



**PNG Energy Ltd**

**Natura Impact Statement in line with the requirements  
of Article 6 (3) of the EU Habitats Directive**

**Ballysumaghan Synchronous Condenser Development**

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## Report Sign Off

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<b>DEVELOPMENT ADDRESS:</b> BALLYSUMAGHAN, SOOEY, CO. SLIGO			
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## **Section 1 Introduction**

### **1.1 Requirement for an Appropriate Assessment**

This Natura Impact Assessment was prepared for a proposed development at Ballysumaghan, Soeey, Co. Sligo. Having regard to the location of the proposed development site and its connectivity to certain sites that have been designated under the Natura 2000 network, an Appropriate Assessment of the proposed development was prepared in accordance with Article 6 of the Habitats Directive. It followed on from a Request from Sligo County Council for further information (Planning Reference No: 20/90).

The purpose of the assessment is to determine the appropriateness of the proposed development, in the context of the conservation status of the site or sites. In Ireland, an Appropriate Assessment takes the form of a Natura Impact Statement (NIS), which is a statement of the likely impacts of the plan or project on a Natura 2000 site. The NIS comprises a comprehensive ecological impact assessment of the plan or project and it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans or projects on one or more Natura 2000 sites in view of the sites' conservation objectives.

### **1.2 The Aim of the Report**

This Natura Impact Statement (NIS) has been prepared in accordance with the provisions of Part XAB of the Planning and Development Act 2000 to 2019 and in accordance with the requirements of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive).

The purpose of this NIS is to provide an examination and evaluation of the potential impacts of the proposed development on Natura 2000 sites and to present findings and conclusions with respect to the proposed development. This NIS will inform and assist the competent authority (in this case Sligo County Council) in carrying out its Appropriate Assessment as to whether or not the proposed development will adversely affect the integrity of European sites identified, either alone or in combination with other plans and project, in light of those sites conservation objectives.

Accordingly, a comprehensive assessment of the potential impacts of this application was carried out in July 2020 by Noreen McLoughlin, MSc, MCIEEM of Whitehill Environmental. This assessment allowed areas of potential ecological value and potential ecological constraints associated with this proposed development to be identified and it also enabled potential ecological impacts associated with the proposed development to be assessed and mitigated for.

### **1.3 Regulatory Context**

#### **1.3.1 Relevant Legislation**

The Birds Directive (Council Directive 2009/147/EC) recognises that certain species of birds should be subject to special conservation measures concerning their habitats. The Directive requires that Member States take measures to classify the most suitable areas as Special Protection Areas (SPAs) for the conservation of bird species listed in Annex 1 of the Directive. SPAs are selected for bird species (listed in Annex I of the Birds Directive), that are regularly occurring populations of migratory bird species and the SPA areas are of

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international importance for these migratory birds. The EU Habitats Directive (92/43/EEC) requires that Member States designate and ensure that particular protection is given to sites (Special Areas of Conservation) which are made up of or support particular habitats and species listed in annexes to this Directive.

Articles 6(3) and 6(4) of this Directive also call for the undertaking of an Appropriate Assessment for plans and projects not directly connected with or necessary to the management of, but which are likely to have a significant effect on any European designated sites (i.e. SACs and SPAs). This is explained in greater detail in the following section (Section 1.2.2).

The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2021 and that status doesn't deteriorate in any waters.

### **1.3.2. Appropriate Assessment and the Habitats Directive**

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora – the 'Habitats Directive' - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as *Natura 2000*. *Natura 2000* sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting *Natura 2000* sites. Article 6(3) establishes the requirement for Appropriate Assessment:

*“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.”*

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

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*“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*

*Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”*

### **1.3.3. The Appropriate Assessment Process**

The aim of Appropriate Assessment is to assess the implications of a proposal in respect of a designated site’s conservation objectives.

The ‘appropriate assessment’ itself is an assessment which must be carried out by the competent authority which confirms whether the plan or project in combination with other plans and projects will have an adverse impact on the integrity of a European site<sup>1</sup>.

Screening for appropriate assessment shall be carried out by the competent authority as set out in Section 177U(1) and (2) of the Planning and Development Act 2000 (as amended) as follows:

*‘(1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.*

*(2) A competent authority shall carry out a screening for appropriate assessment under subsection (1) before—*

*(a) a Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or*

*(b) consent for a proposed development is given.’*

The competent authority shall determine that an appropriate assessment is not required if it can be excluded, that the proposed development, individually or in combination with other plans or project will have a significant effect on a European site.

Where the competent authority cannot exclude the potential for a significant effect on a European site, an Appropriate Assessment shall be deemed required.

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<sup>1</sup> The term European site replaced the term Natura 2000 site under the European Union (Environmental Impact Assessment and Habitats) Regulations 2011 (S.I. 473 of 2011)

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The conclusions of the Appropriate Assessment Report (Natura Impact Statement) should enable the competent authority to ascertain whether the plan or proposed development would adversely affect the integrity of the European site. If adverse impacts on the integrity of a European site cannot be avoided, then mitigation measures should be applied during the appropriate assessment process to the point where no adverse impacts on the site remain.

Under the terms of the Habitats Directive consent can only be granted for a project if, as a result of the appropriate assessment either (a) it is concluded that the integrity of any European sites will not be adversely affected, or (b) after mitigation, where adverse impacts cannot be excluded, there is shown to be an absence of alternative solutions, and there exists imperative reasons of overriding public interest for the project should go ahead.

Section 177(V) of the Planning and Development Act 2000 (as amended) outlines that the competent authority shall carry out the appropriate assessment, taking into account the Natura Impact Statement (amongst any other additional or supplemental information). A determination shall then be made by the competent authority in line with the requirements of Article 6.3 of the Habitats Directive as to whether the proposed development would adversely affect the integrity of a European site, prior to consent being given for that proposed development.

## Section 2 Methodology

### 2.1 Statement of Competency

This NIS was carried out by Noreen McLoughlin, BA, MSc, MCIEEM. Noreen has an honours degree in Zoology and an MSc in Freshwater Ecology from Trinity College, Dublin and she has been a full member of the Chartered Institute of Ecology and Environmental Management for over thirteen years. Noreen has over 15 years' experience as a professional ecologist in Ireland.

### 2.2 Appropriate Assessment

This Statement of Screening for Appropriate Assessment (Stage 1) has been prepared with reference to the following:

- European Commission (2018). Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice.
- European Commission (2007). Clarification of the Concepts of: Alternative Solution, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.

The EC Guidance sets out a number of principles as to how to approach decision making during the process. The primary one is 'the precautionary principle' which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty.

When considering the precautionary principle, the emphasis for assessment should be on objectively demonstrating with supporting evidence that:

- There will be no significant effects on a Natura 2000 site;
- There will be no adverse effects on the integrity of a Natura 2000 site;
- There is an absence of alternatives to the project or plan that is likely to have an adverse effect to the integrity of a Natura 2000 site; and
- There are compensation measures that maintain or enhance the overall coherence of Natura 2000.

This translates into a four stage process to assess the impacts, on a designated site or species, of a policy or proposal.

The EC Guidance states that "each stage determines whether a further stage in the process is required". Consequently, the Council may not need to proceed through all four stages in undertaking the Appropriate Assessment.

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The four stage process is:

**Stage 1: Screening** – The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether or not these impacts are likely to be significant;

**Stage 2: Appropriate Assessment** – The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

**Stage 3: Assessment of Alternative Solutions** – The process which examines alternative ways of achieving objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;

**Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain** – An assessment of the compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

In complying with the obligations set out in Articles 6(3) and following the guidelines described above, the screening statement undertaken here, has been structured as a stage by stage approach as follows:

- Description of the proposed project;
- Identification of the Natura 2000 sites within the Zone of Influence to the proposed project;
- Identification and description of any individual and cumulative impacts on the Natura 2000 sites likely to result from the proposed project;
- Assessment of the significance of the impacts identified above, on Natura 2000 site integrity;
- Exclusion of any Natura 2000 sites where it can be objectively concluded that there will be no significant effects; and
- Description of proven mitigation measures.

## 2.2 Desk Studies & Consultation

Information on the site and the area of the proposed project was studied prior to the completion of this Report. The following data sources were accessed in order to complete a thorough examination of potential impacts:

- National Parks and Wildlife Service - Aerial photographs and maps of designated sites, information on habitats and species within these sites and information on protected plant or animal species, conservation objectives, site synopses and standard data forms for relevant designated sites. In addition, a submission made by the NPWS with regards to this proposed project was also reviewed.
- Environmental Protection Agency (EPA)- Information pertaining to water quality, geology and licensed facilities within the area;
- Myplan.ie – Mapped based information;
- National Biodiversity Data Centre (NBDC) – Information pertaining to protected plant and animal species within the study area;
- Bing maps & Google Street View – High quality aerials and street images;

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- PNG Energy Ltd. & Joseph O'Reilly Consulting Engineers– Information regarding the proposed project including site plans, specifications and photographs;
- Sligo County Council – Information on planning history in the area.

### 2.3 Field Studies

A visit to the proposed project site in Ballysumaghan was undertaken by Whitehill Environmental on June 29<sup>th</sup> 2020. During this site visit, habitats within and surrounding the site were classified and coded in accordance with Fossit (2000), whilst the ecological value of the site for certain species was assessed. Any potential hydrological links to Natura 2000 sites were noted. An assessment of the presence of species listed under Annex IV of the Habitats Directive was also made.

### 2.4 Assessment Methodology

The proposed project at Ballysumaghan was assessed to identify its potential ecological impacts and from this, the Zone of Influence (Zol) of the proposed project was defined. Based on the potential impacts and their Zol, the Natura 2000 sites potentially at risk from direct, indirect or in-combination impacts were identified. The assessment considered all potential impact sources and pathways connecting the proposed project to Natura 2000 sites, in view of the conservation objectives supporting the favourable conservation condition of the site's Qualifying Interests (QIs) or Special Conservation Interests (SCIs).

The conservation objectives relating to each Natura 2000 site and its QIs/SCIs are cited generally for SACs as *"to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or Annex II species for which the SAC has been selected"*, and for SPAs *"to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"*.

As defined in the Habitat's Directive, the favourable conservation status of a habitat is achieved when:

- Its natural range and area it covers within that range is stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future;
- The conservation status of its typical species is favourable.
- The favourable conservation status of a species is achieved when:
- The population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future;
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Where site-specific conservation objectives (SSCOs) have been prepared for a Natura 2000 site, these include a series of specific attributes and targets against which effects on conservation condition, or integrity, can be measured. Where potential significant effects are identified, then these SSCO's should be considered in detail.

## Section 3 Screening

### 3.1 Proposed Project Description

In March 2020, PNG Energy Ltd. applied to Sligo County Council for planning permission for a project on a site at Ballusumaghan, Sooley, Co. Sligo. Permission is being sought for a duration of 10 years for the installation and operation of a 250 to 300 MVA (electrical rating) synchronous condenser (SC) on a site that is adjacent to an existing ESB substation (Sranagh). The purpose of the SC is to provide stability to the national grid during periods of fluctuating loads. The fluctuation of loads can be caused by a mix of conditions such as increases in renewable loads and decreases in conventional generation. The SC would be situated within a warehouse type structure along the western boundary of the site and would then connect by power cable into the substation site that is adjacent to it.

