



National Grid

Habitat Regulations Assessment Report

Visual Impact Provision (VIP) Project – Snowdonia Project

Meirionnydd Oakwoods and Bat Sites Special Area of
Conservation

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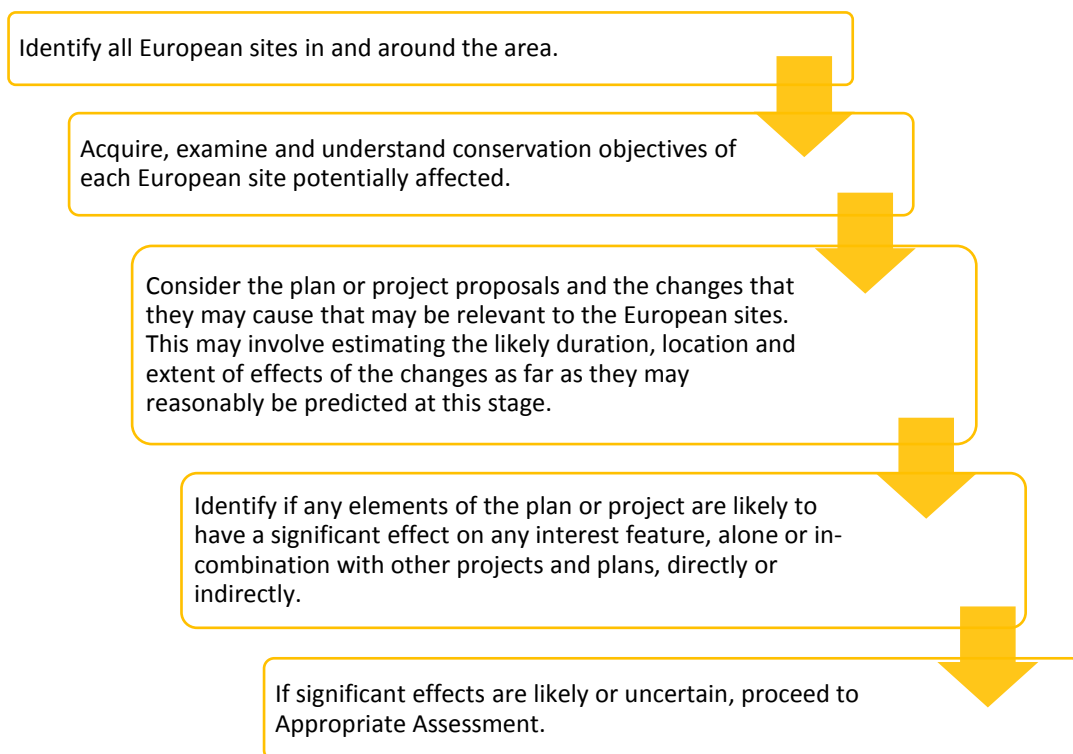
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1 INTRODUCTION

1.1 Purpose of this Report

This document reports a Habitat Regulations Assessment (HRA) process for the Visual Impact Provision (VIP) project in Snowdonia (the Proposed Project). It first covers the screening stage and then provides a statement to inform an appropriate assessment (as screening showed a requirement for mitigation of impacts on a designated site). A summary of the HRA process is provided below.



The Proposed Project crosses the Dwyrdd Estuary south of Penrhyndeudraeth in the county of Gwynedd and includes land on either side of the estuary. This HRA assessment was required because the Proposed Project is adjacent to a European designated site (a Natura 2000 site), namely the Meirionnydd Oakwoods and Bat Sites / Coedydd Derw a Safleoedd Ystlumod Meirion Special Area of Conservation (SAC). This document considers potential effects of the Proposed Project on this site.

The Dwyrdd Estuary itself is within another marine Natura 2000 site, namely the Lley Peninsula and the Sarnau SAC, which is the subject of a separate HRA report, and not addressed here.

RSK was commissioned by National Grid to produce a document to inform the HRA process, i.e. a screening assessment and a statement to inform appropriate assessment. The results of this, following the implementation of mitigation, can then be used to produce a 'No Significant Effects' report.

The environmental effects of the Proposed Project have been investigated for all relevant disciplines including ecology, noise and vibration, geology and ground conditions, and hydrology, and they are explained in the Environmental Appraisal¹ undertaken for the project. In 2016 and 2018, ecological surveys were carried out for the project area (and therefore adjacent to the SAC) for a wide range of groups including Badgers, bats, breeding birds, reptiles, Otters, Water Voles, wintering birds, plants and habitat types. These surveys provided an ecological baseline for the Environmental Appraisal. In the HRA they have been used – together with the Environmental Appraisal – in determining any potential impacts on the habitats and species listed as ‘primary reasons’ or ‘qualifying features’ for the SAC designation. The information available was considered adequate to support a robust screening exercise and a statement to inform appropriate assessment.

