests (for SACs) and special conservation interests (for SPAs) of European Designated Sites, as defined by the National Parks and Wildlife Services (NPWS) and referenced within this report.

4.6. SACs are designated on account of qualifying areas of supported Annex I Habitats or populations of Annex II species, collectively referred to as Qualifying Interests (QIs). SPAs are designated on account of the supported populations of Annex I bird species and associated wetland habitats, collectively referred to as Special Conservation Interests (SCIs).

4.7. The Proposed Amendment may have the potential to result in a number of impacts, which could potentially affect the qualifying interests (for SACs) and special conservation interests (for SPAs) of European Designated Sites. The "zone of influence" (ZOI) for each effect is established using the Source-Pathway-Receptor framework, which helps identify potential impact pathways between the project and Natura 2000 site. Different effects have different zones of influence, for example hydrological effects may span several kilometres and air and land may span several hundred meters. The analysis of these effects, the source -pathway - receptor framework, requires scientific knowledge and professional judgement and leads to the identification of a "zone of influence" for each effect.

Study Zone Identification

4.8. The 'Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities'[8] states that the NIS should include the following:

- *"Any Natura 2000 sites within or adjacent to the plan or project area.*
- *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 15km, and in some cases less than 100m, 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. In some instances, connectivity may go beyond 15km and will also need to be considered.*
- *Natura 2000 sites that are more than 15km from the plan or project area depending on the likely impacts of the plan or project, 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 or quantity, for example, it may be necessary to consider the full extent of the upstream and/or downstream catchment*."

4.9. The Zone of Influence (ZoI) for a project should be established on a case-by-case basis using the Source-Pathway-Receptor framework, as recommended by recent guidance from the Office of the Planning Regulator[9].

4.10. This approach focuses on identifying potential impact pathways between the project and European Sites, rather than relying on arbitrary distances. While earlier guidance suggested a 15km radius as a starting point for considering potential impacts, particularly for plans, the current best practice emphasizes that the ZoI can vary significantly based on the nature and scale of the project, the sensitivity of ecological receptors, and potential impact pathways. Sites further than 15km from the Proposed Development with a potential hydrological or ornithological connection have also been considered.

[8] Department for Environment, Heritage and Local Government (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Available at: http://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

[9] Appropriate Assessment Screening for Development Management – PN01 – Available at: https://www.opr.ie/wp-content/uploads/2021/03/9729-Office-of-the-Planning-Regulator-Appropriate-Assessment-Screening-booklet-15.pdf

Desk Study

4.11. Sources of material that were consulted as part of the desk study for the purposes of the assessment are as follows:

- NPWS natural heritage database for Natura 2000 sites within the 15km ZOI of the Application Site[10].
- NPWS site synopses, Natura 2000 Data Form and conservation objectives relating to each site and aerial images.
- Environmental Protection Agency (EPA) interactive maps[11]

Biodiversity

4.12. An Ecological Impact Assessment (EcIA) – Technical Appendix 2 was undertaken and submitted as part of the original planning application. Baseline information within the ecological assessment comprised of an initial desk-based assessment and a phase 1 habitat survey. As the extended habitat survey was carried out in June 2020, a revised extended habitat survey was then undertaken in October 2024 to ensure the information was accurate.

4.13. A total of eleven habitat types were noted during the Fossitt habitat survey undertaken in June 2020 and the same number and type were recorded in October 2024. Of note, the only substantial change recorded was an additional badger sett. The appropriate 30m buffer was added around the badger sett within the design of the Proposed Amendment.

[10] Environment, Heritage and Local Government (2009) Appropriate Assessment of Plan and Projects in Ireland. Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

[11] Available at: https://gis.epa.ie/EPAMaps/

5. STAGE 1 – SCREENING FOR APPROPRIATE ASSESSMENT

5.1. In accordance with relevant guidance, this stage of the AA has identified all European Sites located within the ZoI of the Proposed Amendment. These sites and their current status form the baseline against which the potential for likely significant effects (LSEs) should be assessed.

5.2. The potential impact pathways associated with the Proposed Amendment have been identified. Those European Sites upon which there is no possibility of significant effects will be ruled out of any further assessment.

5.3. The potential for LSEs can depend more on the nature of proposals, sensitivity of receptors and causal linkage, rather than actual distances. The assessment below considers connectivity, either ecological, ornithological or hydrological, that may exist between the Proposed Amendment and the European site(s).

IDENTIFICATION OF EUROPEAN SITES

5.4. The Proposed Amendment does not alter the boundary of the existing Application Site, therefore the potential pathways for connectivity to extend remain the same as the original consented application. A recent search (November 2025) was undertaken, and no new designated sites were identified.

5.5. There are six Special Areas of Conservation (SACs) and no Special Protection Areas (SPAs) (SACs) located within 15km of the Proposed Amendment boundary.

5.6. The designated features of each have been outlined within **Table 5-1** below. **Appendix A, Figure 1** of this report details the location of these sites in relation to the Proposed Amendment.

Table 5-1: Natura 2000 sites within 15km

Site Code	Site Name	Qualifying Features	Distance (km), Direction	Potential Connectivity with the Proposed Amendment Site
000582	Raheenmore Bog SAC	Active raised bogs [7110]	5.55km northeast	None

		Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150]		
000571	Charleville Wood SAC	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]	6.78km southwest	Hydrological
001831	Split Hills and Long Hill Esker SAC	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]	7.94km north	None
002162	River Barrow and River Nore SAC	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] European dry heaths [4030]	10.66km south	Ecological

		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (Cratoneurion) [7220] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016] Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Austropotamobius pallipes (White-clawed Crayfish) [1092] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Alosa fallax fallax (Twaite Shad) [1103] Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355] Trichomanes speciosum (Killarney Fern) [1421]		
000572	Clara Bog SAC	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*	11.71km northwest	None

		important orchid sites) [6210]		
000685	Lough Ennell SAC	Alkaline fens [7230]	14.95km north	None

SOURCE-PATHWAY-RECEPTOR ANALYSIS

5.7. The potential for the Proposed Amendment to give rise to LSEs upon the above listed European sites, in addition to any others with potential connectivity to the Application Site, is assessed on the basis of source-pathway-receptor links. As discussed above, this is defined as a link between a source of impact (such as construction phase operations giving rise to visual and noise disturbance), a pathway for such a source to act (such as through proximity to a European site) and the receptor itself (which may comprise a specific qualifying interest sensitive to such effects). Where a sufficient link is considered to exist between the source, pathway and receptor it is considered that a likely significant effect may occur.

5.8. As shown in **Table 5-1**, the Application Site is not located within or directly adjacent to any Natura 2000 site.

Raheenmore Bog SAC

5.9. Raheenmore Bog SAC is located 5.55 km northeast of the Application Site at its closest point and is designated on account raised bog habitats listed on Annex I of the E.U. Habitats Directive (see **Table 5-1**).

5.10. The habitats of this SAC are ombrotrophic and there are no potential pathways for hydrological or ecological connectivity with the Application Site. Furthermore, it is not considered that there is any potential for the Proposed Amendment to give rise to any likely significant noise, vibration or visual disturbance to the SAC or its QI habitats, due to its distance from the Application Site.

5.11. Where connectivity does not exist, there are no pathways for likely impacts associated with the Proposed Amendment and no potential for the QIs of the SAC to be impacted. Therefore, any likely significant effects upon this European Site are excluded at the screening stage.

Charleville Wood SAC

5.12. The Charleville Wood SAC is located 6.78km southwest of the Application Site and is designated for a range of Annex I habitats. The Wood of O watercourse is located approximately 200m to the west of the site's northwestern boundary. It connects to the Wood of O stream, which confluences with the Corndarragh Stream approximately 1.5km west of the Application Site and this then connects to the Tullamore River approximately

4.75km west of the Application Site. Surface waters from the northern fields of the Proposed Development will reach the Wood of O watercourse through overland flow and internal field drains.

5.13. The Ballyteige watercourse runs directly through Fields 11 and 12 of the Application Site and water flows a southern direction and connect to the Puttaghan Stream which flows west along the southern boundary of Field 11. Puttaghan Stream confluences with the Corndarrgh Stream approximately 4km west of the Application Site and this then connects to the Tullamore River approximately 4.75km west of the Application Site. Surface waters from the southern fields of the Proposed Development will reach the Ballyteige watercourse through overland flow and internal field drains.

5.14. As the watercourses within the Application Site eventually join at the Tullamore River, this hydrological pathway travels through the Charleville Wood SAC approximately 8.2km downstream. In the absence of mitigation, there is the potential for the Proposed Amendment to give rise to impacts on the qualifying interests (QIs) of this SAC. This report will consider appropriate measures to mitigate any impacts associated with the Proposed Amendment.

Split Hills and Long Hill Esker SAC

5.15. Split and Long Hills Esker SAC is located 7.94 km north of the Application Site at its closest point and the SAC designated for its glaciofluvial geomorphology and associated Annex I habitats (see Table 5-1).

5.16. This SAC comprises dry, free-draining esker habitats which are minerotrophic and have no potential hydrological connectivity with the Application Site. As a result of the separation distance and the absence of any supporting ecological or functional linkages, it is not considered that the Proposed Amendment could give rise to any likely significant noise, vibration or visual disturbance to the SAC or its qualifying interests.

5.17. As no hydrological, ecological, or other impact pathways exist between the Application Site and this European Site, there is no mechanism for likely significant effects to arise. Therefore, any likely significant effects upon this SAC are excluded at the screening stage.

River Barrow and River Nore SAC

5.18. The Application Site is located 10.66 km north of the River Barrow and River Nore SAC and there is no hydrological connectivity between these locations. The SAC occurs at a higher elevation, and all surface waters within the Application Site drain westwards towards Tullamore, rather than south towards the River Barrow catchment. As such, there is not considered to be any potential hydrological pathway for impacts on any Annex I habitats or aquatic species of this SAC.