The project will be located within a site compound of c. 1 hectare (ha.) and will consist of the following elements:

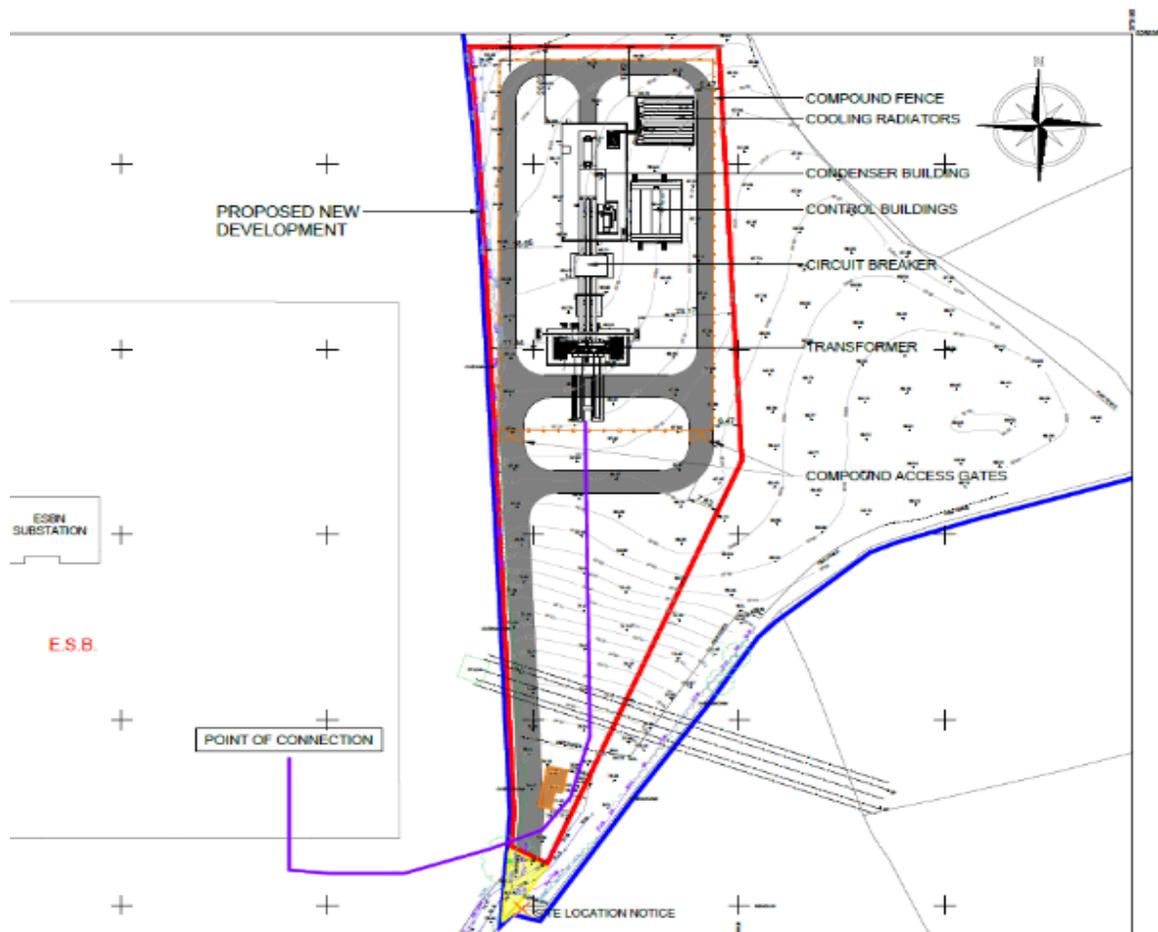
- A Condenser and Control Building to house equipment including the synchronous condenser, flywheel, lube oil skid system, air compressor and pumps.
- Equipment to be located outside the footprint of the Condenser and Control Building but within the fenced compound will include:
  - Cooling equipment (c. 160sqm., c. 3m high);
  - 6 No. modular containers to house electrical and control equipment (total area of c. 195sqm., c. 5m high);
  - A step-up / auxiliary transformer, main transformer and electrical plant including an external circuit breaker;
  - 1 No. firefighting water tank;
  - Surface water drainage system to include a below ground oil interceptor, attenuation tank and hydrobrake; and
  - Underground cabling ducts and cable to the neighbouring ESB substation, boundary fencing (c. 500m),
- Palisade security entrance gate, boundary fencing and CCTV; and
- All other ancillary and miscellaneous site works including site clearance; site access, demolition of an existing agricultural shed, internal roads, areas of hard standing and a maintenance lay-down area.

During the operational phase, access will be required infrequently to the site. Where it is required, access will be via the R284 regional road, towards Ballysumaghan and into the site via Quarry Lane (which is the access point for the ESB Sranagh 220kV substation).

The proposed project will require maintenance (ad hoc) during the year) but generally the site will be unmanned. The palisade entry gates will be locked at all times. The operation of the proposed project will be monitored remotely with a high level of security. The security camera system will be monitored from a central facility and supported with a fast response security attendance team

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An extract from the planning drawings can be seen in Figure 1.



**Figure 1 – Site Layout (Extracted from the Site Layout Plan)**

## 3.1.1. Site Drainage Proposals

### Construction Phase

The following measures shall be implemented on site in relation to drainage management during the construction phase:

- The local hydrology will be maintained to minimise disruption to the surrounding environment and the Ballygrania Stream.
- There will be no direct discharges to the drain on the western boundary during the construction phase.
- A silt fence will be installed next the drain on the western boundary at the commencement of the construction activities on-site.
- In order to avoid sedimentation impacts on local watercourses, run-off from the construction areas will be intercepted and managed through pollution control methods such as a silt traps,

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installed at appropriate locations on the site, prior to discharging to the drain on the western boundary.

- Site stripping and excavation works shall be avoided during periods of heavy rainfall.

### **Operational Phase**

The external site compound area will be largely made up of permeable stone/hardcore. Surface water run off from these areas will permeate to the ground, as per natural conditions.

However, there will be some external hardstanding areas surrounding the Compound Building and there will be surface water run off associated with the Compound Building and site infrastructure. This run off will be collected and directed, at a greenfield run off rate (incorporating a climate change allowance) through an oil bypass interceptor and into an attenuation tank before discharging via a hydro-brake manhole, located within the boundary of the site. The hydro-brake will discharge to a drain, located on the western boundary of the site.

There will be no welfare facilities provided at the site and no foul drainage will be constructed.

Any rainwater collected in the 2No transformer bunds will be directed to the below-ground oil interceptor prior to discharge to the attenuation tank. The proposed transformer bunds will be fitted with a low level sump and PPL BundGuard pump system which will pump the water from the bund into the surface water drainage system. It is an automatic pumping system that will operate 24/7 to monitor the oil water interface in the bunds. This system will ensure any oil in the bund is retained within the bund for safe disposal during regular maintenance. The system comes with a range of visual and relay alarm outputs to communicate with the remote monitoring system, on the oil levels and also in the event of emergency if there is a sudden increase in oil levels.

Please refer to the site drainage drawings J20- 038-001A, included in Appendix II.

### 3.2 Site Location and Surrounding Environment

The proposed project site is approximately 1ha and is located in a rural area, within the townland of Ballysumaghan, approximately 1.4km north of the village of Sooeey and 2.5km south of Ballintogher. The site will be accessed via an existing small access lane that services that adjacent substation site and this is located just off a local, third class road. The site lies to the immediate east of the ESB Sub-Station (Sranagh).

The site is located in a low-lying area. The main land uses surrounding the site include agriculture and forestry and the dominant habitats present locally include improved agricultural grassland, wet and semi-improved grasslands, coniferous and broadleaved forestry, scrub, hedgerows, treelines and watercourses.

Site location maps are shown in Figures 2 and 3, whilst an aerial photograph of the site and its surrounding habitats is shown in Figure 4.

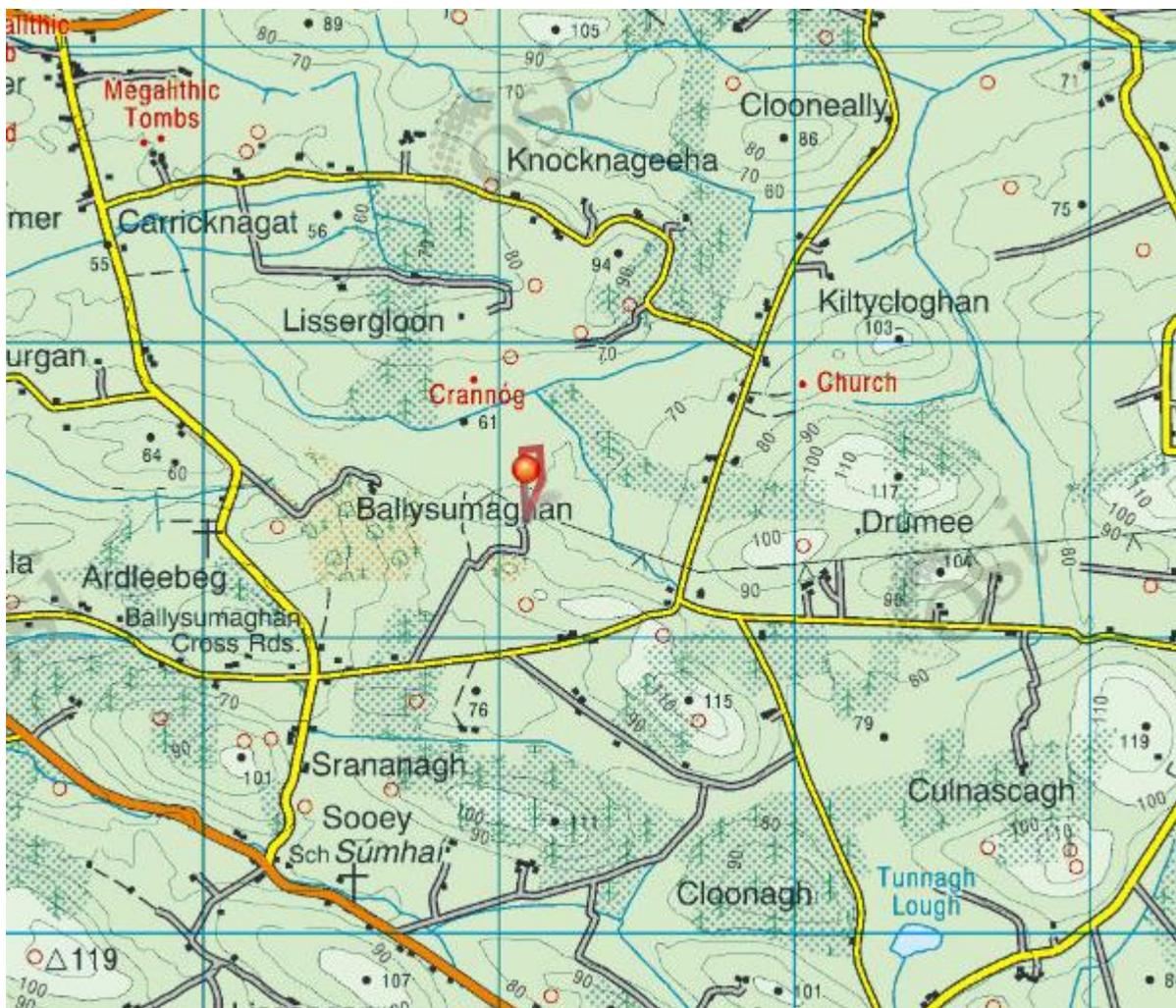


Figure 2 – Site Location Map (Site Pinned)



**Figure 3 – Site Location Map (Site Outlined in Red – boundary is approximate)**

### **Habitats within the Site**

An assessment of the habitats within and in the lands surrounding the site was made during the site visit on June 29<sup>th</sup>. These habitats are described below and they are classified in accordance with the code in Fossit (2000).

A habitat map of the area is provided in Figure 4, whilst an aerial photo of the site is shown in Figure 5.

The site is located on land which slopes from the south to the north towards the Ballygrania Stream. Within the site boundary itself (i.e., the red line boundary), improved agricultural grassland (GA1) is the dominant habitat. This habitat had not been grazed or cut in recent months, and the sward is long and overgrown. Elements of the dry calcareous and neutral grassland habitats (GS1) were noted in certain areas of the field. Grasses were dominant within the proposed project site.