¹ Visual Impact Provision Snowdonia Project, Environmental Appraisal, National Grid, 2019

2 PROJECT DESCRIPTION

2.1 Background

As described in the Environmental Appraisal, the aim of the Proposed Project is to underground a 3.5 km section of existing overhead line (OHL) using a tunnel from National Grid's existing Garth Sealing End Compound (SEC) on the western side of the Dwyryd Estuary, to Cilfor on the eastern side of the Dwyryd Estuary. The existing VIP subsection of the OHL (pylons and conductors) will also be removed. Construction compounds, laydown areas, a temporary pylon and temporary access tracks will be required to facilitate construction activities.

The project represents a major opportunity to mitigate the visual impact of existing electricity infrastructure within the Snowdonia National Park near Minffordd and to conserve and enhance the natural beauty, wildlife and environmental heritage of the area. The OHL that currently runs in this area is judged to have landscape impacts at a very high level of importance on the local landscape and high-level visual impacts with people using the trails, cycle routes and local rights of way in this area due to close up and frequent views of the pylons overhead.

The Proposed Project is linear, and spans c. 3.5 km. It can be broadly split into three components, works on the western side of the Dwyryd Estuary, works on the eastern side of the Dwyryd Estuary, and works on or below the Dwyryd Estuary. The main aspects of these components are listed below.

Western Side of the Dwyryd Estuary

- Diversion of third-party assets, including the undergrounding of an OHL supported on wooden poles away from the construction area in accordance with operator requirements
- Reconfiguration of equipment at the existing Garth SEC (including removal of the gantry, there will therefore be no equipment greater than 10m high)
- A tunnel head house (containing a tunnel shaft), with a permanent access road close to National Grid's existing Garth SEC. The ground will need to be raised out of the flood zone level. A permanent power supply and site drainage will be required.
- Underground buried cable to connect into the SEC from the tunnel head house
- Removal of six lattice pylons and associated foundation to 1.5m below ground level
- Temporary access routes (with potential highways improvements or passing places) and laydown areas to facilitate construction activities
- A section of cable tunnel (total length across the Proposed Project 3.3km long, with an internal diameter of up to 4.4m, at varying depths below the ground)
- Landscape and visual mitigation mounding and planting

Eastern Side of the Dwyryd Estuary

- Diversion of third-party assets including the diversion of a water pipeline and OHL supported on wooden poles away from the construction area in accordance with operator requirements
- A new SEC near Cilfor (required to connect the new underground cable to the remaining existing OHL)
- A tunnel head house (containing a tunnel shaft), with a permanent access road. The ground will be raised to create a working platform and will be regraded/contoured. A permanent power supply and site drainage will be required.
- A section of cable tunnel
- Removal and replacement at adjacent location of one pylon (Pylon 4ZC027) adjacent to the new Cilfor SEC
- Removal of two lattice pylons and associated foundation to 1.5m below ground level
- Temporary access routes and laydown areas to facilitate construction activities
- Landscape and visual mitigation mounding and planting

Dwyryd Estuary

- A section of cable tunnel
- Removal of Pylon 4ZC030R, National Grid will also aim to remove all pylon structures including the foundation piles and cofferdam sheet piles; alternatively, foundations will be removed to the maximum depth possible by an excavator located on the working area
- Partial removal of the foundations of the previously dismantled pylon 4ZC030
- Removal of Pylon 4ZC031 and partial removal of its foundations
- Temporary accesses associated with the removals noted above, as well as temporary access to enable the dismantling of Pylon 4ZC032 (although the pylon itself is within the terrestrial environment)

2.2 Activities close to the Natura 2000 site

In relation to the Meirionnydd Oakwoods and Bat Sites SAC, it is the works to the western side of the estuary that are most relevant due to their proximity to the site. Here the Project will involve the construction of a new permanent tunnel head house compound and an extension to an existing SEC, as well as both temporary and permanent access roads and compounds to accommodate the construction of these. The proposed construction of the Tunnel Head House is to begin in March 2021 for a period on 25 months.

The total development area for this part of the project is c.3.7 ha. This includes c. 0.7 ha which is to be permanently developed into the new tunnel head house compound. An additional c.3 ha will be used on a temporary basis to enable the construction of the tunnel head house and underground cable connection into the SEC from the tunnel

head house. At the nearest point, the construction compound is c.25 m from the SAC and the closest area of permanent development (tunnel head house) is c. 175 m from the SAC. No works will be conducted within the SAC boundary itself.

Night lighting and blasting of bedrock will be required to enable the construction of the development. Spoil from the tunnel excavation will be transported off-site from the tunnel head house compound. Tunnelling activities (24 hour working) and winter working (due to the short-day lengths when lighting will be required at the beginning and end of the day) will require task-specific lighting. Lighting will be used only when required and will comprise lighting of work areas and access routes with low level directional lighting.

Construction nearby to the SAC is anticipated to take 2 years to complete. During this time excavations will be near continuous and the dust resulting from this may therefore damage nearby habitats.