5.19. However, otter (*Lutra lutra*), a qualifying interest of the SAC, is capable of transversing a variety of habitats with territories that can span 2 to 20 kilometres depending on food

availability in the area[12]. Due to the presence of potentially suitable habitat for migrating otter within the Application Site it is considered they could potentially be found within and surrounding the Application Site. Therefore, although hydrological pathways are absent, a limited ecological connectivity exists in relation to mobile QI species for foraging and commuting Annex I otter populations only.

Clara Bog SAC

5.20. Clara Bog SAC is located 11.71 km northwest of the Application Site at its closest point. The SAC comprises ombrotrophic raised bog habitats, which are rain-fed and hydrologically isolated from the surrounding landscape. There is no hydrological connectivity between the Application Site and the SAC, as the bog system does not receive water input from external catchments and the Application Site drains away from the SAC.

5.21. Given the separation distance, the ombrotrophic nature of the qualifying habitats, and the absence of any functional hydrological or ecological pathways, there is no mechanism for the Proposed Amendment to give rise to likely significant effects on the Qualifying Interests of the SAC. Accordingly, LSEs have been excluded at the screening stage.

Lough Ennell SAC

5.22. Lough Ennell SAC is located 14.95 km north of the Application Site at its closest point. There is no hydrological connectivity between the Application Site and the SAC, as all surface waters within the Application Site drain westwards and do not form part of the catchment for this SAC. Given the substantial separation distance and the absence of any potential for hydrological connectivity, there is no functional pathway through which the Proposed Amendment could give rise to changes in water quality, habitat structure, or disturbance affecting the Qualifying Interests of the SAC. Accordingly, likely significant effects on Lough Ennell SAC are excluded at the screening stage.

[12] Available at: https://iwt.ie/wp-content/uploads/2018/05/Eurasian-Otter.pdf

6. IN-COMBINATION ASSESSMENT

6.1. As well as singular effects, in-combination effects also need to be considered. Article 6 (3) of the EU Habitats Directive and Regulation 15 of the European Communities (Natural Habitats) Regulations state that any plan or project that may, either alone or in combination with other plans or projects, significantly affect a European Designated Site require consideration.

6.2. In-combination effects can become a conservation concern even when individual development proposals have a small impact on European Designated Sites. If other nearby proposals are anticipated to have ecological or ornithological impacts, the combined result can have a significant impact on European Designated Site(s).

6.3. The European Commission Habitats Directive and the Habitats Regulations 2011 require that the impacts on European Designated (formerly 'Natura 2000') Sites be assessed from the plan or project in question and also in the presence of other plans and projects that could affect the same European sites.

6.4. This AA Screening has identified other plans and projects that could act, in combination with this Proposed Amendment, and has assessed whether or not those plans or projects pose likely significant effects on European Designated sites.

6.5. The main aim of this process is to assess if these other plans and projects have undergone Appropriate Assessment Screening themselves and have either been adopted or consented following an AA Screening, then they cannot pose likely significant adverse effects on European sites.

Plans

6.6. A review of the following plans was undertaken;

National Planning Framework 2040

6.7. The National Planning Framework ("NPF") 2040 is a high-level, national vision and provides the strategic framework and principles to manage future population and economic growth in Ireland over the next 20 years. It informs the parameters for the preparation of Regional Spatial and Economic Strategies ("RSESs") by each of the three Regional Assemblies, established under the Local Government Reform Act 2014.

6.8. In order to comply with the requirements of Article 6(3) of the EU Habitats Directive an AA screening was undertaken at an early stage in the drafting of the National Planning Framework ("NPF").

6.9. Adopting the precautionary principle, it was concluded that a NIS should be prepared. An NIS was prepared by RPS on behalf of the Minister for Housing, Planning and Local Government.

The NIS considered the potential for the NPF to adversely affect the integrity of any European Designated Site(s); with regard to their qualifying interests, associated conservation status, the structure/function of the site(s) and the overall site(s) integrity. This was done in a two-stage process, initially assessing the draft NPF and subsequently assessing the changes made post consultation for the NPF.

6.10. The Minster of Housing, Planning and Local Government, having considered the AA and its conclusions determined that;

"the adoption and publication of the NPF as a replacement of the National Spatial Strategy for the purposes of section 2 of the Planning Development Act 2000 will not individually or in combination with any other plan or project adversely affect the integrity of any European Site (as defined)."

6.11. Thus, the in-combination impacts from the NPF, with the Proposed Development are not predicted to result in any Likely Significant Effects to any European Site(s).

Regional Spatial and Economic Strategy for the Eastern and Midland Region

6.12. To comply with the requirements of Article 6 (3) of the EU Habitats Directive and Part XAB of the Planning and Development Act 2000 (as amended), Screening for AA was undertaken at an early stage in the drafting of the RSES.

6.13. The AA Screening undertaken by ecologists at RPS on behalf of the Eastern and Midland Regional Assembly assessed whether the RSES was likely to have significant effects on any European Sites within the Natura 2000 network, either alone or in combination with other plans and projects.

6.14. The screening concluded that an AA of the RSES was required, as the Plan is not directly connected with or necessary to the management of the sites as European sites and as it cannot be excluded, based on objective information, that the Plan, individually or in combination with other plans or projects, would have a significant effect on a European site.

6.15. Therefore, adopting the precautionary principle, it was concluded that a NIR should be prepared. The NIR (prepared by RPS on behalf of the Eastern and Midland Regional Assembly) considered the potential for the RSES to adversely affect the integrity of any Natura 2000 site(s), concerning their qualifying interests, associated conservation status, the structure/function of the site(s) and the overall site(s) integrity.

6.16. The Assembly determined that according to Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act 2000-2018, the adoption and publication of the RSES as a replacement for the "Regional Planning Guidelines" for Section 24 (4) of the Planning and Development Act 2000 (as amended) would not either individually or in combination with any other plan or project adversely affect the integrity of any European Site.

6.17. A consolidated Natura Impact Report (NIR) has been prepared in support of the Appropriate Assessment (AA) of the Offaly County Development Plan 2021-2027[13] in accordance with the requirements of Article 6(3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

6.18. All projects within the Plan area and receiving environment were considered in combination with any and all lower tiers projects that may arise due to the implementation of the Plan. Given the uncertainties that exist with regard to the scale and location of developments facilitated by the Plan, it is recognised that the identification of in-combination effects is limited, and that the assessment of in-combination effects will need to be undertaken in a more comprehensive manner at the project-level.

6.19. The effects that could arise from the Plan were examined in the context of several factors that could potentially affect the integrity of any European site. On the basis of the findings of this Screening for AA, it is concluded that the Plan:

- Is not directly connected with or necessary to the management of any European site; and
- May, if unmitigated, have significant effects on 38 (no.) European sites.

6.20. Consequently, a Stage 2 AA was required for the Plan. This assessed whether the Plan alone, or in-combination with other plans, programmes, and/or projects, would result in adverse impacts on the integrity of the 38 European sites brought forward from screening.

6.21. The Assessment of potential impacts on European sites was conducted utilising a standard source-pathway model (see approach referred to under Sections 1.3 and 3). The 2001 European Commission AA guidance outlines the following potential changes that may occur at a designated site, which may result in effects on the integrity and function of that site: loss/reduction of habitat area; habitat or species fragmentation; disturbance to key species; reduction in species density; changes in key indicators of conservation value (water quality etc.); and climate change.

6.22. The risks to the safeguarding and integrity of the qualifying interests, special conservation interests and conservation objectives of the European sites have been addressed by the inclusion of mitigation measures that will prioritise the avoidance of effects in the first place and mitigate effects where these cannot be avoided. In addition, all lower level plans and projects arising through the implementation of the Draft Plan will themselves be subject to AA/screening for AA when further details of design and location are known. In-combination effects from interactions with other plans and projects was considered in the assessment and the mitigation measures incorporated into the plan are seen to be robust to ensure there will

[13] CAAS Ltd, Consolidated Natura Impact Report in support of the Appropriate Assessment for the Offaly County Development Plan 2021-2027 (2021). Available at: https://www.offaly.ie/eng/Services/Planning/County-Development-Plan-2021-2027/Stage-2-Draft/Draft-Offaly-County-Development-Plan-2021-2027.html

be no significant effects as a result of the implementation of the Draft Plan either alone or in combination with other plans/projects.

6.23. With the incorporation of mitigation measures, it is concluded that the Draft Offaly County Development Plan is not foreseen to give rise to any significant effects on designated European sites, alone or in combination with other plans or projects

6.24. The above plan **is not predicted to result in any significant effects** to any European Designated site and there will be **no effects on European Designated sites from the Proposed Development**. Therefore, it has been concluded from the above assessments that there will be no in combination effect from the reviewed plans with the Proposed Development and associated future elements.

Projects

6.25. There is no standard prescriptive method for assessing in-combination effects of nearby proposed or consented developments subject to planning applications within a given area. Planning applications considered within this assessment have been screened by distance, scale and nature, and further determined by comparing potentially overlapping Zones of Influence from other projects in regard to species, habitats and designated sites.

6.26. Current guidance[14] from CIEEM states:

"The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change."

6.27. A search of the Offaly County Council planning portal was undertaken in November 2025 to identify key planning applications (projects) beyond the vicinity of the Proposed Development.

6.28. There are a number of smaller projects in the wider area. It is not considered that these projects would result in significant in-combination effects on any European designated sites. It can be concluded that if a Project has been adopted following an AA, then it cannot pose likely significant adverse effects on any European sites.

6.29. The search included key developments preceding the date of issue of this report and excluded retention applications and incomplete, withdrawn or refused applications. The relevant projects with the potential for in-combination likely significant effects on European sites are detailed in **Table 6-1**.