Species noted included meadow grasses *Poa* sp, fescues *Festuca* sp, crested dog's tail *Cynosurus cristatus*, meadow foxtail *Alopecurus pratensis* and Yorkshire fog *Holcus lanatus*. Broad-leaved species were typical of the habitat and included creeping buttercup *Ranunculus repens*, red clover *Trifolium pratense* and white clover *Trifolium repens*. In certain pockets, especially closer to the hedgerow that forms the western site boundary,

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species associated with dry calcareous and neutral grasslands were noted and they included Bird-s-foot trefoil *Lotus corniculatus* and black medick *Medicago lupulina*.

The site is bounded to the west by a hedgerow (WL1), and this hedgerow separates the site from the ESB sub-station. This hedgerow is well structured and dense. The dominant species within it included hawthorn *Craetegus monogyna* and blackthorn *Prunus spinosa*. Ash *Fraxinus excelsior*, elder *Sambucus nigra*, sycamore *Acer pseudoplatanus* and willow *Salix* sp. were common to occasional. It was noted that much of the ash in area has been affected by ash die back (Charlara). Brambles *Rubus fruticosus* agg. and ivy *Hedera helix* also occurred in association with this hedgerow. There was a grassy verge (GS2) along the hedgerow and species present here included cleavers *Gallium aparine*, nettles *Urtica dioica*, male fern *Dryopteris filix-mas*, meadowsweet *Filipendula ulmaria* and willow herbs *Epilobium* sp. A drain (FW4) was also noted as occurring in association with this boundary.

The land to the north of the site were also assessed. These lands are poorly drained and they slope towards the Ballygrania Stream (FW2). In the lower fields, wet grassland (GS4) is the dominant habitat, and common reed *Phragmites australis* and meadow sweet *Filipendula ulmaria* are common. Due to the high amount of rainfall in the preceding couple of weeks, the ground here was very soft, waterlogged and flooded.

To the east of the site, an area of land has recently been planted with trees. The main species noted included alder *Alnus glutinosa* and ash. This habitat has been depicted on the habitat map as immature woodland (WS2).

### Species

An examination of the website of the National Biodiversity Data Centre revealed that there are records for the presence of one protected mammal species from within the relevant 1km squares (G7525) of this proposed project. This species is the pine martin *Martes martes* and it is fully protected under the Irish Wildlife Acts.

No evidence of the pine martin was noted during the site visit. There were also no observations made of any other mammal signs, including badger setts. The lower fields within the site are being grazed by sheep.

A range of common bird species were noted on the day. Species observed or heard included:

- Starling *Sturnus vulgaris*
- Blackbird *Turdus merula*
- Robin *Erithacus rubecula*
- Wren *Troglodytes troglodytes*
- Great tit *Parus major*
- Magpie *Pica pica*
- Willow warbler *Phylloscopus trochilus*

### Annex IV Species

In Ireland, species listed under Annex IV of the Habitats Directive require the strict protection of the state. Species listed include the otter *Lutra lutra* and all bat species. No evidence of the use of the site by the otter was noted on the day of the survey. The most likely habitat within the site and its surrounding lands would be along the watercourse corridors. The drain along the western perimeter of the site is shallow and small and

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generally unsuitable for use by the otter. The Ballygrania Stream was in flood on the day of the survey, thereby eliminating any evidence of otter tracks along or slides into the river. No otter spraints were noted along the soft ground. An examination of the records held by the National Biodiversity Data Centre revealed that there are records for the presence of the otter within the 10km<sup>2</sup> of this proposed project and it is possible that otters occur within the zone of influence of the site.

An assessment of the potential use of the sites by bats was also made. There are no buildings or mature trees within the site that would provide suitable roosting or hibernating habitats for bats. However, bats are likely to forage over the site on summer evenings.

The National Biodiversity Data Centre (NBDC) has produced a landscape suitability index for bat species in Ireland, and this is based on work by Lundy et al (2011). The results are provided as maps, where the area of concern is coloured to indicate the overall suitability of the landscape for bats. The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. The overall assessment of bat habitats for the current study area is given as 32.56, which is a medium value. Table 1 gives the suitability of the study area for the bat species found in the study area (based on NBDC).

**Table 1 – Bat Suitability Index for the Site (NBDC)**

Bat Species	Suitability Index
Brown long-eared bat <i>Plecotus auritus</i>	44
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	46
Natterer's bat <i>Myotis nattereri</i>	51
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	3
Daubenton's bat <i>Myotis daubentonii</i>	46
Whiskered bat <i>Myotis mystacinus</i>	15
Leisler's Bat <i>Nyctalus leisleri</i>	42
Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i>	3
Common pipistrelle <i>Pipistrellus pipistrellus</i>	43

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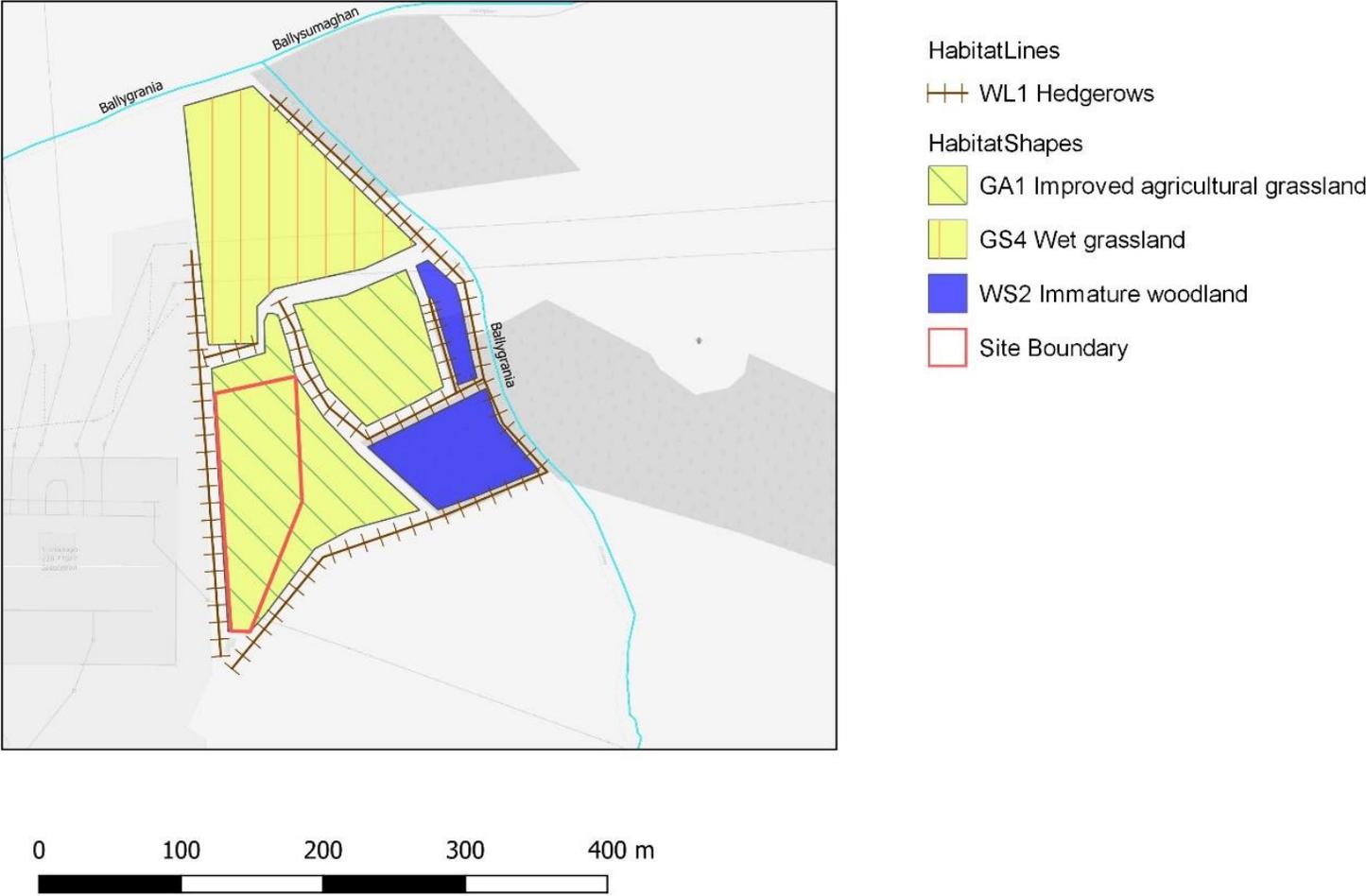


Figure 4 – Habitat Map of the Habitats Within and Close to the Site

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## Water Features and Quality

The proposed site is within the Sligo Bay and Drowse Hydrometric Area and Catchment, the Owenmore (Sligo) Sub-Catchment and the Unshin Sub-Basin. The Ballygrania Stream flows c. 100m from the eastern site boundary of the application site. It flows in a north-westerly / westerly direction until its confluence with the Unshin River, at a point 5km west (12.5km downstream). The Unshin River (or Ballysadare River) flows into Sligo Bay at Ballysadare. There is also a wet drain along the western boundary of the site and water in this drain is likely to flow north towards the Ballygrania Stream.

The EPA have classified the Ballygrania Stream and its tributaries, along with the other watercourses within this sub-basin as being of high ecological status. The Unshin River downstream of its confluence with this stream is of good ecological status. Under the requirements of the Water Framework Directive in Ireland, this is satisfactory and this status must be maintained.



**Figure 5 – Aerial Photo of the Site and its Surrounding Habitats**

### 3.3 Natura 2000 (European) Sites Identified

In accordance with the guidelines issued by the Department of the Environment and Local Government, a list of Natura 2000 sites within 15km of the proposed project has been identified and described according to their site synopses, qualifying interests and conservation objectives. In addition, any other sites further than this, but potentially within its zone of influence (Zoi) have also be considered. The zone of influence may be determined by an assessment of the connectivity between the site and the designated areas by virtue of hydrological connectivity, atmospheric emissions, flight paths, ecological corridors etc. For the purpose of this report and accounting for the location, nature, scale and design of this project, the ZOI has been identified to include all Natura 2000 sites within 15km, along with additional sites that are hydrologically connected to it.

There are twelve Natura 2000 sites within 15km of this site. These Natura 2000 sites and their closest points to the proposed project site are summarised in Table 2 and a map showing their locations relative to the site is shown in Figure 6. A full description of these European sites can be read on the website of the National Parks and Wildlife Service (npws.ie).