2.3 Ecological Context

The Proposed Project is located near to the village of Minffordd, Gwynedd in north-west Wales. The area includes estuary habitat, with agricultural land and residential areas common on either side, particularly to the west. There are also hedgerows with scattered trees and small pockets of broad-leaved woodland. In the eastern extreme of the area, there are rocky outcrops, marshy grassland and places where dense bracken dominates. A road network throughout includes the A487 and the adjoining A497 in the west.

The area of the Proposed Project relevant to this HRA is to the north of the village of Minffordd; the construction site boundary (*Figure 1*) includes a c. 3.7 ha compound area adjacent to the SAC. Within this area the most abundant habitat is semi-improved grassland fields, bordered by trees and areas of broad-leaved semi-natural woodland.

The land between the SAC & the works is comprised predominantly of improved and semi-improved grassland fields. There is a dry ditch within the proposed construction compound, but this is not connected to the SAC.

3 METHODOLOGY

3.1 Project Description

Details of the Proposed Project as described in *Section 2* of this report (and referenced throughout) were sourced from the Environmental Appraisal and through consultation with National Grid.

3.2 Natura 2000 Sites

Based on the nature of the development, a search distance of 2 km from the Area of Search for Permanent and Temporary Works was used to identify designated sites of international importance.

The Site Boundary of the works is small, and the work will have only limited environmental impacts. The Proposed Project will be contained within this 2 km search area, and there is no possibility due to the nature of the project for impacts to extend beyond it.

Information on the internationally important sites was collated from the organisations and websites listed below:

- Multi-Agency Geographic Information on the Countryside (MAGIC) website (www.magic.gov.uk);
- COFNOD (North Wales environmental information service); and
- The Joint Nature Conservation Committee (JNCC) website (www.jncc.gov.uk).

3.3 Site Impact Assessment

Using the approach as described above, a single internationally important site was identified to be included with this report, the Meirionnydd Oakwoods and Bat Sites / Coedydd Derw a Safleoedd Ystlym Meirion SAC. The designation for this site is shown in Appendix A.

This HRA looks at the Proposed Project alone so that competent authorities can identify the likely significant effects of the project on this SAC. It considers the impacts arising during the construction and operational phases of the project using information from the project description (*Section 2*), the Environmental Appraisal, and the ecological surveys (*Section 1.1*).

These impacts were considered in relation to the conservation objectives and qualifying features of the SAC site as well as potential pathways between the source of the impacts and the receptors. If any of the anticipated impacts arising as a result of the Proposed Project could adversely affect the qualifying features of the SAC (causing them to fall into unfavourable condition), or if they could prevent the achievement of the conservation objectives for the site, then they are considered significant. Examples of ways in which a project may significantly impact a site include:

- delaying or interrupting progress towards achieving the site conservation objectives;

- disrupting factors that help to maintain the favourable conditions of the site; or
- interfering with the balance, distribution and density of key species or habitats that are the indicators of the favourable condition of the site.

The assessment makes use of the precautionary principle, and therefore where the extent of an impact is not known, it is assumed to be significant unless mitigated for.

This report first presents the screening stage of the HRA process, where it identifies whether - before applying any mitigation - there could be any likely significant (negative) effects (LSEs) on the qualifying features of the SAC. This screening section of the report concludes that without mitigation certain LSEs cannot be ruled out. This report therefore proceeds secondly to present a statement to inform an appropriate assessment, where it considers effects on the SAC taking account of reasonable mitigation measures to be used (*Section 6*).

4 PROTECTED SITES POTENTIALLY AFFECTED BY THE PROPOSALS

As identified as part of the Environmental Appraisal there is one terrestrial Natura 2000 statutory designated site of nature conservation importance within 2 km of the proposed site – the Meirionnydd Oakwoods and Bat Sites / Coedydd Derw a Safleoedd Ystlumod Meirion SAC. Consultation with Natural Resources Wales identified the requirement for a HRA for this development and any effects for this site.

None of the development works will be conducted within the SAC, with the site being c. 25 m away from the construction compound and c.175 m from the nearest area of permanent development.

4.1.1 Meirionnydd Oakwoods and Bat Sites/ Coedydd Derw a Safleoedd Ystlumod SAC

The Meirionnydd Oakwoods and Bat Sites has been designated as an SAC on the basis that it supports the following habitats and species of European importance².

Annex I habitats that are a primary reason for the selection for this site:

- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)

Annex I habitats present as a qualifying feature, but not a primary reason for selection:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation
- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- Tilio-Acerion forests of slopes, screes and ravines
- Bog woodland

Annex II species that are a primary reason for the selection for this site:

- Lesser horseshoe bat (*Rhinolophus hipposideros*)

Annex II species that are present as a qualifying feature, but not a primary reason for site selection:

Not applicable

² taken from JNCC website

<http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0014789>

5 HRA – STAGE 1 SCREENING

5.1 Potential Impacts on the Protected Site

The Meirionnydd Oakwoods and Bat Sites SAC is primarily designated for areas of old sessile oak woods and alluvial forests, as well as populations of Lesser Horseshoe Bat (*Rhinolophus hipposideros*).