[14]CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3 Available at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf

Table 6-1: Key Planning Applications within the surrounding area of the Proposed Amendment

Application Number	Type of Development	Development Description	Decision	Distance and Direction
N/A	Substation	A 110kV substation, access road, interconnection cables and grid route. The Proposed Development is to facilitate the connection of Ballyteige (PA Ref: 2198) and Derrygrogan (PA Ref: 22378 and ABP 318041-23) solar farms to the national grid. The method of connection to the national grid for the new substation will be a 110kV tail-fed connection into the existing Thornsberry Substation.	N/A	0.00km north
2460002	Grid System	A 10-year planning permission. The development will consist of a grid system services facility within a total site area of 3.5 hectares	Conditional	3.55km west
2460514	Substation	Substation building within the existing car park to cater for 5no. Electric car charging points for 10no. Electric car parking spaces	Conditional	4.10km west
22378	Solar	10 years to construct and complete a solar pv energy development with a total site area of 73.9 hectares, to include a control building, inverter substations, modules, solar	Conditional	0.75km north
218	Solar	A development consisting of a 52.75-hectare solar farm and battery energy storage system and 9.32-kilometre underground electricity grid con	Conditional	2.70km north
18167	Grid system	Rid system services facility within a total site area of 0.84 hectares, to include 1 no. Single storey electrical substation building, 1 no. Customer switchgear container, 17 no. 2mw electrical inverter/transformer station	Conditional	3.75km west
EX25008	Commercial	Construction of a maintenance depot with warehouses, on site car/truck parking area,	Conditional	3.40km west

301489	Residential	Construction of 12 two storey dormer semi-detached houses, 1 detached two storey dormer house and 7 terraced two storey dormer houses and all ancillary services.	Granted	4.70km west
311101	Residential	Development of 4 storey nursing home, step down facility and rehabilitation and convalescence unit to accommodate a total of 244 bedrooms, communal spaces, dining areas, administration, ancillary service spaces and meeting and consulting rooms. Site to accommodate 197 car park spaces	Granted	4.55km west
311741	Residential	349 no. Residential units (196 no. Houses, 153 no. Apartments	Awaiting	4.70km west
317318	Residential	A large-scale residential development (LRD). Construction of 102 dwellings in a mix of houses, duplex and apartments.	Granted	3.65km west
317341	Residential	Construction of 95 houses.	Granted	4.75km west
318041	Solar	10 years to construct solar energy development with ancillary development works. Solar farm will be operational for 35 years	Granted	0.05km north
318339	Residential	Construction of Large-Scale Residential Development (LRD) comprising 148 residential units	Granted	4.45km north

6.30. The adjacent proposed Colehill 110kV substation (Strategic Infrastructure Development application) will be submitted at the same time as this application. The SID has been subject to its own Appropriate Assessment screening, which assessed the Charleville Wood SAC for its hydrological connectivity with the site and the River Barrow and River Nore SAC for its ecological connectivity in respect to otter in the form of an NIS. When assessing potential impacts for qualifying interests associated with European sites via a hydrological and ecological pathways, it was found any negative impacts would not be significant or effect the integrity of the conservation interests of the Charleville Wood SAC or the River Barrow and River Nore SAC as a result of construction mitigation measures and integral design measures. Alongside the measures outlined within this report, **it was determined that this development would not have any significant impacts on any sensitive ecological receptors**. An assessment

of in-combination effects was also undertaken, and **it was found that, in combination with other projects, this development would not have a significant cumulative impact**.

6.31. **Planning consent 2460002** involves the construction of a grid system services facility that will compose of a substation, switch rooms, mounted modules, battery blocks and other ancillary works. An Appropriate Assessment Stage 1 Screening was conducted, and **it was determined that this development would not have any significant impacts on the conservation objectives and qualifying interests of any European Designated sites**. An assessment of in-combination effects was also undertaken, and **it was found that, in combination with other projects, this development would not have a significant cumulative impact**.

6.32. **Planning Consent 2460514** involves a new prefabricated substation building within the existing car park to cater for 5no. electric car charging points for 10no. electric car parking spaces, along with all associated ancillary site works. Due to the nature and scale of the development, an Appropriate Assessment Stage 1 Screening was not required for the development. As the Proposed Development will include mitigation measures, it is **unlikely that in-combination effects from these developments will have a significant cumulative impact due to a lack of surrounding projects.**

6.33. **Planning Consent 22378 (ABP-318041)** involves the construction of a solar farm comprising of photovoltaic panels mounted on support structures, access tracks, construction compounds, security fencing, electric cabling, and all other associated works. A Natura Impact Statement was produced which states that, with the implementation of mitigation measures, this development **will not have a significant impact on any European Designated sites, their conservation objectives or qualifying interests.** A cumulative impact assessment was also undertaken which determined that **this development, in combination with other surrounding projects, will not have a significant cumulative impact on any European Designated sites due to a lack of surrounding projects**.

6.34. **Planning Consent 218** involved a Battery Energy Storage System and Solar Farm, an NIS was produced to review any potential direct, indirect or cumulative impacts the development may have on European Designated Sites or their designated species or habitats. This NIS concluded that with the implementation of the mitigation measures and further measures within the CEMP report, **any adverse effects which could impact the integrity of any European Designated site as a result of the development would not be significant**.

6.35. **Planning Consent 18167** is a battery storage unit over 4km northwest of the substation location and approximately 200m east of the proposed grid route. Appropriate Assessment Screening report was produced in order to assess the potential impacts on European Designated sites. It was deduced that **no negative effects would result from the development though direct habitat loss or damage**, **no negative effects for the qualifying species of the European Designated designation sites** and **no negative effects on these designated sites arising from water quality impacts.** Furthermore, it was stated there would be **no potential negative impacts** on European Designated sites as a result of **Planning Consent 18167** in combination with other plans and projects.

6.36. **Planning consent EX25008** is for the extension of the appropriate period for the construction of a maintenance depot with warehouses, on site car/truck parking area, effluent treatment system and revised site entrances and all associated site works and services. The submissions associated with this development were inaccessible at the time this assessment was completed. However, it is considered that with the implementation of measures to mitigate impacts on European Sites, there can be no potential for this development to give rise to LSEs in combination with the Proposed Amendment.

6.37. **ACP-301489** is for the construction of a residential development. An AA screening was not required for this development as the urban location and the 2km distance between the subject site and the Charlesville Wood SAC. There would be no likely significant impact on European sites from the proposed development.

6.38. **ACP-311101** involves the construction of a nursing home, facility and rehabilitation and convalescence unit with 224 bedrooms, a communal space, dining area and other facilities, a car park, site entrance, pump station and other associated works. An Appropriate Assessment Stage 1 Screening was carried out and **it was concluded that this development would not have any significant impact on the conservation objectives or qualifying interests of any European Designated sites**. In-combination effects were also considered during assessment, and **it was determined that, in combination with other projects, there would be no significant cumulative impact.**

6.39. **ACP-311741** involves the construction of 349 residential units comprising of 196 houses and 153 apartments, a crèche and all other ancillary and associated works. A Natura Impact Assessment was produced for this development and within this report, **it was concluded that this development would not have a significant impact on the conservation objectives or qualifying interests of any European Designated sites.** In-combination effects were also considered, and **it was determined that this project, in combination with other developments, would not have a significant cumulative impact.**

6.40. **Planning Consent 22523 (ACP-317318)** involves the construction of a large-scale development consisting of 102 dwellings, with a mix of houses, duplex and bungalows, and a creche, as well as all other associated works. A Natura Impact Assessment was produced which stated that, with the implementation of mitigation and restrictive measures, **this development is unlikely to have a significant effect on any European Designated sites, their conservation objectives, and qualifying interests**. An assessment of in-combination effects was undertaken, and it was determined that **this development, in combination with other surrounding projects, would not have a significant cumulative effect due to a lack of surrounding projects**.

6.41. **ACP-317341** involves the construction of 95 residential unts comprising of terraced and semi-detached houses and all other associated siteworks. An Appropriate Assessment Stage 1 Screening was conducted, and **it was determined that this site would not adversely impact the conservation objectives or qualifying interests of any European Designated sites**. In-combination effects were also considered, and **it was concluded that this project, in combination with other projects, would not have a significant cumulative impact.**

6.42. **ABP-318041** involves the construction of a solar farm containing mounted photovoltaic panels, a substation, control building, inverter substations, temporary construction compounds, access tracks, security fencing and other associated works, which will remain in place for a period of 35 years. A Natura Impact Assessment was produced for this development, and **it was concluded that, with implementation of mitigation measures, this development would not have any significant impact on the conservation objectives or qualifying interest of European Designated sites.** In-combination effects were also assessed in this report, and **it was determined that, in combination with other projects, there would be no likely significant cumulative impact.**

6.43. **ABP-318339** involves the construction of Large-Scale Residential Development (LRD) comprising 148 residential units and creche. A Stage 1 AA screening report was produced for this development, and **it was concluded that, the development has no potential pathways for connectivity to impact any European Sites and Stage 2 AA was not required.** In-combination effects were also assessed in this report, and **it was determined that, in combination with other projects, there would be no likely significant cumulative impact.**

6.44. The developments listed above were all granted subject to conditions except the adjacent SID which will be submitted at the same time as this application. Each of these developments share the conclusion that there would be no significant effects on European Designated sites. It has been concluded that, due to the nature of the Amendment, the conclusive statements for the above developments, that the Proposed Development will **not have any significant direct or indirect cumulative impact on the conservation objectives any associated European Designated site.**

6.45. As described above in the mitigation section above, measures put in place within the Application site will ensure no impacts to the connected European Designated sites occur.