**Table 2 – Natura 2000 Sites of Relevance within 15km of the Proposed Project**

Site Name & Code	Distance from Proposed Project	Qualifying Interests	Potential for Significant Effects
<b>Lough Gill SAC 001976</b>	4.2km north	<ul style="list-style-type: none"> <li>• Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation</li> <li>• Old sessile oak woods with Ilex and <i>Blechnum</i> in the British Isles</li> <li>• Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i></li> <li>• <i>Austropotamobius pallipes</i> (White-clawed Crayfish)</li> <li>• <i>Petromyzon marinus</i> (Sea Lamprey)</li> <li>• <i>Lampetra planeri</i> (Brook Lamprey)</li> <li>• <i>Lampetra fluviatilis</i> (River Lamprey)</li> <li>• <i>Salmo salar</i> (Salmon)                             <ul style="list-style-type: none"> <li>• <i>Lutra lutra</i> (Otter)</li> </ul> </li> </ul>	<i>No hydrological connectivity between the site and this SAC, therefore there is no potential for significant effects on this site. This SAC can be screened out.</i>
<b>Unshin River SAC 001898</b>	4.5km north-west / 7km downstream	<ul style="list-style-type: none"> <li>• Otter (<i>Lutra lutra</i>)</li> <li>• Salmon (<i>Salmo salar</i>)</li> <li>• Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and</li> </ul>	<i>As there is hydrological connectivity between the site and this SAC, significant potential effects cannot be ruled out, therefore the potential for</i>

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Site Name & Code	Distance from Proposed Project	Qualifying Interests	Potential for Significant Effects
		<p>Callitricho-Batrachion vegetation</p> <ul style="list-style-type: none"> <li>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i></li> </ul>	<i>impacts to occur on this site will be assessed in further detail.</i>
<b>Union Wood SAC 000638</b>	7km north-west	<ul style="list-style-type: none"> <li>Old sessile oak woods with Ilex and <i>Blechnum</i> in the British Isles</li> </ul>	<i>No hydrological connectivity between the site and this SAC, therefore there is no potential for significant effects on this site. This SAC can be screened out.</i>
<b>Ballysadare Bay SAC 000622</b>	8.9km north-west / 16.5km downstream	<ul style="list-style-type: none"> <li>Estuaries</li> <li>Mudflats and sandflats not covered by seawater at low tide</li> <li>Embryonic shifting dunes</li> <li>Shifting dunes along the shoreline with <i>Ammophila arenaria</i></li> <li>Fixed coastal dunes with herbaceous vegetation</li> <li>Humid dune slacks</li> <li><i>Vertigo angustior</i> (Marsh Snail)</li> <li><i>Phoca vitulina</i> (Common Seal)</li> </ul>	<i>As there is hydrological connectivity between the site and this SAC, significant potential effects cannot be ruled out, therefore the potential for impacts to occur on this site will be assessed in further detail.</i>
<b>Ballysadare Bay SPA 004129</b>	8.9km north-west / 16.5km downstream	<ul style="list-style-type: none"> <li>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)</li> <li>Grey Plover (<i>Pluvialis squatarola</i>)</li> <li>Dunlin (<i>Calidris alpina</i>)</li> <li>Bar-tailed Godwit (<i>Limosa lapponica</i>)</li> <li>Redshank (<i>Tringa totanus</i>)</li> <li>Wetland and Waterbirds</li> </ul>	<i>As there is hydrological connectivity between the site and this SPA, significant potential effects cannot be ruled out, therefore the potential for impacts to occur on this site will be assessed in further detail.</i>
<b>Lough Arrow SAC 001673</b>	10km south	<ul style="list-style-type: none"> <li>Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.</li> </ul>	<i>No hydrological connectivity between the site and this SAC (which is upstream of the site), therefore there is no potential for significant effects on this</i>

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Site Name & Code	Distance from Proposed Project	Qualifying Interests	Potential for Significant Effects
			site. This SAC can be screened out.
<b>Lough Arrow SPA 004050</b>	10.1km south	<ul style="list-style-type: none"> <li>• Little grebe (<i>Tachybaptus ruficollis</i>)</li> <li>• Tufted duck (<i>Aythya fuligula</i>)</li> <li>• Wetlands &amp; Waterbirds</li> </ul>	No hydrological connectivity between the site and this SPA (which is upstream of the site), therefore there is no potential for significant effects on this site. This SPA can be screened out.
<b>Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC 000627</b>	11.8km north-west	<ul style="list-style-type: none"> <li>• Estuaries</li> <li>• Mudflats and sandflats not covered by seawater at low tide</li> <li>• Embryonic shifting dunes</li> <li>• Shifting dunes along the shoreline with <i>Ammophila arenaria</i></li> <li>• Fixed coastal dunes with herbaceous vegetation</li> <li>• <i>Juniperus communis</i> formations on heaths or calcareous grasslands</li> <li>• Petrifying springs with tufa formation (Cratoneurion)</li> <li>• <i>Vertigo angustior</i> (Marsh Snail)</li> <li>• <i>Petromyzon marinus</i> (Sea Lamprey)</li> <li>• <i>Lampetra fluviatilis</i> (River Lamprey)</li> <li>• <i>Phoca vitulina</i> (Common Seal)</li> </ul>	No hydrological connectivity between the site and this SAC, therefore there is no potential for significant effects on this site. This SAC can be screened out.
<b>Bricklieve Mountains &amp; Keishcorran SAC 001656</b>	12.2km south	<ul style="list-style-type: none"> <li>• Turloughs</li> <li>• Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)</li> <li>• Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>)</li> </ul>	No hydrological connectivity between the site and this SAC, therefore there is no potential for significant effects on this site. This SAC can be screened out.

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Site Name & Code	Distance from Proposed Project	Qualifying Interests	Potential for Significant Effects
		<ul style="list-style-type: none"> <li>• Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>)</li> <li>• Marsh Fritillary <i>Euphydryas aurinia</i></li> <li>• White-clawed Crayfish <i>Austropotamobius pallipes</i></li> </ul>	
<b>Cummeen Strand SPA 004035</b>	12.2km north-west	<ul style="list-style-type: none"> <li>• Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)</li> <li>• Oystercatcher (<i>Haematopus ostralegus</i>)</li> <li>• Redshank (<i>Tringa totanus</i>)</li> <li>• Wetland and Waterbirds</li> </ul>	<i>No hydrological connectivity between the site and this SPA, therefore there is no potential for significant effects on this site. This SPA can be screened out.</i>
<b>Templehouse And Cloonacleigha Loughs SAC 000636</b>	14km south-west	<ul style="list-style-type: none"> <li>• Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.</li> <li>• Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and Callitricho-Batrachion vegetation</li> </ul>	<i>No hydrological connectivity between the site and this SAC, therefore there is no potential for significant effects on this site. This SAC can be screened out.</i>
<b>Sligo/Leitrim Uplands SPA 004187</b>	14.6km north	<ul style="list-style-type: none"> <li>• Peregrine (<i>Falco peregrines</i>)</li> <li>• Chough (<i>Pyrrhocorax pyrrhocorax</i>)</li> </ul>	<i>No hydrological connectivity between the site and this SAC, therefore there is no potential for significant effects on this site. This SAC can be screened out.</i>

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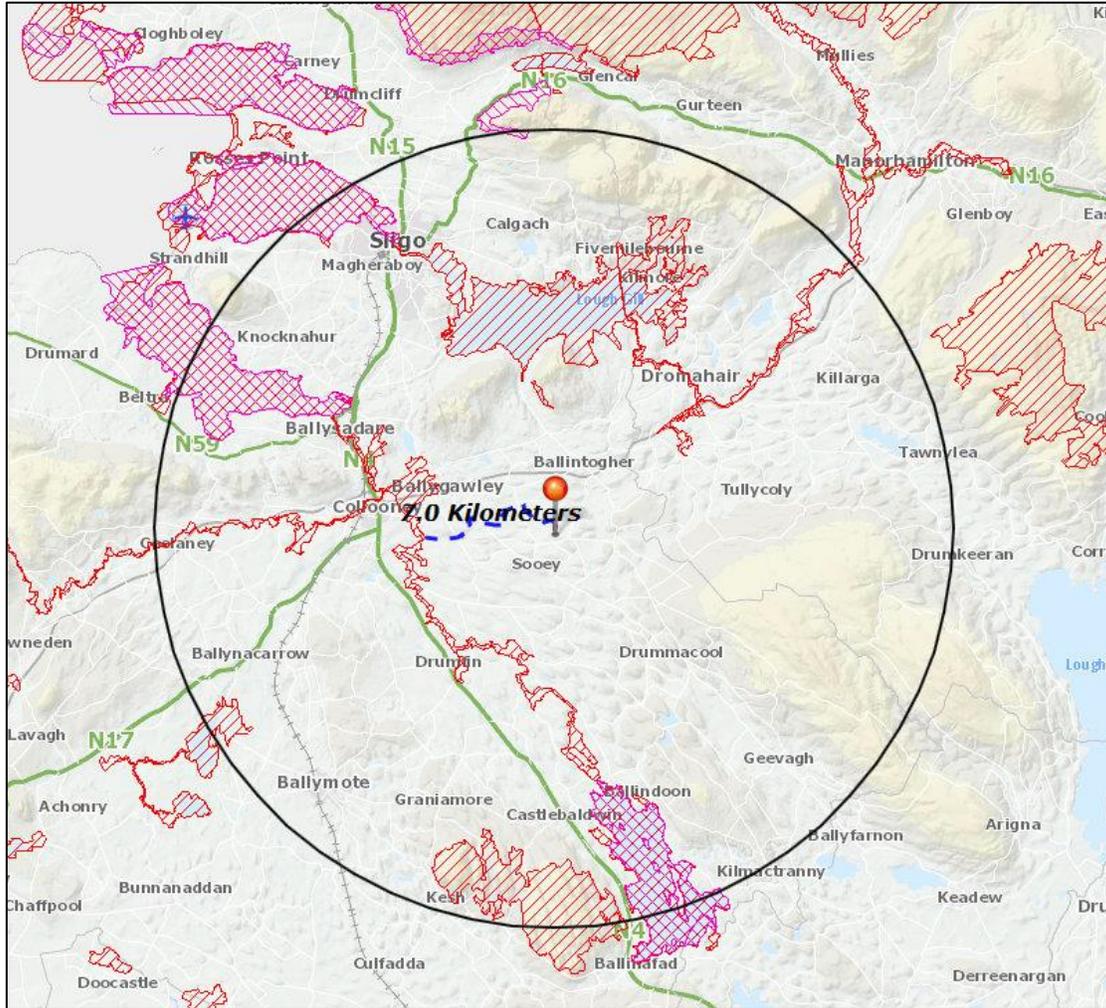


Figure 6 – The Site (Pinned) in relation to Natura 2000 Sites within 15km

### 3.4 Identification of Potential Impacts

The site is hydrologically connected to the Unshin River SAC, the Ballysadare Bay SAC and the Ballysadare Bay SPA. The downstream distance to the River Unshin SAC is 7km and to the Ballysadare Bay SAC / SPA is 16.5km.

Taking a conservative approach, in a worst-case scenario and in the absence of mitigation, an accidental pollution event of a sufficient magnitude during construction or operation, either alone or in combination with other pollution sources, could potentially affect the water quality in the Ballygrania Stream to an extent that subsequently undermines the conservation objectives of the Unshin River SAC, the Ballysadare Bay SAC and the Ballysadare Bay SPA. A reduction in water quality locally has the potential to affect the aquatic habitats and natural conditions that are required to maintain or achieve the specific attributes and targets of the qualifying interests and the conservation objectives that have been defined for these qualifying interest.

Therefore, following an evaluation of the relevant information including the characteristics of the proposed project and the likelihood of significant effects on the sites and with regards to the tenets of the precautionary principal, it is considered in the opinion of this author that it is not possible to exclude, on the basis of objective information, that the proposed project, either individually or in combination with other plans or projects, will have a likely significant effect on the above Natura 2000 sites.

Only those features of the proposed project that have the potential to affect the integrity and conservation objectives of the identified Natura 2000 sites and protected species have been considered. A number of factors were examined at this stage and dismissed or carried forward for Appropriate Assessment as relevant. The following areas were examined in relation to potential impacts from the proposed project on the Natura 2000 sites identified:

1. Deterioration of water quality in designated areas arising from pollution from surface water run-off during site preparation and construction;
2. Deterioration in water quality in designated areas arising from pollution during the operation of the proposed project;
3. Cumulative impacts with other proposed/existing projects.

### **Assessment of Significance**

This section considers the list of sites identified in Section 3.3. It can be considered that all sites, with the exception of the Unshin River SAC, the Ballysadare Bay SAC and the Ballysadare Bay SPA can be excluded from the remainder of the Appropriate Assessment process, i.e., they can be screened out.