Habitat surveys conducted in and around the development site did not find any oak woods or alluvial forests within the development area or immediately adjacent to it. The development is therefore not directly connected to the SAC by way of habitats, and there will not be any direct habitat loss within the SAC as a result of the development. The SAC boundary is however c. 25 m away from the development, and therefore may be exposed to direct and indirect impacts as a result of the development.

Bat activity surveys conducted in and around the development area, including land adjacent to the SAC, recorded low levels of Lesser Horseshoe Bat activity. These bats probably belong to populations with roosts in the SAC, and as they are within and adjacent to the development area, may be directly affected by the development. A screening matrix for the Proposed Project is presented in *Table 1* in *Section 5.2* of this report.

The HRA screening exercise has identified the following potential impacts on the SAC from the Proposed Project. Other than the impacts listed below, no other impacts are anticipated.

5.1.1 Light Spill and Light Pollution

Bats, particularly Horseshoe species, are photophobic and are adversely affected by anthropogenic lighting. Night lighting will be installed within the development area to accommodate the construction and operational phases of the project. As this lighting will be installed near known flight paths of the Lesser Horseshoe Bats, it is possible that it will alter their behaviour, and they may alter their foraging and commuting routes as a result. Lighting may therefore impact the qualifying species of the SAC unless mitigated for.

5.1.2 Noise and Vibration

The development will create noise throughout its various construction activities, particularly as a result of explosive blasting to create the tunnel shaft and piling activities for construction of the Tunnel Head House. This noise may have an adverse impact on passing bat species and may lead to changes in their foraging and commuting behaviour. Due to its proximity to Lesser Horseshoe Bat habitat, noise resulting from the development may affect the qualifying species of the SAC unless mitigated for.

It should be noted that bats in the local area may already be accustomed to existing noise levels from the adjacent bypass road and from activity at the nearby Garth quarry. They may therefore not be as adversely affected by the construction noise as they would have been in a quieter environment.

5.1.3 Air Quality

The creation of the tunnel which forms a large section of the Proposed Project will involve significant amounts of excavation. The spoil resulting from this will be taken off-site by way of the tunnel head house compound which is to be constructed within c.175 m of the SAC boundary. It is anticipated that a large amount of dust will be created as a result of this, which may be inadvertently deposited on the SAC if unmitigated for.

Lichen and bryophyte communities within the qualifying habitats of the SAC can be sensitive to changes in air quality and therefore the Proposed Project could impact the qualifying habitats of the SAC.

5.2 Screening Matrix

The screening matrix for impacts on the SAC is presented in *Table 1* below.

Table 1 – screening matrix

Project Name	Visual Impact Provision (VIP) Project – Snowdonia Project
Natura 2000 Site under Consideration	Meirionnydd Oakwoods and Bat Sites/ Coedydd Derw a Safleoedd Ystlumod Meirion Special Area of Conservation (SAC).
Date	Author
02/12/2019	Will Holden
<i>Brief description of the project or plan</i>	<p>The aim of the VIP project is to underground a 3.5 km section of existing OHL using a tunnel from National Grid’s existing Sealing End Compound (SEC) and to remove the existing VIP subsection (pylons and conductors). Construction compounds, laydown areas, a temporary pylon and temporary access tracks will be required to facilitate construction activities.</p> <p>At the western end, the project is close to the Meirionnydd Oakwoods and Bat Sites/ Coedydd Derw a Safleoedd Ystlumod Meirion Special Area of Conservation (SAC). Here the project will involve the construction of a new permanent tunnel head house compound and underground cable to the existing SEC, as well as both temporary and permanent access roads and compounds to accommodate the construction of these.</p> <p>The total development area for this part of the project is c.3.7 ha. This includes c. 0.7 ha which is to be permanently developed into the new tunnel head house compound. An additional c.3 ha will be used on a temporary basis to facilitate construction. At the nearest point, the construction compound is c.25 m from the SAC and the closest area of permanent development (tunnel head house) is c. 175 m from the SAC. No works will be conducted within the SAC boundary itself.</p>