6.46. **No likely significant cumulative effects** on any European Designated sites are expected as a result of the planning developments listed in **Table 6-1** Therefore, it is considered that the Proposed Amendment in combination with other proposed developments in the wider area, will have **no likely significant in-combination effect**.

7. STAGE 2: NATURA IMPACT STATEMENT

7.1. This section provides discussion and evaluation of the potential for the Proposed Amendment to give rise to significant adverse effects on the integrity of the relevant European sites, for which LSEs could not be excluded at the screening stage.

7.2. Where relevant, the appropriate assessment has referenced the most recent conservation objectives documents for the relevant European sites, as published by NPWS.

7.3. The potential adverse effects arising as a result of the Proposed Amendment on each relevant European site considered are discussed within the relevant sections below. This relates to pathways for effects identified within the Stage 1 Screening Assessment, namely the potential for operational phase water quality and habitat deterioration arising through construction and decommissioning phase sedimentation or pollution of surface waterbodies.

CONCLUSION OF THE STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

7.4. The Stage 1 Screening for Appropriate Assessment, as set out in Section 5 of this report, established that the Proposed Amendment is not directly connected with or necessary to the management of any European site.

7.5. The potential for likely significant effects to arise to European sites was assessed using a source-pathway-receptor analysis. Potential source-pathway-receptor links were established in respect of a single potential effect, namely water quality and habitat deterioration arising through construction and decommissioning phase sedimentation or pollution of surface waterbodies.

7.6. In considering these potential pathways for LSEs, in light of the nature of the conservation objectives of the sites, the nature of the Proposed Amendment, the location of the Application Site and in light of the precautionary principle, it was concluded that a Natura Impact Statement was required, to assess the implications of the Proposed Amendment on a number of European sites.

7.7. These sites, their selection features and their location relative to the Proposed Amendment are set out at **Table 5-1**. Stage 2 Appropriate Assessment will be undertaken for the relevant European Sites in respect of these relevant SCIs and QIs only.

EUROPEAN SITES

7.8. The Habitats Directive and associated case law, as discussed above, require that Appropriate Assessment be undertaken in light of the site's conservation objectives. To this end, European

sites for which LSEs could not be excluded at the screening stage, have been set out below with consideration of the site-specific conservation objectives published by NPWS and any associated threats or pressures which have been identified.

Charleville Wood SAC

7.9. Charleville Wood SAC is designated for its importance for the following Annex I habitats and Annex II species:

- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]
- *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016]

Conservation Objectives for Charleville Wood SAC[15]

7.10. The main conservation objectives of the SAC are "to restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* in Charleville Wood SAC."

7.11. This objective is defined by the following list of attributes and targets:

- Habitat Area - Area stable or increasing, subject to natural processes.
- Occurrence - No decline, subject to natural processes.
- Woodland size - Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size.
- Woodland structure: cover and height - Total canopy cover at least 30%; median canopy height at least 7m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%.
- Woodland structure: community diversity and extent - Maintain diversity and extent of community types.
- Woodland structure: natural regeneration - Seedlings, saplings and pole age-classes of target species for 91E0* woodlands and other native tree species occur in adequate proportions to ensure survival of woodland canopy.

[15] NPWS (2021) Conservation objectives for Charleville Wood SAC [000571]. Version 1. Department of Culture, Heritage and the Gaeltacht.

- Hydrological regime: flooding depth/height of water table - Appropriate hydrological regime necessary for maintenance of alluvial vegetation.
- Woodland structure: dead wood - At least 19 stems/ha of dead wood of at least 20cm diameter.
- Woodland structure: veteran trees – No decline.
- Woodland structure: indicators of local distinctiveness - No decline in distribution and, in the case of red listed and other rare or localised species, population size.
- Woodland structure: indicators of overgrazing - All five indicators of overgrazing absent.
- Vegetation composition: native tree cover - No decline. Native tree cover at least 90% of canopy; target species cover at least 50% of canopy.
- Vegetation composition: typical species - At least 1 target species for 91E0* woodlands present; at least 6 positive indicator species for 91E0* woodlands present.
- Vegetation composition: negative indicator species - Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent.
- Vegetation composition: problematic native species - Cover of common nettle (Urtica dioica) less than 75%.

7.12. The second conservation objective for this SAC is "maintain the favourable conservation condition of Desmoulin's Whorl Snail (*Vertigo moulinsiana*) in Charleville Wood SAC"

7.13. This objective is defined by the following list of attributes and targets:

- Distribution - No decline, subject to natural processes. There is one known site for this species in the SAC within N3122.
- Occurrence in suitable habitat - No decline, subject to natural processes. A baseline figure of 50% positive samples is set.
- Density within habitat - No decline, subject to natural processes; at least 67% of samples should have more than 20 individuals.
- Habitat area - Area of suitable habitat stable or increasing, subject to natural processes; no less than 5ha of at least sub-optimal habitat.

- Tree canopy extent - Tree canopy cover around lake stable at current levels, subject to natural processes.
- Habitat quality: water levels - Maintain at current levels, subject to natural processes.

Character of the Qualifying Interests of the Charleville Wood SAC

7.14. Table 7-1 below identifies the percentage of the extent of various habitat types within the SAC.

Table 7-1: Qualifying Habitats of the Charleville Wood SAC and their extent within the site

Code	Qualifying Habitats	Extent and Character (%)
N06	Inland water bodies (Standing water, Running water)	7
N14	Improved grassland	3
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	1
N07	Bogs, Marshes, Water fringed vegetation, Fens	7
N16	Broad-leaved deciduous woodland	79
N20	Artificial forest monoculture (e.g. Plantations of poplar or Exotic trees)	3
Total Habitat Cover		100

Threats and Pressures on the Charleville Wood SAC

7.15. Table 7-2 lists the threats, pressures and activities impacting Charleville Wood SAC.

Table 7-2: Threats, pressures and activities impacting Charleville Wood SAC

Code	Threats and Pressures	Rank	+/-	Inside/Outside
G02.09	Wildlife watching	L	-	I
G01.02	Walking, horseriding and non-motorised vehicles	H	-	B
G01	Outdoor sports and leisure activities, recreational activities	H	-	B
F03.02.03	Trapping, poisoning, poaching	H	-	I
F04	Taking / Removal of terrestrial plants, general	L	-	I
F05.04	Poaching	L	-	I
F03.02.04	Predator control	H	+	I
B02	Forest and Plantation management & use	H	+	I
F03.02.04	Predator control	H	+	O

(Rank: H = High, M = Medium, L = Low, I = inside, O = outside, B = both &+/- = Positive/Negative Impact)

Assessment of Likely Impacts Affecting the Charleville Wood SAC

7.16. Charleville Wood is a large area of ancient woodland. The qualifying habitat of the SAC, Alluvial forests, are not present within the Application Site. Desmoulin's Whorl Snail are restricted to wetlands (usually bordering lakes and river, or in fens). Suitable habitat for supporting this species is not found within the Proposed Development Site.

7.17. The Charleville Wood SAC is located 6.78km southwest of the Application Site and is designated for a range of Annex I habitats. The Application Site has a direct hydrological pathway to Charleville Wood SAC via watercourses within the Application Site. The Wood of O watercourse is located approximately 200m to the west of the site's northwestern boundary. It connects to the Wood of O stream, which confluences with the Corndarragh Stream approximately 1.5km west of the Application Site and this then connects to the Tullamore River approximately 4.75km west of the Application Site. Surface waters from the

northern fields of the Application Site will reach the Wood of O watercourse through overland flow and internal field drains.

7.18. The Ballyteige watercourse runs directly through Fields 11 and 12 of the Application Site and water flows a southern direction and connect to the Puttaghan Stream which flows west along the southern boundary of Field 11. Puttaghan Stream confluences with the Corndarrgh Stream approximately 4km west of the Application Site and this then connects to the Tullamore River approximately 4.75km west of the Application Site. Surface waters from the southern fields of the Application Site will reach the Ballyteige watercourse through overland flow and internal field drains.

7.19. As the watercourses within the Application Site eventually join at the Tullamore River, this hydrological pathway travels through the Charleville Wood SAC approximately 8.2km downstream. In the absence of mitigation, there is the potential for the Proposed Amendment to give rise to impacts on the QIs of this SAC in the form of contamination of watercourses.

River Barrow and River Nore SAC

7.20. River Barrow and River Nore SAC is designated for its importance for the following Annex I habitats and Annex II species:

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Reefs [1170]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- European dry heaths [4030]
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]
- Old sessile oak woods with *Ilex and Blechnum* in the British Isles [91A0]

- Alluvial forests with *Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* [91E0]
- *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Alosa fallax fallax* (Twaite Shad) [1103]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]
- *Trichomanes speciosum* (Killarney Fern) [1421]

Conservation Objectives for River Barrow and River Nore SAC[16]

7.21. The main conservation objectives of the SAC are to "to maintain the favourable conservation condition of Estuaries in the River Barrow and River Nore SAC."

7.22. This objective is defined by the following list of attributes and targets:

- Habitat Area - The permanent habitat area is stable or increasing, subject to natural processes.
- Community distribution - community types in a natural condition: Muddy estuarine community complex; Sand to muddy fine sand community complex; Fine sand with Fabulina fabula community; Sheltered to moderately exposed intertidal reef community complex.
- Community structure: extent - Conserve the extent of Sabellaria alveolata reef community, subject to natural processes.
- Community structure: quality - Conserve the high quality of the Sabellaria alveolata reef community, subject to natural processes.

[16] NPWS (2025) Conservation objectives for River Barrow and River Nore SAC [002162]. Version 2. Department of Culture, Heritage and the Gaeltacht.

7.23. "To maintain the Favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in the River Barrow and River Nore SAC"

7.24. This objective is defined by the following list of attributes and targets:

- Habitat area - The permanent habitat area is stable or increasing, subject to natural processes.
- Community distribution - Conserve the following community types in a natural condition: Muddy estuarine community complex; Sand to muddy fine sand community complex.