This is based on their distance from the proposed project and the fact that they are outside of the zone of influence of these sites (i.e. no connectivity) and that no direct or impacts are likely to arise. The remaining assessment will therefore focus upon the protected habitats and species of the Unshin River SAC, the Ballysadare Bay SAC and the Ballysadare Bay SPA, i.e., these sites have been screened in.

### **Screening Conclusions**

The proposed project is not directly connected with or necessary to the nature conservation management of the Unshin River SAC, the Ballysadare Bay SAC and the Ballysadare Bay SPA. Therefore, following consideration of the location of these Natura 2000 sites in relation to the proposed project at Ballysumaghan, and the potential impacts that may occur, the proposed project must proceed to the next stage of Appropriate Assessment, namely the Natura Impact Assessment.

## Section 4 Stage II – Appropriate Assessment

### 4.1 Introduction

The main objective of this stage (Stage 2, Natura Impact Statement) in the Appropriate Assessment process is to determine whether the proposed project at Ballysumaghan (either alone or in combination with other plans, programmes and projects) will result in significant effects on the integrity of Unshin River SAC, the Ballysadare Bay SAC and the Ballysadare Bay SPA with respect to these site's structures, species, functions and/or conservation objectives. This stage also outlines the mitigation measures that should be taken in order to avoid any negative impacts of this application, should it receive consent.

In this section, the Natura 2000s site identified in the previous section will be described in greater detail in terms of their site characteristics and conservation objectives.

### 4.2 Natura 2000 Sites Identified

#### 4.2.1. River Unshin SAC 001898

##### NPWS Site Synopsis

The Unshin River runs from Lough Arrow north to Ballysadare Bay, Co. Sligo. The river is largely undrained and unaltered along much of its course. The marginal vegetation associated with the river is also included in the site, along with other semi-natural habitats adjacent to the river (included in order to enhance its protection). Many of these habitat types are interesting and of conservation value in their own right. Other watercourses included within the site are the Owenboy/ Owenbeg and a number of smaller tributaries. The Unshin River flows across a number of geological boundaries between sandstone, shales and limestone. This results in unusual physico-chemical qualities which in turn are reflected in the rich and varied plant and animal populations.

The Unshin River supports an excellent example of floating river vegetation. The diversity of aquatic macrophytes is exceptional, and to a certain extent the unusual combinations and richness of species can be accounted for by the good quality water being discharged from Lough Arrow upstream. The lake also imparts a stabilising influence on the flow regime and provides a source of lacustrine species – for example, Long-stalked Pondweed (*Potamogeton praelongus*). Plant species present which indicate base-rich conditions include Lesser Water-parsnip (*Berula erecta*), Blunt-fruited Water-starwort (*Callitriche obtusangula*), Fan-leaved Water-crowfoot (*Ranunculus circinatus*) and the internationally rare River Water-dropwort (*Oenanthe fluviatilis*). Species such as Lesser Marshwort (*Apium inundatum*), normally associated with more acidic peat pools, also occur. Fen and floating mire communities are represented by Bogbean (*Menyanthes trifoliata*), Cowbane (*Cicuta virosa*), Yellow Loosestrife (*Lysimachia vulgaris*) and Water Avens (*Geum rivale*). A rare and unusual alga, *Nostoc parmelioides*, is also present.

There are a number of areas of woodland, many of which flood, included within the site. These wet alluvial woodlands are found on water-logged soils and species such as Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*), willows (*Salix* spp.), Pedunculate Oak (*Quercus robur*) and birch (*Betula* spp.) are common. Occasionally, Lime (*Tilia* sp.) and Horse-chestnut (*Aesculus hippocastanum*) are found also. The ground flora is diverse in places, and species such as Meadowsweet (*Filipendula ulmaria*), Wild Angelica (*Angelica sylvestris*), Lesser Celandine (*Ranunculus ficaria*), Wood Anemone (*Anemone nemorosa*), Yellow Iris (*Iris*

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*pseudacorus*), Bracken (*Pteridium aquilinum*), Reed Canary-grass (*Phalaris arundinacea*), Soft Rush (*Juncus effusus*), Common Valerian (*Valeriana officinalis*), Bramble (*Rubus fruticosus agg.*), Enchanter's-nightshade (*Circaea lutetiana*), Purple Loosestrife (*Lythrum salicaria*), Golden Saxifrage (*Chrysosplenium oppositifolium*), Greater Tussock-sedge (*Carex paniculata*), Remote Sedge (*Carex remota*), Bottle Sedge (*C. rostrata*), Common Nettle (*Urtica dioica*), Hart's-tongue (*Phyllitis scolopendrium*), Broad Buckler-fern (*Dryopteris dilatata*) and Lady-fern (*Athyrium filix-femina*) are all found. A number of non-native shrub species, some of which are invasive, are found: Snowberry (*Symphoricarpos albus*), Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*). The non-native herbs Japanese Knotweed (*Reynoutria japonica*) and Giant Hogweed (*Heracleum mantegazzianum*) have also been recorded.

Areas of grassland, ascribable to the E.U. Habitats Directive Annex I types: Orchid-rich Calcareous Grassland and Molinia Meadows, have been reported at Cloonmacduff, according to the Irish Semi-natural Grasslands Survey, 2010. There are also extensive wetlands within this site, and one area contains the Red Data Book plant Swamp Meadow-grass (*Poa palustris*).

The Unshin and its tributaries form a very important system for Atlantic Salmon, a species that is listed on Annex II of the E.U. Habitats Directive. The Owenboy/Owenbeg river is the principle spawning and nursery tributary for the system's salmon fishery. The Unshin and its tributaries is the most important salmon producing river in Co. Sligo. The system also supports a good population of Trout.

The Annex II species Otter has been recorded in and near this site. Two notable bird species which occur along the river are Whooper Swan, which feeds in the wet grasslands that flank the river, and Kingfisher. Both are listed on Annex I of the E.U. Birds Directive. The trophic status of the river increases downstream indicating that some enrichment is taking place. However, the quality of the Unshin River and particularly its aquatic macrophyte communities, make it rare in both an Irish and European context, and it is considered one of the most pristine rivers in the country.

### Qualifying Interests of this SAC

The Qualifying Interests (QIs) of the River Unshin SAC and the potential impacts that may occur on this QIs are assessed below in Table 3. The NPWS has not yet published Site Specific Conservation Objectives (SSCOs) for the River Unshin SAC. However, in cases like this then the SSCO of Natura 2000 sites with the same qualifying interests as the River Unshin SAC can be referred to and considered when assessing any potential impacts upon habitats and species. The most recent Article 17 Reports on the status of protected habitats and species in Ireland were also consulted. (NPWS, 2013).

**Table 3 – QIs of the River Unshin SAC and Potential Impacts that may Arise.**

Qualifying Interest	Ecology	Potential Impacts	Mitigation Required?
<p>Otter (<i>Lutra lutra</i>)</p>	<p>The otter is likely to occur within the Zone of Influence of the application site; however no evidence was noted of its occurrence in the site. The presence of this species is positively correlated with good water quality and deterioration of same will lead to impacts upon this species.</p> <p>Otters have two basic requirements – aquatic prey and safe refuges where they can rest. In freshwater areas, the diet of the otter consists of a variety of fish from sticklebacks to salmon and eels, whilst crayfish and frog availability can also be important. Impacts that reduce the or quality of, or cause disturbance to, their terrestrial or aquatic habitats are likely to affect otters.</p> <p>The main threats to otters in Ireland are thought to be: (1) habitat destruction, including river drainage and the clearance of bank-side vegetation; (2) pollution, particularly organic pollution resulting in fish kills; (3) disturbance of habitat due to recreational activities, and (4) accidental deaths (NPWS, 2009).</p> <p>Records for this species exist from the Unshin Catchment (NBDC, 2020). In Ireland, the territory of female otters in mesotrophic rivers is approximately 7.5 +/- 1.5km in length (Ó Néill, L., 2008), whilst the territories of males otters in mesotrophic and oligotrophic rivers is approximately 13.2 +/- 5.3km in length, with a high degree of variability as territorial males respond quickly to social perturbation. Therefore, as records for the otter exist from within the zone of influence of the site, mitigation measures will be included as part of this assessment to protect the overall status of the otter within this SAC.</p>	<p>Yes - Potential impacts and subsequent effects upon this species due to a decrease in water quality in the Ballygrania Stream and subsequently in the River Unshin SAC.</p> <p>This could arise due to run-off from the site that is contaminated with silt, cement, hydrocarbons or other chemicals. Run-off could arise during construction and operation.</p> <p>These impacts may lead to negative effects on this species and the aquatic food supply that it depends upon.</p>	<p>Yes</p>

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Qualifying Interest	Ecology	Potential Impacts	Mitigation Required?
Salmon ( <i>Salmo salar</i> )	The River Unshin and its tributaries are an important habitat for the salmon and there are potential suitable habitats for the salmon downstream of the site. The requirements of salmon depend on their life stage but clean, unpolluted water is a requirement throughout the life cycle. They are very sensitive to changes in water quality and increases in sedimentation (<25 mg/L annual average). The main pressures and threats to this species come from agricultural intensification, run-off from agriculture, forestry and household waste waters and poaching. The presence of the salmon in the River Unshin within the Zone of Influence of the site have been assumed and impacts upon this species must be mitigated against. The high status of the Ballygrania Stream must be maintained.	Yes - Potential impacts and subsequent effects upon this species due to a decrease in water quality in the Ballygrania Stream and subsequently in the River Unshin SAC. This could arise due to run-off from the site that is contaminated with silt, cement, hydrocarbons or other chemicals. Run-off could arise during construction and operation. These impacts may lead to negative effects on this species and the aquatic food supply that it depends upon.	Yes
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and Callitricho-Batrachion vegetation	This habitat is also commonly known as floating river vegetation. Its definition is wide and <i>Ranunculus</i> , <i>Callitriche</i> , <i>Potamogeton</i> and <i>Myriophyllum</i> species are often present. Pressures on this habitat include eutrophication, overgrazing and alien species. River connectivity with the floodplain is essential for the functioning of this habitat. Suitable conditions for this habitat along the River Unshin within the Zone of Influence (downstream) of the site are likely, therefore impacts upon this habitat from the proposed project are possible and in keeping precautionary principle, mitigation measures will be required. The Ballygrania Stream in proximity to the site does not support this habitat.	Possible direct / indirect impacts on this habitat include the loss or decrease in the quality or area of this habitat due to pollution or a decrease in water quality arising from run-off from the construction and operation of the proposed project. Run-off may contain cement, hydrocarbons and silt which could all lead to negative impacts upon this qualifying feature.	Yes
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	This Annex I Priority habitat is likely to occur at many locations within the River Unshin SAC. Some of the main threats to this habitat include under-grazing and invasive species. Areas of alluvial forests occur close to the site and along the riparian banks of the River Boyne. The proposed project will not have any impacts upon this habitat.	This habitat is not sensitive to deteriorations in water quality. Significant effects upon this QI arising from the construction and operation of this habitat are unlikely to occur. This habitat does not occur within or in direct proximity to the proposed project site.	No

#### 4.2.2. Ballysadare Bay SAC 000622

##### NPWS Site Synopsis

Ballysadare Bay extends for about 10 km westwards from the town of Ballysadare, Co. Sligo, and is the most southerly of three inlets of the larger Sligo Bay. The estuarine channel of the Ballysadare River winds its way through the bay, finally reaching the open sea near the spit at Strandhill dunes. The bay is underlain by sedimentary rocks of limestones, sandstones and shales, which are exposed as low cliffs and small sections of bedrock shore at several locations. Knocknarea Mountain overlooks the site.