<p><i>Brief description of the Natura 2000 site</i></p>	<p>The Meirionnydd Oakwoods and Bat Sites SAC is made up of a series of woodlands, stretching from Dolgellau in the south to Eryri in the north. The majority of the SAC is classified as the woodland type known as “Old sessile oak woods with Ilex and Blechnum in the British Isles”, which covers approximately 84% of the SAC and is the dominant woodland type at most of the sites. A key feature of European importance is the rich Atlantic bryophyte communities that are often well developed within this habitat type.</p> <p>Another key feature of the Meirionnydd Oakwoods and Bat Sites SAC is the lichen flora which is exceptionally rich and includes numerous rare species.</p> <p>Frequently the oak woodland occurs as part of a mosaic of woodland types including other key habitats such as “Bog woodland”, “Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>” and “Tilio-Acerion forests of slopes, screes and ravines”.</p> <p>There are many small areas of dry heath interspersed amongst the woodland, which have not been measured, but the three largest areas of dry heath, together comprise 1% of the area of the SAC.</p> <p>Lesser horseshoe bats have over 20 known roosts within the SAC and forage widely within the SAC’s woodlands, associated habitats and the surrounding countryside. The SAC includes maternity roost sites in various types of buildings and structures, and winter hibernation sites, especially in mines. There are other types of roost such as night, transitional, leks and swarming sites, about which very little is known.</p>
<p>Assessment criteria</p>	
<p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.</i></p>	<p>The western part of the project will involve the construction of a new permanent tunnel head house compound and underground cable to the existing SEC, as well as both temporary and permanent access roads and compounds to accommodate the construction of these.</p> <p>Night lighting and blasting of bedrock will be required to enable the construction of the development. Spoil from the tunnel excavation will also be transported off-site from the tunnel head house compound.</p> <p>At the nearest point, the construction compound is c.25 m east of the SAC and the closest area of permanent development (THH) is c. 175 m east of the SAC. No works will be conducted within the SAC boundary itself.</p> <p>The proximity to the SAC means works may impact the qualifying habitats of the SAC through the reduction in air quality. Local Lesser Horseshoe bats (<i>Rhionolphus hipposideros</i>), a qualifying species of the SAC, may be impacted through lighting and noise in habitats used by the species for commuting and foraging.</p>
<p>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</p>	

<p><i>size and scale;</i></p>	<p>The total development area for the Proposed Project is c. 23.3 ha. The development area for the western part of the project, adjacent to the SAC, is c. 3.7 ha.</p> <p>These works are to be c. 25 m away from the SAC boundary and no works are to be conducted within the SAC itself.</p> <p><u>No impacts to the SAC are predicted as a virtue of the size and scale of the project.</u></p>
<p><i>land-take</i></p>	<p>There will be no land take or habitat loss within the SAC. <u>No impacts to the SAC are predicted as a result of the land-take of the project.</u></p>
<p><i>distance from the Natura 2000 site or key features of the site</i></p>	<p>The nearest point of the development is c. 25 m away from the SAC boundary. The tunnel head house will be c. 175 m from the SAC boundary. This is deemed close enough for the site to be affected by lighting, noise and air pollution resulting from the development.</p> <p>Lighting and noise have the potential to affect Lesser Horseshoe Bats, a qualifying species of the SAC. Conservation Objective 3 for the Lesser Horseshoe Bats states 'Foraging or feeding habitat in the SAC and surrounding countryside, including grasslands and some gardens, is of appropriate quality, extent and connectivity across the range.' The use of night-lighting in areas where Lesser Horseshoe bats are active is likely to alter their foraging and commuting routes. The area of habitat to be affected is small in comparison to the wider landscape and although there may be a minor reduction in habitat area, this is unlikely to impact the size or resilience of the Lesser Horseshoe Bat population here.</p> <p>The deposition of dust has the potential to impact qualifying habitats within the site. Conservation Objectives 7 and 8 require that the abundance and distribution of uncommon, common and typical mosses and liverworts, lichens and slime moulds will be maintained or increased within the SAC. These groups can be particularly sensitive to changes in air quality and therefore may be adversely impacted by the development. It is unlikely that dust will be deposited deep within the SAC, and therefore only small areas of habitat at the SAC boundary are likely to be impacted.</p>
<p><i>resource requirements (water abstraction etc.)</i></p>	<p>No resource requirements are needed from within the SAC.</p>
<p><i>emissions (disposal to land, water or air)</i></p>	<p>During construction emissions are anticipated from machinery, vehicles and dust discharged from the excavation works. These may have a significant impact on the air quality of the SAC and may adversely impact the qualifying habitats if large amounts of dust are deposited here.</p>

<i>excavation requirements</i>	<p>Large excavations will be required within the development footprint to allow for the construction of the cable tunnel. None of these will be conducted within the SAC boundary however, and the nearest excavation will be conducted c. 175 m away.</p> <p>A reduction in air quality as a result of dust created in the excavation process is likely.</p>
<i>transportation requirements</i>	<p>Access to the site for construction traffic will be from the existing road network and newly created access roads. These will all be outside the SAC boundary and will not affect the site. <u>No impacts to the SAC are predicted as a result of the transportation requirements of the project.</u></p>
<i>duration of construction and operation</i>	<p>Construction nearby to the SAC is anticipated to take 2 years to complete. During this time excavations will be near continuous and the dust resulting from this may therefore damage nearby habitats.</p>
<p>Describe any likely changes to the site arising as a result of:</p>	
<i>reduction of habitat area:</i>	<p>There will not be any reduction in habitat area within the SAC boundary. A small amount of Lesser Horseshoe bat habitat will be impacted by light-pollution outside of the SAC boundary.</p>
<i>disturbance to key species</i>	<p>Potential disturbance during construction and operation on Lesser Horseshoe bats utilising land adjacent to the SAC through the use of night-lighting.</p> <p>Disturbance through night-lighting would be likely to cause bats to alter their foraging and commuting routines.</p>
<i>habitat or species fragmentation</i>	<p>None</p>
<i>reduction in species density</i>	<p>None</p>
<i>changes in key indicators of conservation value (water quality etc.)</i>	<p>There is the potential for dust deposition into the SAC which may affect more sensitive species within the SAC, such as lichens.</p>
<i>climate change</i>	<p>None</p>
<p>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</p>	