7.25. "To maintain the Favourable conservation condition of Reefs in River Barrow and River Nore SAC"

7.26. This objective is defined by the following list of attributes and targets:

- Habitat area - The permanent area is stable or increasing, subject to natural processes.
- Distribution - The distribution of reefs is stable or increasing, subject to natural processes.
- Community extent - Conserve the following community type in a natural condition: Sheltered to moderately exposed intertidal reef community complex in a natural condition, subject to natural processes.
- Community structure: extent - Conserve the extent of Sabellaria alveolata reef community, subject to natural processes.
- Community structure: quality - Conserve the high quality of the Sabellaria alveolata reef community, subject to natural processes.

7.27. "To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in the River Barrow and River Nore SAC"

7.28. This objective is defined by the following list of attributes and targets:

- Habitat area - Area stable or increasing, subject to natural processes, including erosion and succession. For the one sub-site mapped: Ringville - 0.03ha.
- Habitat distribution - No decline, subject to natural processes.
- Physical structure: sediment supply - Maintain or where necessary restore natural circulation of sediments and organic matter, without any physical obstructions.
- Physical structure: flooding regime - Maintain natural tidal regime.

- Physical structure: creeks and pans - Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession.
- Vegetation structure: zonation - Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession.
- Vegetation structure: vegetation height - Maintain structural variation within sward.
- Vegetation structure: vegetation cover - Maintain more than 90% of area outside creeks vegetated.
- Vegetation composition: typical species and subcommunities - Maintain range of subcommunities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).
- Vegetation structure: negative indicator species: Spartina anglica - No significant expansion of Spartina. No new sites for this species and an annual spread of less than 1% where it is already known to occur.

7.29. "To restore the Favourable conservation condition of Atlantic salt meadows in the River Barrow and River Nore SAC"

7.30. This objective is defined by the following list of attributes and targets:

- Habitat Area - Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Dunbrody Abbey - 1.25ha, Killowen - 2.59ha, Rochestown - 17.50ha, Ringville - 6.70ha.
- Habitat distribution - No decline, subject to natural processes.
- Physical structure: sediment supply - Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions.
- Physical structure: flooding regime - Maintain natural tidal regime.
- Physical structure: creeks and pans - Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession.
- Vegetation structure: zonation - Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession.

- Vegetation structure: vegetation height - Maintain structural variation within sward.
- Vegetation structure: vegetation cover - Maintain more than 90% of area outside creeks vegetated.
- Vegetation composition: typical species and subcommunities - Maintain range of subcommunities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).
- Vegetation structure: negative indicator species: Spartina anglica - No significant expansion of Spartina. No new sites for this species and an annual spread of less than 1% where it is already known to occur.

7.31. "To restore the favourable conservation condition of Mediterranean salt meadows in the River Barrow and River Nore SAC."

7.32. This objective is defined by the following list of attributes and targets:

- Habitat area - Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Dunbrody Abbey - 0.08ha, Rochestown - 0.04ha, Ringville - 6.70ha.
- Habitat distribution - No decline, subject to natural processes.
- Physical structure: sediment supply - Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions.
- Physical structure: flooding regime - Maintain natural tidal regime.
- Physical structure: creeks and pans - Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession.
- Vegetation structure: zonation - Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession.
- Vegetation structure: vegetation height - Maintain structural variation within sward.
- Vegetation structure: vegetation cover - Maintain more than 90% of area outside creeks vegetated.

- Vegetation composition: typical species and subcommunities - Maintain range of subcommunities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).
- Vegetation structure: negative indicator species: Spartina anglica - No significant expansion of Spartina. No new sites for this species and an annual spread of less than 1% where it is already known to occur.

7.33. "To maintain the Favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the River Barrow and River Nore SAC."

7.34. This objective is defined by the following list of attributes and targets:

- Habitat area - The permanent area is stable or increasing, subject to natural processes.
- Distribution - The distribution of reefs is stable or increasing, subject to natural processes.
- Hydrological regime: river flow - Maintain appropriate hydrological regimes.
- Hydrological regime: groundwater discharge - The groundwater flow to the habitat should be permanent and sufficient to maintain tufa formation.
- Substratum composition: particle size range - The substratum should be dominated by large particles and free from fine sediments.
- Water chemistry: minerals - The groundwater and surface water should have sufficient concentrations of minerals to allow deposition and persistence of tufa deposits.
- Water quality: suspended sediment - The concentration of suspended solids in the water column should be sufficiently low to prevent excessive deposition of fine sediments.
- Water quality: nutrients - The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition.
- Vegetation composition: typical species - Typical species of the relevant habitat sub-type should be present and in good condition.
- Floodplain connectivity - The area of active floodplain at and upstream of the habitat should be maintained.

7.35. "To maintain the favourable conservation condition of European dry heaths in the River Barrow and River Nore SAC"

7.36. This objective is defined by the following list of attributes and targets:

- Habitat distribution - No decline from current habitat distribution, subject to natural processes.
- Habitat area - Area stable or increasing, subject to natural processes.
- Physical structure - No significant change in soil nutrient status; no increase or decrease in area of natural rock outcrop.
- Vegetation structure - Cover of characteristic sub-shrub indicator species at least 25% (e.g. gorse, bilberry, woodrush).
- Vegetation structure - Cover of senescent gorse less than 50%.
- Vegetation structure - Long shoots of bilberry showing browsing collectively less than 33%.
- Vegetation structure - Cover of scattered native trees and shrubs less than 20%.
- Vegetation composition - At least two positive indicator species present (e.g. gorse and associated dry heath/acid grassland flora).
- Vegetation structure: positive indicator species - – Cover of positive indicator species at least 60%, including characteristic dry heath species such as gorse, bilberry and associated acid grassland flora.
- Vegetation composition: bryophyte and non-crustose lichen species - At least 2 bryophyte or non-crustose lichen species present.
- Vegetation composition: bracken - Cover of bracken less than 10%.
- Vegetation structure: weedy negative indicator species - Cover of agricultural weed species less than 1%.
- Vegetation composition: non-native species - Cover of non-native species less than 1%.
- Vegetation composition: rare/scarce heath species - No decline in distribution or population size of rare, threatened or scarce species (e.g. Greater Broomrape, Clustered Clover).

- Vegetation structure: disturbed bare ground - Cover of disturbed bare ground less than 10% (or <5% on peat soils).
- Vegetation structure: burning - No signs of burning within sensitive areas.

7.37. "To maintain the favourable conservation condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the River Barrow and River Nore SAC"

7.38. This objective is defined by the following list of attributes and targets:

- Habitat distribution - No decline, subject to natural processes.
- Habitat area - Area stable or increasing, subject to natural processes.
- Hydrological regime: flooding depth/height of water table - Maintain appropriate hydrological regimes.
- Vegetation structure: sward height - 30-70% of sward is between 40 and 150cm in height.
- Vegetation composition: broadleaf herb: grass ratio – Broadleaf herb component of vegetation between 40 and 90%.
- Vegetation composition: typical species - At least 5 positive indicator species present.
- Vegetation composition: negative indicator species - Negative indicator species, particularly non-native invasive species, absent or under control- NB Indian balsam (Impatiens glandulifera), monkeyflower (Mimulus guttatus), Japanese knotweed (Fallopia japonica) and giant hogweed (Heracleum mantegazzianum).

7.39. "To maintain the Favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in the River Barrow and River Nore SAC"

7.40. This objective is defined by the following list of attributes and targets:

- Habitat area - Area stable or increasing, subject to natural processes
- Habitat distribution - No decline.
- Hydrological regime: height of water table; water flow - Maintain appropriate hydrological regimes.
- Water quality - Maintain oligotrophic and calcareous conditions .
- Vegetation composition: typical species - Maintain typical species.

7.41. ”To restore the favourable conservation condition of Old oak woodland with Ilex and Blechnum in the River Barrow and River Nore SAC”

7.42. This objective is defined by the following list of attributes and targets:

- Habitat Area - Area stable or increasing, subject to natural processes, at least 85.08ha for sub-sites surveyed.
- Habitat distribution – No decline.
- Woodland Size - Area stable of increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size.
- Woodland structure: cover and height - Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer.
- Woodland structure: community diversity and extent - Maintain diversity and extent of community types.
- Woodland structure: natural regeneration - Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy.
- Woodland structure: dead wood - At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter.
- Woodland structure: veteran trees – No decline.
- Woodland structure: indicators of local distinctiveness – No decline.
- Vegetation composition: native tree cover - No decline. Native tree cover not less than 95%.
- Vegetation composition: typical species - A variety of typical native species present, depending on woodland type, including oak (Quercus petraea) and birch (Betula pubescens).
- Vegetation composition: negative indicator species - Negative indicator species, particularly non-native invasive species, absent or under control.

7.43. ” To restore the Favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the River Barrow and River Nore SAC”

7.44. This objective is defined by the following list of attributes and targets:

- Habitat Area - Area stable or increasing, subject to natural processes, at least 181.54ha for sites surveyed.
- Habitat distribution – No decline.
- Woodland size - Area stable of increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size.
- Woodland structure: cover and height - Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer.
- Woodland structure: community diversity and extent - Maintain diversity and extent of community types.
- Woodland structure: natural regeneration - Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy.
- Hydrological regime: flooding depth/height of water table - Appropriate hydrological regime necessary for maintenance of alluvial vegetation.
- Woodland structure: dead wood - At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder).
- Woodland structure: veteran trees – No decline.
- Woodland structure: indicators of local disctinctiveness – No decline.
- Vegetation composition: native tree cover - No decline. Native tree cover not less than 95%.
- Vegetation composition: typical species - A variety of typical native species present, depending on woodland type, including ash (Fraxinus excelsior) alder (Alnus glutinosa), willows (Salix spp) and locally, oak (Quercus robur).
- Vegetation composition: negative indicator species - Negative indicator species, particularly non-native invasive species, absent or under control.