Ballysadare Bay contains extensive intertidal sand and mudflats, approximately 1,500 ha in extent overall. The mud provides an abundance of food for wildfowl, in the form of colonising plants such as Eelgrass (*Zostera marina*) and Tasselweed (*Ruppia maritima*), as well as numerous species of invertebrates on which both wildfowl and waders feed. Well-developed salt marshes occur at several locations around the bay. Typical species of these areas are Sea Rush (*Juncus maritimus*), Saltmarsh Rush (*Juncus gerardi*), Creeping Bent (*Agrostis stolonifera*) and Parsley Water-dropwort (*Oenanthe lachenalii*). In hollows and ditches, Sea Arrowgrass (*Triglochin maritima*), Sea Club-rush (*Scirpus maritimus*), Sea Milkwort (*Glaux maritima*), Thrift (*Armeria maritima*), Sea Plantain (*Plantago maritima*), Sea Aster (*Aster tripolium*) and Red Fescue (*Festuca rubra*) occur. Particularly interesting species found on the salt marshes are Flowering Rush (*Butomus umbellatus*), Slender Spike-rush (*Eleocharis uniglumis*) and Hard Grass (*Parapholis strigosa*).

There is a large sand dune system at Strandhill which has been relatively undisturbed by grazers. The dune system is highly dynamic, with the tip of the peninsula actively growing and displaying a good, though limited, example of embryonic shifting dunes. The characteristic species found in this habitat type include Sand Couch (*Elymus farctus*), Spear-leaved Orache (*Atriplex prostrata*) and Sea Rocket (*Cakile maritima*). Shifting marram dunes are fairly extensive in the area also, occurring along the entire seaward side of the spit, and they are especially active towards the tip. While Marram (*Ammophila Arenaria*) is the dominant species, Colt's-foot (*Tussilago farfara*), Red Goosefoot (*Chenopodium rubrum*) and Cat's-ear (*Hypochoeris radicata*) can also be found. The seaward dunes reach considerable heights (up to 20 m). They are very steep on the seaward edge, but to the east of this there is an undulating expanse of dune hills.

The largest proportion of the dune system is made up of fixed dunes, a priority habitat listed on Annex I of the E.U. Habitats Directive. Once one moves landward, in from the Marram dunes, there is a low-growing, closed sward which is particularly species-rich, with Field Wood-rush (*Luzula campestris*), Kidney Vetch (*Anthyllis vulneraria*), Bee Orchid (*Ophrys apifera*), Oxeye Daisy (*Leucanthemum vulgare*), Common Centaury (*Centaureum erythraea*), Wild Thyme (*Thymus praecox*), Harebell (*Campanula rotundifolia*), Burnet Rose (*Rosa pimpinellifolia*), Carline Thistle (*Carlina vulgaris*) and Fairy Flax (*Linum catharticum*). The fixed dune areas are also rich in bryophytes and lichens. Moss species include *Tortula ruraliformis*, *Homalothecium lutescens*, *Ditrichum flexicaule* and *Hypnum cupressiforme*, while lichens (*Peltigera* spp. and *Cladonia* spp.) are also present. Some humid dune slacks occur amongst the fixed dunes. Characteristic species include Creeping Willow (*Salix repens*), Carnation Sedge (*Carex panicea*), Jointed Rush (*Juncus articulatus*) and the relatively uncommon Marsh Helleborine (*Epipactis palustris*).

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A range of habitats fringe the bay, adding diversity to the site as a whole. Some of these areas have particular features of interest, e.g. the old oyster farm at Tanrego is important for waterfowl, while the uncommon plant species Ivy Broomrape (*Orobancha hederæ*) occurs in scrubland adjacent to the bay.

Two animals listed on Annex II of the E.U. Habitats Directive occur within the site: The Bay supports a colony of Common Seal (maximum count of 257 in the all-Ireland survey of 2003), and the rare snail, *Vertigo angustior*, occurs in dune slacks and hollows in the dunes at Strandhill.

Ballysadare Bay is important for a range of waterfowl species in autumn and winter and is part of the larger Sligo Bay complex. Brent Goose occur in internationally important numbers, while a further seven species have populations of national importance. These are as follows, with numbers referring to the average peaks over winters 1994/95 - 1997/98: Brent Goose (259), Red-breasted Merganser (48), Oystercatcher (796), Grey Plover (231), Dunlin (1129), Bar-tailed Godwit (431), Redshank (481) and Greenshank (24). The presence of Bar-tailed Godwit, and also smaller numbers of Golden Plover (66), is of particular note as these species are listed on Annex I of the E.U. Birds Directive.

The bay is little-used for fishing or boating, but marsh shooting is common in the upper reaches. Aquaculture is little-developed in this bay compared to nearby Sligo and Drumcliff Bays. Dune systems are sensitive to projects which alter their structure. Grazing is also a critical factor; the correct level of grazing maintains an open, species-rich sward, but the presence of too many grazers causes damage to the vegetation and may exacerbate dune erosion. Agricultural improvement, and particularly the application of fertilisers, threatens dune vegetation, leading to the eventual loss of species diversity.

Ballysadare Bay is of high ecological value for its range of good quality coastal habitats. Actively developing dune systems are rare on the west coast and the sand dune system at Strandhill is of particular interest as a large and intact example of a habitat type which is under general threat from the project. The rarity of intact dune systems is recognised in the listing of fixed dunes as a priority habitat on Annex I of the E.U. Habitats Directive. The salt marshes at Ballysadare Bay are relatively good examples for the west coast, and that at Abbeytown is unusual as it is forming on quarry waste. The presence of two Annex II species within the site adds further importance. Furthermore, the bay supports nationally important numbers of waterfowl.

### Qualifying Interests and SSCOs of this SAC

In 2013, the NPWS published Site-Specific Conservation Objectives (SSCOs) for this SAC. These conservation objectives were also supported by a number of other documents relating to the marine and coastal habitats of this large SAC. These SSCOs aim to define the favourable conservation condition for the particular habitats or species at that site. They outline certain attributes (e.g., distribution, population structure, water quality) for different species and habitats with targets, which define favourable condition for a habitat or species at a particular site. The maintenance of habitats and species within the Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at national level. For the Ballysadare Bay SAC, these SSCOs can be downloaded on the NPWS website. Any potential threats to the attributes and targets as defined in these SSCOs were assessed and where necessary, mitigated for.

For each Qualifying Interest of the SAC, the specific conservation objective is either to maintain or restore the favourable conservation condition of that interest, by defining a list of attributes and targets which are indicative

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of the conservation status of that interest. For habitats, the main attributes include habitat area; habitat extent and community distribution; vegetation structure/composition and physical structure. The main target is to ensure that the habitats are stable or increasing in area and that the other attributes are maintained or restored. For the Annex II species of the SAC, the main attributes are population trend and distribution, whilst the targets aim to ensure that the long term population trends of the species are stable or increasing and that there is no significant decrease in the numbers or range of areas used by the species, other than that occurring from natural patterns of variation.

The SSCOS of the Qualifying Interests (QI) of the Ballysadare Bay SAC are described below in Tables 4 - 11. Each individual QI has been considered in terms of the attributes, measures and targets that have been set out in the SSCO that are needed to either restore or maintain the favourable conservation condition of that interest in the SAC / SPA. Potential impacts upon these targets were then assessed.

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**1. Estuaries**

The SSCO for this habitat is to *maintain* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 4 – SSCOs for Estuaries**

Attribute	Measure	Target	Potential Impacts Upon Targets
Habitat Area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.	No
Community Extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community, subject to natural processes.	No
Community Structure: <i>Zostera</i> Density	Shoots / m <sup>2</sup>	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes	No
Community Distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sand with <i>Angulus tenuis</i> community complex; Muddy sand to sand with <i>Hediste diversicolor</i> , <i>Corophium volutator</i> and <i>Peringia ulvae</i> community complex; Fine sand with polychaetes community complex; Sand with bivalves, nematodes and crustaceans community complex; Intertidal reef community complex; Subtidal reef community complex.	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed project have been considered. This is a terrestrial habitat. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the area, community extent, structure or distribution of this habitat within this SAC. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**2. Mudflats and sandflats not covered by seawater at low tide**

The SSCO for this habitat is to *maintain* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 5 – SSCOs for Mudflats and Sandflats not Covered by Seawater at Low Tide**

Attribute	Measure	Target	Potential Impacts Upon Targets
Habitat Area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.	No

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Attribute	Measure	Target	Potential Impacts Upon Targets
Community Extent	Hectares	Maintain the extent of the <i>Zostera</i> -dominated community, subject to natural processes.	No
Community Structure: <i>Zostera</i> Density	Shoots / m <sup>2</sup>	Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes	No
Community Distribution	Hectares	Conserve the following community types in a natural condition: Intertidal sand with <i>Angulus tenuis</i> community complex; Muddy sand to sand with <i>Hediste diversicolor</i> , <i>Corophium volutator</i> and <i>Peringia ulvae</i> community complex.	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed project have been considered. This is a terrestrial habitat. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the area, community extent, structure or distribution of this habitat within this SAC. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**3. Embryonic shifting dunes**

The SSCO for this habitat is to *maintain* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 6 – SSCOs for Embryonic Shifting Dunes**

Attribute	Measure	Target	Potential Impacts Upon Targets
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.	No
Habitat Distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	No
Physical Structure: Functionality and Sediment Supply	Presence / Absence of Physical Barriers	Maintain the Natural Circulation of Sediment and Organic Matter, without any physical obstructions	No
Vegetation Structure: Zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No
Vegetation Composition: Plant health of foredune grasses	% Cover	More than 95% of sand couch ( <i>Elytrigia juncea</i> ) and/or lyme grass <i>Leymus arenarius</i> should be healthy (i.e., green plant parts above ground and flowering heads present)	No

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Attribute	Measure	Target	Potential Impacts Upon Targets
Vegetation Composition: Typical Species and Sub-Species Communities	Percentage Cover at a Representative Sample of Monitoring Stops	Maintain the presence of species-poor communities with typical species: sand couch ( <i>Elytrigia juncea</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> ).	No
Vegetation Composition: Negative Indicator Species	Percentage Cover	Negative indicator species (including non-native species) to represent less than 5% cover.	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed project have been considered. This is a terrestrial habitat. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the area, community extent, structure or distribution of this habitat within this SAC. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**Shifting dunes along the shoreline with *Ammophila Arenaria***

The SSCO for this habitat is to *restore* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 7 – SSCOs for Shifting dunes along the shoreline with *Ammophila Arenaria***

Attribute	Measure	Target	Potential Impacts Upon Targets
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.	No
Habitat Distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	No
Physical Structure: Functionality and Sediment Supply	Presence / Absence of Physical Barriers	Maintain the Natural Circulation of Sediment and Organic Matter, without any physical obstructions	No
Vegetation Structure: Zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	No
Vegetation Composition: Plant health of dune grasses	Percentage Cover	95% of marram grass ( <i>Ammophila arenaria</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> ) should be healthy (i.e. green plant parts above ground and flowering heads present).	
Vegetation Composition: Typical Species and	Percentage Cover at a Representative	Maintain the presence of species-poor communities dominated by marram grass ( <i>Ammophila arenaria</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> ).	No

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Attribute	Measure	Target	Potential Impacts Upon Targets
Sub-Species Communities	Sample of Monitoring Stops		
Vegetation Composition: Negative Indicator Species	Percentage Cover	Negative indicator species (including non-natives) to represent less than 5% cover.	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed development have been considered. This is a terrestrial habitat. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the area, community extent, structure or distribution of this habitat within this SAC. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**4. Fixed coastal dunes with herbaceous vegetation**

The SSCO for this habitat is to *restore* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 8 – SSCOs for Fixed Coastal Dunes with Herbaceous Vegetation**