<i>interference with the key relationships that define the structure of the site</i>	None
<i>interference with key relationships that define the function of the site</i>	None
Provide indicators of significance as a result of the identification of effects set out above in terms of:	
<i>Loss</i>	No impacts anticipated
<i>fragmentation</i>	No impacts anticipated
<i>Disruption</i>	Construction works may affect Lesser Horseshoe bat foraging and commuting routes outside the SAC due to avoidance of night-lighting and noise. It is noted that the predicted impacts are confined purely to the 25-month period of construction and are therefore considered to be temporary in nature
<i>disturbance</i>	Long term night-lighting installed as part of the operational phase of the development may affect Lesser Horseshoe bat foraging and commuting routes in the long term, in the absence of mitigation. Without mitigation, dust deposition over the course of the 2 year construction period for the tunnel may lead to adverse impacts on qualifying habitats within the SAC. Mosses, liverworts and lichens can be particularly sensitive to changes in air quality and therefore the deposition of dust within this area.
<i>change to key elements of the site (e.g. water quality etc.).</i>	Other than those discussed above, no impacts anticipated.

<p><i>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</i></p>	<p>Impacts during construction and operation from noise, dust and lighting have been identified. All other potential impacts have been assessed as being not significant.</p>
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5.3 Conclusion

The screening shows that construction and operation of the Proposed Project could affect the qualifying features of the Meirionnydd Oakwoods and Bat Sites SAC in several different ways. Mitigation measures to address these LSEs can readily be envisaged. This cannot be invoked to dismiss LSEs at the screening stage in the HRA assessment process because case law holds that the need for mitigation implies the possibility of an LSE, which under the law must be addressed through an appropriate assessment. So, it is only there that mitigation can properly be invoked.

In the absence of mitigation, there is the potential for habitats and species listed as primary qualifying species within the Meirionnydd Oakwoods and Bat Sites / Coedydd Derw a Safleoedd Ystlumod Meirion citation to be affected by the proposals. *Section 6* of this HRA therefore provides a statement to inform an appropriate assessment.

6 HRA STAGE 2 - STATEMENT TO INFORM APPROPRIATE ASSESSMENT

This section is a statement to inform an appropriate assessment prepared following the screening stage identifying the potential LSEs on the Meirionnydd Oakwoods and Bat Sites SAC from construction and operational activity, as listed below. This section considers potential effects of the construction and operation process on this internationally important site taking into account any mitigation measures that may be employed. Mitigation measures are provided in detail in the construction environmental management plan (CEMP). Those that are relevant to the impacts on the SAC are detailed below. Other than the impacts listed below, no other direct or indirect impacts are anticipated on the designated site or the qualifying features (habitats or species) it contains.

The measures outlined below are sufficient to mitigate for the potential impacts of construction activities close to the SAC. These measures should mean that there will be no impacts on the SAC.

6.1 Light Spill and Light Pollution

Lighting may affect Lesser Horseshoe Bats, a qualifying species of the SAC unless mitigated for. Some construction activities and winter working (due to the short-day lengths when lighting will be required at the beginning and end of the day) will require task-specific lighting. Lighting will be used only when required and will comprise lighting of work areas and access routes with low level directional lighting.

Low-level lighting will be required at the site welfare and site security cabins. Motion sensor lighting shall be used in areas of high security risk and access. These areas will be in agricultural fields where lighting is currently absent.

The following measures shall be applied at all times for any lighting provided at or above ground level:

- Lights installed will be of the minimum brightness and/or power rating capable of performing the desired function;
- Light fittings will be used that reduce the amount of light emitted above the horizontal;
- Light fittings will be positioned correctly and directed downwards;
- Direction of lights will seek to avoid spillage onto neighbouring properties and habitats;
- Passive Infra-Red (PIR) controlled lights will be considered for use where appropriate as these will have a reduced impact compared to those which are controlled by a time switch or are on all the time; and
- Unnecessary lights will be switched off.

It is considered that under the guidance of the lighting design to be included in the CEMP and noted above, the impact of night-lighting will be reduced to a negligible level on Lesser Horseshoe Bats and there will be no likely significant effects

6.2 Noise and Vibration

Noise will arise from construction of the tunnel shaft, access roads and Tunnel Head House. It is noted that the predicted impacts are confined purely to the 25-month period of construction and are therefore, while they may result in a likely significant effect, they are considered to be temporary in nature.