7.45. ”To maintain the Favourable conservation condition of Desmoulin’s whorl snail in the River Barrow and River Nore SAC”

7.46. This objective is defined by the following list of attributes and targets:

- Distribution: occupied sites - No decline. Two known sites: Borris Bridge, Co. Carlow S711503; Boston Bridge, Kilnaseer S338774, Co. Laois.
- Population size: adults - At least 5 adults snails in at least 50% of samples.
- Population density - Adult snails present in at least 60% of samples per site.
- Area of occupancy - Minimum of 1ha of suitable habitat per site.
- Habitat quality: vegetation - 90% of samples in habitat classes I and II as defined in Moorkens & Killeen (2011).
- Habitat quality: soil moisture levels - 90% of samples in moisture class 3-4 as defined in Moorkens & Killeen (2011).

7.47. ”To restore the Favourable conservation condition of the Freshwater pearl mussel (Margaritifera margaritifera) in River Barrow and River Nore SAC”

7.48. This objective is defined by the following list of attributes and targets:

- Distribution: Ballymurphy – Restore distribution at 3.91km.
- Distribution: Mountain - Restore distribution at 9.45km.
- Distribution: Nore - Restore distribution at 21.13km.
- Population size: Ballymurphy - Restore Ballymurphy population to at least 1,000 adult mussels.
- Population size: Mountain - Restore Mountain population to at least 4,000 adult mussels.
- Population size: Nore - Restore Nore population to at least 5,000 adult mussels.
- Population structure: recruitment - Restore to at least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length.
- Population structure: adult mortality. Ballymurphy - No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution.

- Population structure: adult mortality. Mountain - No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution.
- Population structure: adult mortality. Nore - No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution.
- Suitable habitat: extent - Restore suitable habitat in more than 3.91km in the Ballymurphy, 5.3km in the Mountain and 16.72km in the Nore system (see map 8) and any additional stretches necessary for salmonid spawning.
- Suitable habitat: condition - Restore condition of suitable habitat.
- Water quality: macroinvertebrates and phytobenthos (diatoms) - Restore water quality macroinvertebrates: EQR greater than 0.90 (Q4-5 or Q5); phytobenthos: EQR greater than 0.93.
- Substratum quality: filamentous algae (macroalgae); macrophytes (rooted higher plants) - Restore substratum quality- filamentous algae: absent or trace (less than 5%); macrophytes: absent or trace (less than 5%).
- Substratum quality: sediment - Restore substratum quality- stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment.
- Substratum quality: oxygen availability - Restore to no more than 20% decline from water column to 5cm depth in substrate.
- Hydrological regime: flow variability - Restore appropriate hydrological regime.
- Host fish - Maintain sufficient juvenile salmonids to host glochidial larvae.
- Fringing habitat: area and condition - Restore the area and condition of fringing habitats necessary to support the population.

7.49. ”To maintain the Favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC”

7.50. This objective is defined by the following list of attributes and targets:

- Distribution - No reduction from baseline.

- Population structure: recruitment - Juveniles and/or females with eggs in at least 50% of positive samples.
- Negative indicator species - No alien crayfish species.
- Disease - No instances of disease.
- Water quality - At least Q3-4 at all sites sampled by EPA.
- Habitat quality: heterogeneity - No decline in heterogeneity or habitat quality.

7.51. ”To restore the Favourable conservation condition of Sea lamprey in the River Barrow and River Nore SAC”

7.52. This objective is defined by the following list of attributes and targets:

- Distribution: extent of anadromy - Greater than 75% of main stem length of rivers accessible from estuary.
- Population structure of juveniles - At least three age/size groups present.
- Juvenile density in fine sediment - Juvenile density at least 1/m².
- Extent and distribution of spawning habitat - No decline in extent and distribution of spawning beds.
- Availability of juvenile habitat - More than 50% of sample sites positive.

7.53. ”To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC”

7.54. This objective is defined by the following list of attributes and targets:

- Distribution - Access to all watercourses down to first order streams.
- Population structure of juveniles - At least three age/size groups present.
- Juvenile density in fine sediment - Juvenile density at least 2/m².
- Extent and distribution of spawning habitat - No decline in extent and distribution of spawning beds.
- Availability of juvenile habitat - More than 50% of sample sites positive.

7.55. ”To restore the Favourable conservation condition of River lamprey in the River Barrow and River Nore SAC”

7.56. This objective is defined by the following list of attributes and targets:

- Distribution: extent of anadromy - Greater than 75% of main stem length of rivers accessible from estuary.
- Population structure of juveniles - At least three age/size groups present.
- Juvenile density in fine sediment - Juvenile density at least 2/m².
- Extent and distribution of spawning habitat - No decline in extent and distribution of spawning beds.
- Availability of juvenile habitat - More than 50% of sample sites positive.

7.57. ”To restore the favourable conservation condition of Twaite shad in the River Barrow and River Nore SAC,”

7.58. This objective is defined by the following list of attributes and targets:

- Distribution: extent of anadromy - Greater than 75% of main stem length of rivers accessible from estuary.
- Population structure: age classes - More than one age class present.
- Extent and distribution of spawning habitat - No decline in extent and distribution of spawning habitats.
- Water quality: oxygen levels - No lower than 5mg/l.
- Spawning habitat quality: Filamentous algae; macrophytes; sediment - Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.

7.59. ”To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC”

7.60. This objective is defined by the following list of attributes and targets:

- Distribution: extent of anadromy - 100% of river channels down to second order accessible from estuary.
- Adult spawning fish - Conservation limit (CL) for each system consistently exceeded.
- Salmon fry abundance - Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling.
- Out-migrating smolt abundance - No significant decline.

- Number and distribution of redds - No decline in number and distribution of spawning redds due to anthropogenic causes.
- Water quality - At least Q4 at all sites sampled by EPA.

7.61. ”To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC”

7.62. This objective is defined by the following list of attributes and targets:

- Distribution – No significant decline.
- Extent of terrestrial habitat - No significant decline. Area mapped and calculated as 122.8ha above high water mark (HWM); 1136.0ha along riverbanks / around ponds.
- Extent of marine habitat - Extent of marine habitat.
- Extent of freshwater (river) habitat - No significant decline. Length mapped and calculated as 616.6km.
- Extent of freshwater (lake) habitat - No significant decline. Area mapped and calculated as 2.6ha.
- Couching sites and holts - No significant decline.
- Fish biomass available - No significant decline.

7.63. “To maintain the Favourable conservation condition of Killarney Fern in the River Barrow and River Nore SAC,”

7.64. This objective is defined by the following list of attributes and targets:

- Distribution - No decline. Three locations known, with three colonies of gametophyte and one sporophyte colony.
- Population size - Maintain at least three colonies of gametophyte, and at least one sporophyte colony of over 35 fronds.
- Population structure: juvenile fronds - At least one of the locations to have a population structure comprising sporophyte, unfurling fronds, 'juvenile' sporophyte and gametophyte generations.
- Habitat extent - No loss of suitable habitat, such as shaded rock crevices, caves or gullies in or near to, known colonies. No loss of woodland canopy at or near to known locations.

- Hydrological conditions: visible water - Maintain hydrological conditions at the locations so that all colonies are in dripping or damp seeping habitats, and water is visible at all locations.
- Hydrological conditions: humidity - No increase. Presence of dessicated sporophyte fronds or gametophyte mats indicates conditions are unsuitable.
- Light levels: shading - No changes due to anthropogenic impacts.
- Invasive species - Absent or under control.

Character of the Qualifying Interests of the River Barrow and River Nore SAC

7.65. **Table 7-3** outlines the habitat types available within the River Barrow and River Nore SAC and identifies the percentage of various habitat types within the SAC.

Table 7-3: Habitats present in River Barrow and River Nore SAC[17]

Habitat Code	Habitats of River Barrow and River Nore SAC	Extent (%)
N10	Humid grassland, Mesophile grassland	17
NO4	Coastal sand dunes, Sand beaches, Machair	1
NO7	Bogs, Marshes, Water fringed vegetation, Fens	10
N12	Extensive cereal cultures (including rotation cultures with regular fallowing)	4
N14	Improved grassland	15
N16	Broad-leaved deciduous woodland	5
N02	Tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins)	20
N03	Salt marshes, Salt pastures, Salt steppes	1

[17] River Barrow and River Nore SAC. Natura 2000 - Standard Data Form. Available at: https://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=IE0002162

N15	Other arable land	1
N17	Coniferous woodland	3
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	1
N05	Shingle, Sea cliffs, Islets	1
N08	Heath, scrub, maquis and garrigue, phygrana	5
N23	Other land (including towns, villages, roads, waste places, mines, industrial sites)	1
N19	Mixed woodland	5
N06	Inland water bodies (Standing water, running water)	10

Threats and Pressures on River Barrow and River Nore SAC

7.66. The **European Designated form**[18] for the River Barrow and River Nore SAC outlines the following pressures and activities impacting the SAC:

Table 7-4: Threats, pressures and activities impacting the River Barrow and River Nore SAC.