Attribute	Measure	Target	Potential Impacts Upon Targets
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.	No
Habitat Distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	No
Physical Structure: Functionality and Sediment Supply	Presence / Absence of Physical Barriers	Maintain the Natural Circulation of Sediment and Organic Matter, without and physical obstructions.	No
Vegetation Structure: Zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	No
Vegetation Structure: Bare Ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes.	No
Vegetation Structure: Sward Height	Centimetres	Maintain structural variation within sward.	No
Vegetation Composition: Typical Species and Sub-Species Communities	Percentage Cover at a Representative Sample of Monitoring Stops	Maintain range of subcommunities with typical species listed in Delaney et al. (2013)	No

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Attribute	Measure	Target	Potential Impacts Upon Targets
Vegetation Composition: Negative Indicator Species-including <i>Hippophae rhamnoides</i>	Percentage Cover	Negative indicator species (including non-natives) to represent less than 5% cover	No
Vegetation Composition: Scrub and trees	Percentage Cover	No more than 5% cover or under control	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed project have been considered. This is a terrestrial habitat. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the area, community extent, structure or distribution of this habitat within this SAC. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**5. Humid dune slacks**

The SSCO for this habitat is to *restore* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 9 – SSCOs for Humid Dune Slacks**

Attribute	Measure	Target	Potential Impacts Upon Targets
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession.	No
Habitat Distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes.	No
Physical Structure: Functionality and Sediment Supply	Presence / Absence of Physical Barriers	Maintain the Natural Circulation of Sediment and Organic Matter, without and physical obstructions.	No
Physical Structure: hydrological and flooding regime	Water table levels, groundwater fluctuations	Maintain natural hydrological regime	No
Vegetation Structure: Zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	No
Vegetation Structure: Bare Ground	Percentage cover	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer stacks which can have up to 20% bare ground.	No

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Attribute	Measure	Target	Potential Impacts Upon Targets
Vegetation Structure: Sward Height	Centimetres	Maintain structural variation within sward.	No
Vegetation Composition: Typical Species and Sub-Species Communities	Percentage Cover at a Representative Sample of Monitoring Stops	Maintain range of subcommunities with typical species listed in Delaney et al. (2013)	No
Vegetation composition: cover of <i>Salix repens</i>	Percentage cover; centimetres	Maintain less than 40% cover of creeping willow ( <i>Salix repens</i> )	
Vegetation Composition: Negative Indicator Species	Percentage Cover	Negative indicator species (including non-natives) to represent less than 5% cover	No
Vegetation Composition: Scrub and trees	Percentage Cover	No more than 5% cover or under control	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed project have been considered. This is a terrestrial habitat. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the area, community extent, structure or distribution of this habitat within this SAC. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**6. *Vertigo angustior* (Marsh snail)**

The SSCO for this habitat is to *maintain* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 10 – SSCOs for *Vertigo angustior***

Attribute	Measure	Target	Potential Impacts Upon Targets
Distribution: Occupied Sites	Number	No decline. There is one known location for this species in this SAC (which overlaps two 1km squares).	No
Presence on transect	Occurrence	Adult or sub-adult snails are present in all three of the habitat zones on the transect (minimum four samples).	No
Presence	Occurrence	Adult or sub-adult snails are present in at least six other places at the site with a wide geographical spread (minimum of eight sites sampled).	No

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Attribute	Measure	Target	Potential Impacts Upon Targets
Transect habitat quality	Metres	At least 50m of habitat along the transect is classed as optimal and the remainder as at least sub-optimal.	No
Transect optimal wetness	Metres	Soils, at time of sampling, are damp (optimal wetness) and covered with a layer of humid thatch for at least 50m along the transect.	No
Habitat extent	Hectares	At least 45ha of the site in at least optimal/sub-optimal condition. Optimal habitat is defined as fixed dune, species-rich grassland dominated by red fescue ( <i>Festuca rubra</i> ) and marram ( <i>Ammophila arenaria</i> ), with sparse oxeye daisy ( <i>Leucanthemum vulgare</i> ), dandelion ( <i>Taraxacum</i> sp.), ribwort plantain ( <i>Plantago lanceolata</i> ) and other low growing herbs. Vegetation height 20-50cm. Habitat growing on damp, friable soil covered with a layer of humid, open structured thatch. Sub-optimal habitat is defined as above but either vegetation height is less than 10cm or above 50cm; or the soil is dry and sandy; or the thatch is wetter with a denser structure	No

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Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed project have been considered. Map 7 of the SSCOs shows the distribution of this species within the SAC. It is located near the coastal habitats of this SAC, approximately 22km downstream of the application site. Water quality is not a target for the maintenance of this QI within the SAC. The targets relate to maintenance of habitat area, and community extent, structure and distribution. The proposed project will not lead to any changes in the distribution of this species within this SAC. It will give rise to any loss in the habitats used by this species. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**7. *Phoca vitulina* (Common Seal)**

The SSCO for this habitat is to *maintain* its favourable conservation condition which is defined by the following list of attributes and targets:

**Table 11 – SSCOs for Common Seal**

Attribute	Measure	Target	Potential Impacts Upon Targets
Access to Suitable Habitat	Number of Artificial Barriers	Species range within the site should not be restricted by artificial barriers to site use.	No
Breeding Behaviour	Breeding Sites	Conserve breeding sites in a natural condition	No
Moulting Behaviour	Mould Haul-Out Sites	Conserve moult haul-out sites in a natural condition	No
Resting Behaviour	Resting Haul-Out Sites	Conserve resting haul-out sites in a natural condition	No
Disturbance	Level of Impact	Human activities should occur at levels at do not adversely affect the harbour seal populations at this site.	No

Potential Impacts upon this QI

Potential impacts upon this habitat QI arising from the proposed application have been considered. Map 8 of the SSCOs shows the distribution of this species within the SAC, including its breeding, resting and moulting sites. These all occur approximately 19km downstream of the application site. Water quality is not a target for the maintenance of this QI within the SAC. The proposed project will not lead to any changes in the distribution of this species within this SAC. It will give rise to any loss in the habitats used by this species. There will be no direct, indirect or cumulative impacts upon this QI arising from the proposed project.

**4.2.3. Ballysadare Bay SPA 004129**

NPWS Site Synopsis

Ballysadare Bay SPA support good populations of macro-invertebrates which are important food items for wintering waterfowl. Common species present include the polychaete worms *Hediste diversicolor*, *Arenicola*

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*marina*, *Lanice conchilega* and *Nephtys hombergii*, and the bivalves *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. Also present on the intertidal flats are the vascular plants Eelgrass (*Zostera marina*) and Beaked Tasselweed (*Ruppia maritima*), which provide food for herbivorous wildfowl. Well-developed salt marshes, which provide roosting sites for birds at high tide, occur at several locations around the bay. The sandy beaches around the Strandhill peninsula are used by roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Grey Plover, Dunlin, Bar-tailed Godwit and Redshank. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Ballysadare Bay is important for a range of waterfowl species in autumn and winter. The population of Light-bellied Brent Goose (188) is of international importance (all figures are mean peak counts for four winters in the period 1995/96 to 1999/2000). The populations of four other species are of national importance, i.e. Grey Plover (70), Dunlin (1,420), Bar-tailed Godwit (251) and Redshank (435). A range of other species occurs, including Whooper Swan (15), Shelduck (55), Wigeon (617), Teal (179), Mallard (304), Goldeneye (17), Red-breasted Merganser (26), Cormorant (43), Oystercatcher (518), Ringed Plover (96), Golden Plover (301), Lapwing (467), Curlew (508), Greenshank (22), Turnstone (40), Black-headed Gull (261) and Common Gull (203). Ballysadare Bay SPA is of high ornithological importance - it supports a Light-bellied Brent Goose population of international importance as well as nationally important populations of four other wintering waterfowl species. The presence of Bar-tailed Godwit, Golden Plover and Whooper Swan is of particular note as these species are listed on Annex I of the E.U. Birds Directive. The site forms an important component of the larger Sligo Bay complex.

Special Conservation Interests (SCI) of Ballysadare Bay

In 2013, The SCI species for the Ballysadare Bay SPA are described below in Table 12 along with their SSCO. The current site conservation condition for each bird for this SPA is also included (NPWS, 2013). The objectives are described in Table 12, 13 and 14.

**Table 12 – Special Conservation Interests of Ballysadare Bay SPA**

Species	SSCO	Site Conservation Condition
Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> )	Maintain	Favourable
Grey Plover ( <i>Pluvialis squatarola</i> )	Maintain	Highly Unfavourable
Dunlin ( <i>Calidris ariti</i> )	Maintain	Intermediate (Unfavourable)
Bar-tailed Godwit ( <i>Limosa lapponica</i> )	Maintain	Intermediate (Unfavourable)
Redshank ( <i>Tringa aritim</i> )	Maintain	Intermediate (Unfavourable)
Wetlands	Maintain	N/A

The objectives for all these bird species are the same, i.e.,

**Table 13 – Conservation Objectives for Ballysadare Bay SPA (Species)**

Attribute	Measure	Target
Population trend	Percentage Change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas..	No significant decrease in the range, timing or intensity of use of areas by the QI, other than that occurring from natural patterns of variation

For wetlands, the conservation objectives are:

**Table 14 – Conservation Objectives for Ballysadare Bay SPA (Wetlands)**

Attribute	Measure	Target
Habitat Area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2130 hectares, other than that occurring from natural patterns of variation

Potential Impacts upon this Bird Qis of the Ballysadare Bay SPA

The proposed project will not occur in an area used by the bird species listed above. The habitats within the proposed site are not suitable for these wading bird species. The proposed project will not lead to decreases in the population trend of any bird species. The proposed project will not lead to any decrease in the range, timing or intensity of use of any areas within the SPA by the QI bird species. The proposed project will not lead to the loss of any wetland habitat area and the 2130 hectare target of wetland habitat within the SPA will be maintained.

**4.3 Cumulative Impacts**

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first; through persistent additions or losses of the same materials or resource, and second,-through the compounding effects as a result of the coming together of two or more effects (*Bowers-Marriott, 1997*).

To make an overview assessment of cumulative impacts, an examination was made of other planning applications granted within the Ballysumaghan area for the past five years. In this time, only two other projects have sought planning permission. This include:

- 10/433 – A 2016 application for an extension of duration for permission to construct a farm machinery shed. This application was screened out for the need for AA in the Planner’s Report.
- 20/11 – Brookfield Renewable Ireland Ltd have applied for planning permission for the installation of battery arrays, located within 18 units. A decision on this application has not yet been reached. This application site is only 245m from the proposed project and it will be accessed by the same roadway. Given the proximity of these two application sites to each other and following on from the submission

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of the NPWS regarding both projects, potential cumulative effects arising from the construction and operation of these projects in-combination with each other were considered carefully.

This NIS has identified the potential impacts that may occur on the QIs of the Natura 2000 sites and with mitigation the potential for significant effects arising from these impacts can be ruled out (Refer to Section 5 Mitigation Measures). The 20/11 Brookfield Renewables application was also accompanied by an NIS, and mitigation measures have been included to rule out significant effects.

Therefore, it has been concluded that following mitigation, the construction and operation of both these projects will not give rise to cumulative impacts..

## Section 5 Mitigation Measures

In order to prevent any deteriorations in water quality in the Ballygrania Stream and its tributaries and subsequently in the River Unshin SAC, a number of mitigation measures must be implemented and followed.

Measures have also been suggested that will help to protect the local biodiversity of the surrounding area and to ensure the protection of local wildlife. Although these are standard mitigation measures, their implementation will ensure the protection of Natura 2000 habitats and species, and the local non-designated ecological receptors. The primary parties responsible for the implementation of these measures include the applicant and the construction team (*site manager, site workers*).

A Construction Management Plan has been prepared for the proposed project, which takes account the mitigation measures contained herein.