Mitigating measures associated would typically include the following types of measures; however, it is noted that the list is not exhaustive:

- Working hours restricted to core hours so far as appropriate. Core hours are between 0800 and 1800 Monday to Friday and between 0800 and 1300 on Saturday; with no works on Sundays or bank holidays. The exception to this would be Tunnel Boring Machine activities.
- Careful selection of plant and construction methods. Only plant conforming to relevant national, European Union or international standards, directives and recommendations on noise and vibration emissions will be used. The contractor will ensure that each item of plant used on the scheme complies with the noise limits quoted in the Noise Emissions in the Environment by Equipment for Use Outdoors Regulations. The contractor will maintain a register of plant and equipment and statutory certification.
- Noisy activities will be staggered in time and space where practicably feasible.
- Design and use of acoustic screening measures where practicable and necessary. Acoustic screening measures may include site hoardings, acoustic barriers, acoustic enclosures, acoustic housing for plant and temporary stockpiles. Such measures can be particularly appropriate for stationary or near-stationary plant such as piling rigs and compressors. Barriers should be specified as outlined within BS5228-1.
- Selection of appropriate piling techniques and the timing of piling works will minimise vibration impacts.
- All vehicles and mechanical plant used for the purpose of the work will be fitted with effective exhaust silencers and will be maintained in good and efficient working order and operated to minimise noise emissions.
- All compressors and generators will be "sound reduced" models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use, and all pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.
- All machines in intermittent use will be shut down in the intervening periods between works or throttled down to a minimum. Noise emitting equipment which is required to run continuously will be housed in a suitable acoustic enclosure, where practicable.

- Static plant and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors and away from walls which could reflect noise towards sensitive receptors.
- Where reasonably practicable, fixed items of construction plant will be electrically powered in preference to diesel or petrol driven.
- Vehicles will not wait or queue on the public highway with engines idling.
- Only designated access routes will be used.
- Reversing alarms incorporating one of more of the features listed below or any other comparable system will be used where reasonably practicable:
 - highly directional sounders
 - use of broad band signals
 - self-adjusting output sounders
 - flashing warning lights
- All site personnel will receive training appropriate to the nature of their roles and responsibility. The training will include specific information in relation to noise and vibration management. If their work activities are assessed as being particularly noise/vibration emission prone, all staff will receive induction training that will incorporate environmental awareness training, plus additional training in relation to noise and vibration.

Given the duration of tunnelling works and the potential for night-time effects, appropriate mitigation measures have been developed. Various mitigation options were considered with the most appropriate identified as a full enclosure (structure) around surface plant. The mitigation to be employed will reduce noise levels to within a night-time c. 45Db limit. In addition, no blasting for the creation of the tunnel shaft will be permitted at night.

Construction activities at night time will be focused around the tunnel head house and shaft c.175 m from the SAC boundary with no night time working in areas closer to the SAC boundary.

No vehicle movements will be permitted at night, to further reduce noise impacts during the time that Lesser Horseshoe Bats are active.

Following the implementation of mitigation, it is considered that there will be no likely significant effects from noise.

6.3 Air Quality

The CEMP details mitigation measures to minimise air quality impacts caused by dust from the tunnel construction works. This includes any spoil transport system and mitigation measures to reduce the effect of dust and emissions from construction activities. Mitigation will include the following measures:

- Regular inspection of potential sources of dust, such as stockpiles to ensure dust is not being generated.

- Where activities could create dust clouds, dust suppression techniques will be adopted, for example water sprays and dampening, screening or covering of potential sources to prevent dust from becoming windborne. Suppression techniques will be used more frequently during periods of dry weather;
- Where required, plywood hoardings will be erected at the site boundary to reduce wind-blown dust affecting nearby habitats.
- Removal of materials that have a potential to produce dust as soon as possible, unless being re-used on site. Materials kept on site, including the stockpiling of soils, will be protected by appropriate measures, for example membranes, spraying or seeding;
- Loaded vehicles that are carrying dust generating materials will be covered, for example with sheets, when leaving site to prevent escape of materials during transport;
- There will be no burning of materials on site;
- All plant and vehicles will be maintained in good order so that they do not emit dark smoke, grit or dust;
- The use of diesel generators will be minimised and battery powered generators will be used where available;
- Engines will be turned off when vehicles are not in use to avoid 'idling' and do not queue at site entrances;
- All working areas will be kept in a clean and tidy condition; and
- Site management to ensure, where possible, that all vapour and odour generating processes are kept away from receptors.

It is envisaged that under the guidance of the CEMP, the impact of dust and air quality will be reduced to a negligible level on the adjacent SAC.

7 CONCLUSION

The findings of the assessment show that a number of elements of the Proposed Project could affect the Meirionnydd Oakwoods and Bat Sites SAC. However, the implementation of best practice guidance, adherence to the CEMP, careful design of construction and operational lighting and other control and avoidance will prevent any significant effect on the SAC.