Code	Threats and Pressures	Rank	+/-	Inside/ Outside
J02.06	Water abstractions from surface waters	M	-	I
B05	Use of fertilizers (forestry)	M	-	I/O
J03.02.01	Reduction in migration/ migration barriers	M	-	I
M01	Changes in abiotic conditions	M	-	I
C01.03	Peat extraction	M	-	O
A04.01.01	Intensive cattle grazing	M	-	I

[18] Available at: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF002162.pdf

C01.01.01	Sand and gravel quarries	L	-	I/O
A10.01	Removal of hedges and copses of scrub	L	-	I
EO2	Industrial and commercial areas	L	-	O
K01.01	Erosion	H	-	I
J02.02.01	Dredging/ removal of limnic sediments	M	-	I
F01.01	intensive fish farming, intensification	L	-	I
A02.01	Agricultural intensification	H	-	I/O
I01	Invasive non-native species	M	-	I
D03.01	Shipping lanes, ports, marine constructions 'port areas	L	-	I
B07	Other forestry activities not referred to above	M	-	I/O
J02	Human induced changes in hydraulic conditions	M	-	I
F02.01.02	Netting	L	-	I
H01	Pollution to surface waters (limnic, terrestrial, marine and brackish)	H	-	I/O
F02	Fishing and harvesting aquatic resources	M	-	O
F02.03	Leisure fishing	L	-	I
J02.05.02	Modifying structures of inland water courses	H	-	I
J02.12.02	Dykes and flooding defence in inland water systems	H	-	I
B02	Forest and Plantation management & use	M	-	I/O
B02.01.01	Forest replanting (native trees)	L	+	I/O

Assessment of Likely Impacts Affecting the River Barrow and River Nore SAC

7.67. River Barrow and River Nore SAC comprise the catchments of River Barrow and River Nore stretching from Waterford Harbour to Offaly. The Application Site is located 10.66 km north of the River Barrow and River Nore SAC and there is no hydrological connectivity between these locations. The SAC occurs at a higher elevation, and all surface waters within the Application Site drain westwards towards Tullamore, rather than south towards the River Barrow catchment. As such, the potential for the Proposed Amendment to give rise to LSEs on Annex I habitats or aquatic species of this SAC have been scoped out at the screening stage.

7.68. Otter is a highly mobile species and can hold territories from 2km to 20km. Although there is not a direct hydrological pathway, there are streams and habitats that offer limited commuting and limited foraging areas and connect to the boundary of the Proposed Amendment Site, and otter are capable of traversing overland to suitable habitat for feeding and resting. Although considered unlikely, there is potential that otter from the SAC could occasionally use the habitats within the Application Site. Other rivers and watercourses between the SAC and the site offer more suitable habitat and therefore it is unlikely they would commute as far as the Proposed Amendment Site.

7.69. No evidence of otter was noted during the site walkover, however, suitable areas in the form of limited foraging/commuting habitat was noted in the survey area. It is therefore considered that any potential impacts for this species would be limited to foraging/commuting otter.

7.70. Potential impacts for otter include the loss of habitat, disturbance, fragmentation of habitat and pollution.

8. MITIGATION

8.1. The mitigation measures proposed for implementation during the construction and decommissioning phases of the Proposed Amendment are set out below. These mitigation measures relate specifically to the identified pathways for potential adverse effects upon Qualifying Interests of European sites. These are, limited to potential inadvertent sedimentation and pollution of surface waterbodies and associated water quality and habitat deterioration effects within the downstream aquatic environment (in the case of Charleville Wood SAC). There is also the potential for loss of commuting and foraging habitats for QI otter species (in the case of the River Barrow and River Nore SAC).

Watercourse Buffers

8.2. The Proposed Amendment will implement watercourse buffer zones commensurate with the significance classification of watercourses as set out below in Table 8-1.

Table 8-1 Minimum Adopted Hydrological Buffer Zones

Water Features	Minimum Width of Buffer
Field drains	2m
OPW drain	10m

Pre-Construction Otter survey

8.3. With the implementation of appropriate buffers specified in Table 8-1 there will be no construction within otter habitat. However, suitable commuting habitat exists. There were no holts or otter sightings during any of the survey effort, should any holts be identified the appropriate exclusion zones should be implemented[19]. A pre-construction otter survey should be completed on any watercourses within 150m of the Application Site prior to any works to enable checks for any new holts or resting places that may have become occupied after the original survey, and to ensure the measures proposed to minimise impacts on otters remain appropriate. There will be no working in the vicinity of otter habitat during the hours of darkness and within two hours after sunrise and two hours before sunset.

Guidance for Protection of Surface Waters

8.4. Mitigation measures will be implemented by the contractor and will include the requirements for best practice and adherence to the following relevant Irish guidelines and recognised international guidelines:

[19] Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters

- Guidelines on Protection of Fisheries During Constructions Works in and Adjacent to Waters (Inland Fisheries Ireland (2016).
- Good practice guidelines on the: Control of Water Pollution from Construction Sites: developed by the Construction Industry Research and Information Association (Technical Guidance C532 CIRIA, 2001).
- Technical Guidance C648: Control of Water Pollution from Linear Construction Projects, (CIRIA, 2006).
- Netregs Guidance for Pollution Prevention series (GPP), Pollution prevention guidelines (PPGs) in relation to a variety of activities.
- GPP2: Above Ground oil storage tanks.
- GPP3: use and design of oil separators in surface water drainage.
- GPP5: Works and maintenance in or near water.
- PPG6: Working at construction and demolition sites.
- GPP8: Safe Storage and disposal of used oils.
- GPP13: Vehicle washing and cleaning.
- GPP20: Dewatering underground ducts and chambers.
- GPP21: Pollution incident response planning.
- GPP22: Dealing with spills.

8.5. The Proposed Amendment throughout the construction and decommissioning phases will adhere to the above guidance, or in the case of the decommissioning phase, relevant guidance where appropriate which may have been implemented in the interim.

Proposed Drainage Arrangements

8.6. To comply with current policies, guidance and best practice, the volume and quality of surface water runoff discharged off-site from the Proposed Amendment at this Application Site will need to be controlled using SuDS.

8.7. In compliance with the above, the drainage strategy has been developed to meet the following key principles;

- Mimic existing (greenfield) drainage arrangements as far as possible;

- Avoid increases in the greenfield rate, volume and frequency of offsite discharge;
- Avoid significant deterioration in water quality of discharges and no detrimental impact in downstream water quality;
- Achieve the above criteria for all storms up to and including the 100-year event; and
- Incorporate an allowance for climate change (20%).

Proposed Drainage Strategy

8.8. It is proposed to construct nine soakaway channels within the Application Site. The location of the soakaway channels has been chosen on the downward slope, near to the site boundaries, where overland flow is most likely.

8.9. The proposed soakaways will have an overall combined length of approximately 1,681.6m, with a base width of 0.5m, a 0.5m design depth and a 0.15m freeboard. They will be filled with crushed rock with a void ratio of 20%.

8.10. It will provide a total storage volume of approximately 84.1m^3. This is greater than the volume of additional runoff generated as a result of the impermeable buildings (34.0m^3). It is therefore considered that this adequately mitigates the increase in flow rates as a result of the minor increase in impermeable area and provides improvement.

8.11. The soakaways will be implemented during the construction phase of the proposed solar farm and planted with vegetation to protect against soil erosion. They will be maintained throughout the lifespan of the Proposed Amendment, generally in accordance with the recommendations in the appropriate guidance.

8.12. Additional drainage measures to be implemented on-site include the following:

- Solar Panels: current grass cover is to be retained or reinstated adjacent to and under panels in order to maximise bio-retention;
- Access Tracks: access tracks are to be unpaved and constructed from local stone. Swales or similar shall be utilised to collect runoff from access tracks, however these will be designed at the detailed design stage. Where swales are utilised, check dams formed from gravels and other excavated material shall be placed in the swale at frequent intervals; and,
- Transformer Stations : the scale of these types of structures is unlikely to warrant a formalised drainage system. Runoff from this infrastructure and any associated hard standing should be directed to a percolation area for discharge to ground. Should

surface water accumulate around any of these locations then a simple soakaway can be constructed to allow water soak into the underlying subsoils.

Construction Phase Drainage Arrangements

8.13. Due to the addition of the temporary construction compound during the construction phase, additional drainage measures will be implemented to help attenuate the increase in surface water flows, if surface water is observed discharging from the construction compound.

8.14. Runoff from this area is anticipated to have high silt loading due to mobilised soils from excavated surfaces, fines from track aggregate and sludge due to traffic.

8.15. Hardstanding runoff will be directed to a swale on the site's lowest boundary. This drainage scheme will be removed at the end of the construction stage and the area reinstated.

Proposed Amendment

8.16. Due to the removal of the 38kV substation and infrastructure within field 1, a revised Outline SuDs design was produced and can be found within **Volume 3** of this application. The new storage is 84.1m^3 (1,681.6m length of infiltration drains which are 0.5m wide, 0.5m deep and have 20% void ratio) which is more than the needed storage (34m^3).

8.17. Notwithstanding the minor panel reconfiguration, repositioning of the transformers and access track, the Proposed Amendment does not introduce any further substantive changes that would materially alter the flood risk or drainage considerations previously assessed. The mitigation measures outlined in the FRA / DIA remain applicable and continue to ensure the resilience of the development against flood events. The associated changes will not result in any increased risk of flooding on-site or elsewhere, thereby confirming the continued appropriateness of the approved drainage strategy and flood mitigation measures.

Waste Management

Storage of Fuels and Chemicals

8.18. As per Best Practice Guidance (BPGCS005),[20] all fuels, oils and chemicals on site will have a secondary containment system of 110% capacity and be located more than 20m from any watercourse (i.e. outside of the water course buffer).

8.19. A bunded diesel bowser will be located inside a fenced off area within the temporary construction compound. Any other chemicals will be stored within a storage container with an accompanying Control of Substances Hazardous to Health ("COSHH") Datasheet in

[20] Best Practice Guide BPGCS005 - Oil Storage Guidelines. Available at:

http://www.envirocentre.ie/includes/documents/OilStorageBPG.pdf;

accordance with health and safety regulations. If generators are used on site, these shall be bunded (the bund shall be capable of containing 110% of the fuel tank's capacity). The bund shall be kept empty of water.