### Pre-Construction and Construction

- Site preparation and construction must be confined to the project site only and should adhere to all standard best practice measures. Work areas shall be kept to the minimum area required to carry out the proposed works and the area should be clearly marked out in advance of the proposed works.
- Prior to the commencement of works on the site, the construction site personnel will be made aware of the sensitivity of the location and the habitats surrounding the site. The protection of water quality locally will be highlighted.
- Efficient construction practices and sequences shall be employed on site, and this will minimise soil erosion and potential pollution of local watercourses with soil and sediment. Unnecessary clearance of vegetation shall be avoided and only areas necessary for building works shall be cleared. Existing vegetated areas shall be retained where possible. The retention of these areas will also help retain storm water run-off from the site during construction and operation.
- In order to protect water quality in the Ballygrania Stream and its tributaries all site preparation and construction works shall conform to all guidelines within the document Inland Fisheries Ireland Requirements for the Protection of Fisheries Habitats during Construction and Development Works and River Sites ([www.fisheriesireland.ie](http://www.fisheriesireland.ie)) and the updated guidelines entitled Guidelines on Protection of Fisheries During Construction Works in And Adjacent to Waters (2016). The following guidance will also be followed:
  - Control of Water Pollution from Construction, Guidance for Consultants and Contractors (CIRIA,2011); and
  - Environmental Good Practice on Site (CIRIA, 2015).
- The following measures shall be implemented to protect the surface water environment:
  - There shall be no discharge of contaminated or sediment laden waters, associated with the proposed project during the construction phase.
  - There will be no direct discharges to the drain on the western boundary during the construction phase.
  - A silt fence will be installed next the drain on the western boundary at the commencement of the construction activities on-site and it will be subject to regular inspections by the construction contractor at the site.

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- In order to avoid sedimentation impacts on local watercourses, run-off from the construction areas will be intercepted and managed through pollution control methods such as a silt traps, installed at appropriate locations on the site.
- The applicant and construction contractor will be responsible for maintaining and undertaking regular inspections of the surface water system on the site, along with regular inspections of the drain on the western boundary, to confirm it is not being impacted by the construction works.
- Site stripping and excavation works shall be avoided during periods of heavy rainfall.
- A 10m buffer zone will be left intact along the western site boundary during the construction works. This will provide a buffer against run-off from the site during construction and operation from entering the drain that is present here. This buffer could be managed for the benefit of pollinators by avoiding herbicides and cutting and removing grass once a year.
- Best practice concrete / aggregate management measures shall be employed on site and will include:
  - Best practice in bulk-liquid concrete management must be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc.
  - Any stockpile areas for sands and gravel shall be kept to a minimum size, well away from the wet drain on the western boundary (minimum 50m).
  - Where concrete shuttering is used, measures shall be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils.
  - Ready mix concrete wagons and mixers shall be washed off site to minimise emissions into local watercourses.
  - Activities which result in the creation of cement dust shall be controlled by dampening down the areas.
- Hydrocarbon / fluid management measures shall include:
  - No vehicle or equipment maintenance (apart from emergency breakdowns) will be undertaken on-site.
  - Fuels, oils, greases and hydraulic fluids must be stored in bunded containers and located away from the drain on the western boundary. Containers shall be properly secured to prevent unauthorised access and misuse.
  - All refuelling and lubrication of equipment shall take place on sealed and bunded surfaces in order to avoid the potential for accidental spillage of hydrocarbons.
  - Storage areas, machinery depots and site offices shall be located remotely from the drain;
  - An effective spillage procedure shall be put in place with all staff properly briefed.
  - Any waste oils or hydraulic fluids shall be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.
  - All plant and machinery shall be regularly maintained and serviced to minimise release of hydrocarbons.
  - Spill kits shall be present on-site including on plant/machinery.
- Soils management:
  - There will be limited volumes of material excavated on site during the construction phase. The excavated material will be stored on-site in covered stockpiles for future re-use in the landscaping of the site.

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- All soil arisings removed during excavation works will be stored in a stable and secure part of the site. The final location will be agreed with the construction contractor and Employer's Engineer.
  - Soil material will be stored away from existing watercourses (i.e. drain on the western boundary).
  - Excavation and filling operations are envisaged to very limited but shall be co-ordinated to minimise the time an excavation remains open. Re-use existing soils in immediate post-construction restoration works.
  - No material stockpiles will be left on site post-construction. If there are more soils than is needed for landscaping, it will be removed from site by a registered contractor for appropriate use elsewhere. The end location of the soils will be identified, with records maintained and presented to the local authority if requested.
- All on site welfare facilities such as canteens, toilet and staff offices shall have the capability to store a sufficient capacity of foul and brown water waste. A suitably licensed waste management contractor shall be employed to dispose of any wastewater from the site on a regular basis.
  - All construction waste must be removed from site by a registered contractor to a registered facility. Evidence of the movement and safe disposal of the construction waste must be retained and presented to Local Authority upon request. The applicants and construction contractors will be responsible for the safe removal of any construction waste generated on site. Removal of the construction waste will occur as soon as possible after demolition / construction works.

### **Post-Construction / Operation**

#### **Site Drainage**

- There must be no discharges of polluted storm water into any local watercourses.
- The external site compound area will be largely made up of permeable stone/hardcore. Surface water run off from these areas will permeate to the ground, as per natural conditions.
- Run off from the external hardstanding areas will be collected and directed, at a greenfield run off rate (incorporating a climate change allowance) through an oil bypass interceptor and into a attenuation tank before discharging via a hydro-brake manhole, located within the boundary of the site. The hydro-brake will discharge to the drain, located on the western boundary of the site.
- There will be no welfare facilities provided at the site and no foul drainage will be constructed.
- Any rainwater collected in the transformer bunds will be directed through the below-ground oil interceptor prior to discharge to the surface water drainage system. The proposed transformer bunds will be fitted with a low level sump and PPL BundGuard pump system which will pump the water from the bund into the surface water drainage system. However, in the event, of any oil being detected in the bund system, the pump will retain the oil within the bund for safe disposal.

#### **Lighting**

- During operation only low intensity lighting will be used on the proposed project. This will reduce the impact of any new lighting scheme on local bat populations. The lights will not be directed downwards into the site compound and not on known bat roosts. A compound dialux lighting study has been provided with details of the lighting plan, confirming the choice of lights as within the recommended values for a rural outdoor area.

### **Landscaping**

- A Landscape Plan has been completed which proposes a scheme that will provide screening of the proposed project, through the existing mature hedgerows. The landscaping involves the planting of native Irish species that are in keeping with the site, Suitable species that have been proposed for the site include Hawthorn, Blackthorn, Guelder Rose, Holly, Oak, Cherry and Alder. The complete list of all native trees and plants used detailed on the Landscape Plan which is provided with the planning application.
- The characteristics of newly planted hedgerows shall mimic those in the surrounding area.
- Herbicides shall not be used during all phases of the construction and operation as these chemicals can have detrimental impacts upon local populations of pollinators. Maintenance / weed control recommendations are included in the Landscape Plan.
- Bare soil shall be seeded as soon as possible with grass seed. This will minimise erosion into local drains and watercourses.
- Non-native wildflower mixes shall be avoided in a sensitive area such as this, as they can alter the genetic balance of the existing flora.
- Natural herbaceous verges around the site (*outside of the SAC*) should be maintained or created. These will benefit local populations of pollinators. (*See the National Biodiversity Data Centre's Pollinator Plan*).

### **Emergency Response Plan**

- An Emergency Response Plan has been prepared for the proposed project which details the response that will be implemented by the site operator in the event of spillages or site failures during the operational phase.

## 5.1 Finding of No Significant Effects

<b>Finding of No Significant Effects Report Matrix</b>	
<b>Name of project</b>	Planning Permission is being sought for 10 years for the installation and operation of a 250 to 300 MVA synchronous condenser (SC).
<b>Name and location of Natura 2000 site</b>	The site is approximately 7km upstream of the River Unshin SAC.
<b>Description of project</b>	The purpose of the SC is to help stabilize the national grid during periods of fluctuating loads. The fluctuation of loads can be caused by a mix of conditions such as increases in renewable loads and decreases in conventional generation. The SC would be situated within a shed type structure along the western boundary of the site and would then tie into the substation site that is adjacent to it.
<b>Is the project directly connected with or necessary to the management of the site?</b>	No
<b>Are there other projects or plans that together with project being assessed could affect the site?</b>	No
<b>The Assessment of Significance of Effects</b>	
<b>Describe how the project is likely to affect the Natura 2000 site</b>	Potential negative impacts upon water quality in the SAC.
<b>Explain why these effects are not considered significant</b>	Strict mitigation measures must be enforced to ensure that these effects will not be significant.
<b>Describe how the project is likely to affect species designated under Annex II of the Habitats Directive.</b>	If the mitigation measures outlined in Section 5 are attached to any grant of planning permission, then there will be no effects upon any species listed in Annex II of the Habitats Directive.
<b>Data Collected to Carry out the Assessment</b>	

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<b>Who carried out the assessment</b>	Noreen McLoughlin, MSC, MCIEEM. Consultant Ecologist
<b>Sources of data</b>	NPWS, EPA, National Biodiversity Data Centre, Sligo County Council.
<b>Level of assessment completed</b>	Stage II Appropriate Assessment ( <i>NIS</i> )
<b>Where can the full results of the assessment be accessed and viewed</b>	Full results included.

## Section 6 Appropriate Assessment Conclusion

This NIS has been undertaken to evaluate the potential impacts of the proposed project with regard to the effects upon the conservation objectives and qualifying interests (including the habitats and species) of the River Unshin SAC, and the Ballysadare SPA and SAC. It was considered that following mitigation, that the proposed project does not have the potential to significantly affect the conservation objectives of these aforementioned Natura 2000 sites and the integrity of these sites as a whole will not be adversely impacted.

The qualifying interests of the site and their potential to be impacted upon from the potential project were listed in Section 4.2. It was considered that these potential impacts can be successfully mitigated against. With implementation of the mitigation measures there will be no deterioration in water quality or impacts upon any designated habitat or any species dependent on these designated habitats.

In light of the above, it was considered that with the implementation of the mitigation measures, the proposed works do not have the potential to significantly affect the conservation objectives or qualifying interests of the River Unshin SAC, and the Ballysadare SPA and SAC. The integrity of the sites will not be adversely affected. Table 15 follows the integrity of the SAC / SPA checklist, which shows that the integrity of the sites would not be affected by the proposed project.

**Table 15 – Integrity of Site Checklist (From NPWS, Information Checklist for AA, Box 6, EC (2002))**

Conservation Objective: Does the project have the potential to:	Yes / No
Cause delays in progress towards achieving the conservation objectives of the site?	N
Interrupt progress towards achieving the conservation objectives of the site?	N
Disrupt those factors that help to maintain the favourable conditions of the site?	N
Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?	N
Other Objectives: does the project have the potential to:	
Cause changes to the vital defining aspects ( <i>e.g. nutrient balance</i> ) that determine how the site functions as a habitat or ecosystem?	N
Change the dynamics of the relationships ( <i>between, for example, soil and water or plants and animals</i> ) that define the structure and/or function of the site?	N

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Interfere with predicted or expected natural changes to the site ( <i>such as water dynamics or chemical composition</i> )?	N
Reduce the area of key habitats?	N
Reduce the population of key species?	N
Change the balance between key species?	N
Reduce diversity of the site?	N
Result in disturbance that could affect population size or density or the balance between key species?	N
Result in fragmentation?	N
Result in loss or reduction of key features ( <i>e.g. tree cover, tidal exposure, annual flooding, etc.</i> )	N

## Appendix I – Site Photographs

**Grassland Habitats within the Application Site**



**Hedgerow Along the Westerst Site Boundary**



**The Ballygrania Stream at the Bottom (North) of the Site**



**The Course of the Ballygrania Stream to the East of the Site**

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## **Appendix II – Site Drainage Drawing**

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