8.20. Where chemicals are required on site, they must be placed in an appropriate bund to prevent ground contamination. All chemicals must be stored in a correctly marked container clearly identifying the contents. Where labels are worn off, they must have a new label placed on them or the contents transferred to a correctly marked container. All safety data sheets for all chemicals should be filed on site as part of the CEMP.

8.21. Spill kits will be on site and, for ease of access, located in the site office. Contingency plans will be in place for dealing with a spillage should a spillage occur.

Refuelling

8.22. During construction, fuel and oil deliveries shall take place within the designated refuelling area within the Temporary Construction Compound only, the location of this area will fall outside the watercourse buffers. The Contractor shall supervise site deliveries to ensure that the correct amount of material is delivered to the correct tank and the level is checked prior to refilling to avoid spillage.

8.23. Where refuelling of vehicles on site is necessary, the following guidelines will be strictly adhered to:

- Mobile plant will be filled in a designated area, on an impermeable surface well away from any drains or watercourses;
- A spill kit will be stored (and clearly marked) near refuelling areas;
- A bunded tank / bowser will be used with capacity of the bund to be 110% of the fuel storage capacity;
- Vehicles will never be left unattended during refuelling and drip trays should be located under all static plant vehicles;
- Hoses and valves will be checked regularly for signs of wear, and will be turned off and securely locked when not in use;
- Vehicles will not be left running unnecessarily and low emission fuels will be used where possible; and
- Diesel pumps and similar equipment will be checked regularly and any accumulated oil removed for appropriate disposal.

Excavation and Earthworks

8.24. All excavation and earthworks will be carried out in accordance with BS6031:2009 Code of Practice for Earthworks.[21] Soil handling, extraction and management will be undertaken with regard to best practice guidelines such as Guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2012.[22]

8.25. The following practices will be followed in relation to the excavation of cable trenches, topsoil stripping and any other earthworks:

- Any excavated material will be stored and re-used to infill excavations. Where the soil is to be re-used, this will be side casted. All side casted soil to be kept a minimum of 20m from and watercourse.
- Although unlikely, if any contaminated earth is uncovered, this will be stored separately and disposed of accordingly once the contaminant has been identified.
- Efforts will be made to ensure that water does not accumulate in excavated areas.
- All topsoil and subsoil will be stored separately, and care will be given to ensure the structure and quality of the soil is not damaged.
- The amount of exposed ground and soil stockpiles will be kept to a minimum and any stockpiles in place for an extended period of time will be allowed to re-vegetate naturally.
- Earthworks shall not occur during unsuitable weather conditions, including when soils are waterlogged or very dry.

8.26. The Proposed Amendment does not propose to change ground levels and only small sections of land are to be regraded around the buildings and possibly at the access track edges; however, this will only be over a few metres.

8.27. Any excavated soil which is not re-used or dispersed across the site and shall be stored on the impermeable surface at the construction compound and covered to prevent silt runoff and dust creation.

[21] British Standards Institute (BSI), 2009. BS 6031:2009 Code of Practice for Earthworks

[22] Environmental Protection Agency (EPA) 2012. Guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2012. Available at www.epa.ie

Concrete

8.28. Concrete will not be allowed to enter watercourses under any circumstances, and drainage from excavations in which concrete is being poured will not be discharged directly into existing watercourses without appropriate treatment and consent from the relevant authority. Delivery trucks, tools and equipment will be cleaned at the wheel wash facility located at the temporary site compound.

8.29. Buffers from the site drainage ditches of 2m have been incorporated into the design of the Proposed Amendment and therefore there will be no concrete being used within the immediate vicinity of a watercourse.

Monitoring

8.30. Operations and activities that have the potential to impact on the water environment will be regularly monitored throughout the construction of the Amendment. This is to ensure compliance with planning conditions and environmental regulations.

8.31. The Site Manager is responsible for ensuring that all monitoring is carried out according to the Environmental Monitoring Programme, summarised in Table 8-2 below.

Table 8-2: Environmental Monitoring

Environmental Aspect	Monitoring Location	Monitoring Frequency	Monitoring Arrangements
Site housekeeping	Entire site	Daily	Visual inspection
Surface watercourses	All watercourses	After periods of rain Weekly, if no rain	Visual inspection
Fuels and chemicals – appropriate storage	Entire site	Daily	Visual inspection

8.32. These records and results will be maintained by the Site Manager and will be stored on site during the construction phase.

Site Office Waste

8.33. The proposed site layout includes for a temporary construction compound, and all site waste will be stored in this area.

- A Project Supervisor Construction Stage will be employed to ensure that welfare facilities in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013, Statutory Instrument No. 291 are located at the proposed site for the duration of the construction. Welfare facilities will be provided within the

construction compound to cater for up to 25 staff members at any one time. The welfare facilities will include:

- The provision of toilet, washing and changing facilities;
- Clothing Storage;
- Facilities for eating;
- Rest room; and
- Car Parking.

- Water will be held within a holding tank within the temporary welfare facility. There will also be a separate tank for waste. The Project Supervisor will be responsible for organising the tanks to be emptied/filled by an approved local contractor as and when required.

Pollution Prevention

Best Practice Measures

8.34. Suitable protection for watercourses potentially affected by the works will be installed prior to relevant works proceeding. These measures will be in-line with Environmental Protection Agency (EPA) Pollution Prevention Guidelines. Protection measures will include:

- Plant and equipment will be stored on dedicated hardstandings within the construction compound. This will minimise the risk of pollution caused by leakages occurring out of hours. Drip trays will be used where appropriate.
- All plant and equipment will utilise biodegradable hydraulic oil.
- Spill kits will be readily available to all personnel. The spill kits will be of an appropriate size and type for the materials held on site.
- Diesel fuel will be stored in a bunded diesel bowser which will be located within a fenced off area in the construction compound.
- Refuelling and maintenance of vehicles and plant will take place in designated areas of hardstanding.
- All other chemicals will be stored within a storage contained with an accompanying COSHH Datasheet.

- Wastewater from the temporary staff toilets and washing facilities will be discharged to sealed containment systems and disposed via licensed contractors.
- Early seeding of embankments near watercourses would be undertaken to reduce the potential for sediment run-off.

8.35. All staff on site will be made aware of the pollution prevention measures being implemented throughout the construction and decommissioning phases using appropriate toolbox talks and the site induction.

Noise and Vibration

8.36. Operating plant noise will be kept within the standards and time periods dictated for the site. Any noncomplying plant will be stopped and stood down until it can be rectified or removed from the site.

- The British Standard which gives guidance on noise from construction and mineral working sites is BS 5228. This document does not specify absolute noise limits relating to construction activities; however, it does provide detailed guidance on the steps that can be taken to minimise potential noise & vibration effects. Reasonable mitigating measures are as follows: vehicles and machinery will be switched off when not in use.
- Operation of plant, including fitting and proper maintenance of silencers and/or enclosures, avoiding excessive and unnecessary revving of engines and parking of equipment in locations which avoid possible effects on residential properties.
- Traffic movement limited to:

– 07.00 to 18.00 Monday to Friday.

– 08.00 to 16.00 Saturdays.

– Public holidays will be observed unless otherwise agreed with the local planning authority.

– When loading and unloading material, attempts shall be made not to drop material from a height.

- Any noise complaints shall immediately be directed to the site agent. Depending on the nature of the complaint, the initial response could be to immediately cease the activity until suitable mitigation measures have been put in place and agreed with the affected individual.

Dust

8.37. In order to control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following measures will be implemented:

- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site. Wheel washing will likely be a water bowser and power spray. It will not have any cleaning additives and will drain into the temporary drainage feature at the site compound.
- During windy conditions, any dust generating activities will be avoided or minimised, where practical.
- Any soil stockpiles will be covered when left for extended periods of time.
- Driving practices which minimise dust generation will be adopted.
- Loads into and out of the site will be covered where required.

Mitigation Summary

8.38. Subject to the implementation of the above-described mitigation measures for the protection of surface waters, it is considered that all identified potential significant adverse effects on the integrity of the following European sites will be fully mitigated:

- Charleville Wood SAC
- River Barrow and River Nore SAC

8.39. This conclusion is drawn when considering the Proposed Amendment alone or in-combination with other plans or projects.

9. CONCLUSION

9.1. This Appropriate Assessment undertaken in line with Article 6(3) of the Habitats Directive, has assessed the proposed solar farm Amendment situated on the townlands of Ballyteige Little, Ballyteige Big and Colehill, Tullamore Co. Offaly (planning reference: 2198).

9.2. Screening for Appropriate Assessment, as detailed in Section 5, assessed the potential of the Proposed Amendment to give rise to likely significant effects upon any European site.

9.3. Stage 1: Screening identified that the Proposed Amendment, at construction and decommissioning would give rise to likely significant effects upon the following European sites:

- Charleville Wood SAC
- River Barrow and River Nore SAC

9.4. Likely significant effects which could not be excluded at the screening stage are limited to the potential for water quality and habitat deterioration SAC habitats of the Charleville Wood SAC and impacts for foraging and commuting otter from the River Barrow and River Nore SAC.

9.5. Appropriate Assessment of the potential of the Proposed Amendment to give rise to significant adverse effects upon the integrity of the relevant European sites is set out above. This assessment has been undertaken in light of the site-specific conservation objectives for these European sites.

9.6. Subject to the implementation of the mitigation measures, as detailed within Section 8 it is not predicted that the Proposed Amendment will give rise to any adverse effects upon the integrity of the relevant European sites when the project is considered alone.

9.7. An in-combination assessment of the Proposed Amendment, alongside relevant plans and projects with potential to act cumulatively was undertaken. This assessment of a large range of plans and projects concluded that no significant adverse in-combination effects will occur as a result of the Proposed Amendment.

10. APPENDICES

Appendix A

- Figure 1 – European Sites Map

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