As measures will be put in place to prevent impacts on the habitats or species listed as primary qualifying species within the Meirionnydd Oakwoods and Bat Sites SAC citation, it has been assessed that the project will not have any adverse effects on the Natura 2000 site.

8 FIGURES

Figure 1 – Site location and SAC boundary

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260000

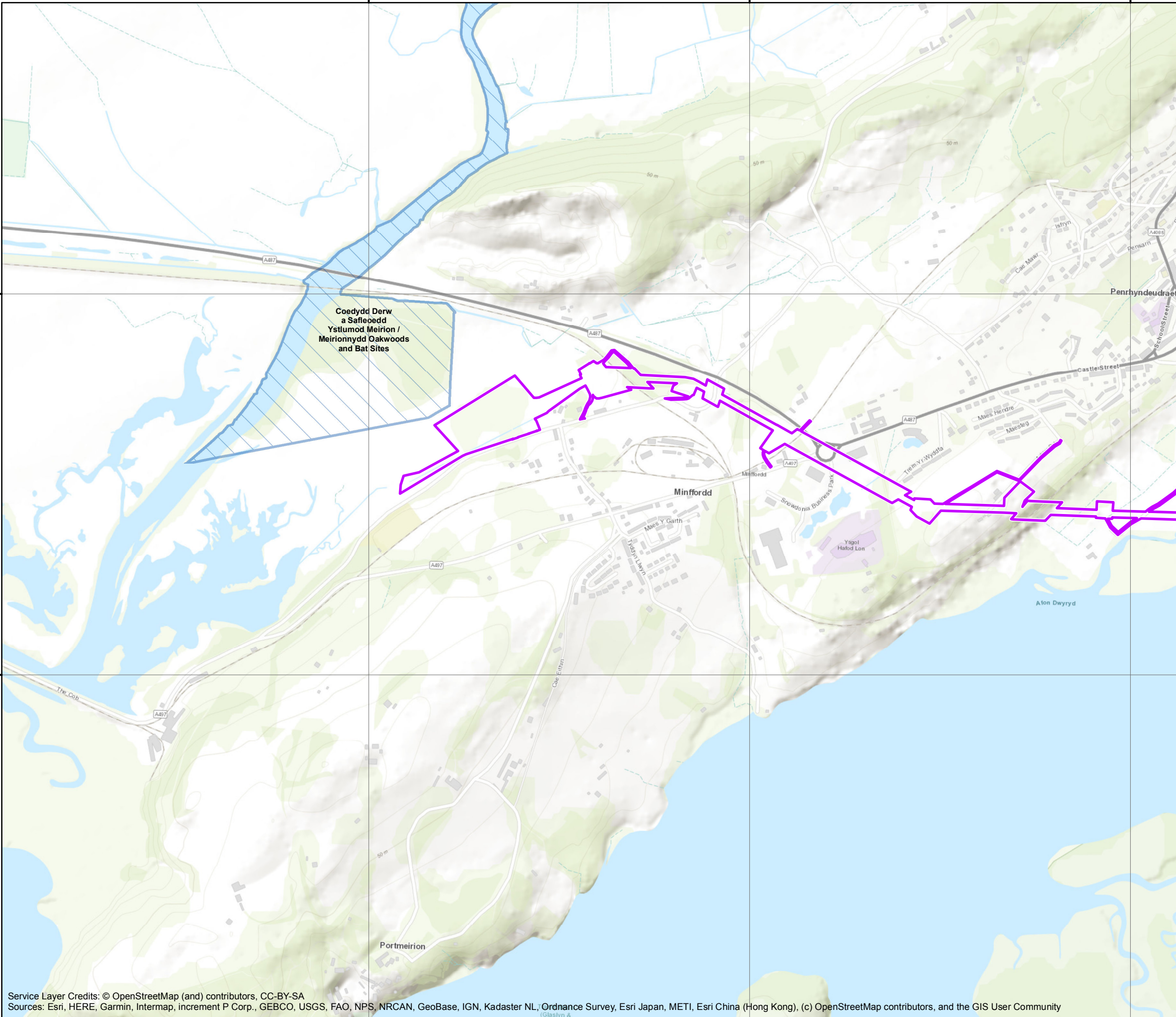
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Overview



Legend

- Site Boundary
- Special Areas of Conservation (SAC) - (Source: NRW)



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00	First Draft - Site Boundary	NH	SR	SR	16/08/2019
Rev	Description	Cre'd	Chk'd	App'd	Date

nationalgrid

Master Scheme No:	Sub-Scheme No:	Site:
-	-	-

Scheme Name:
Visual Impact Provision (VIP) Snowdonia Project

Document Title:
Figure 1: Site Location Plan

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
N.Hogben	20/09/2019	W.Holden	20/09/2019	S.Rotherham	20/09/2019
Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
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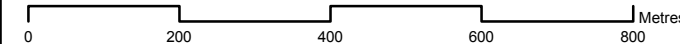
National Grid Document Number:
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FEED Document Number:
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APPENDIX A – MEIRIONNYDD OAKWOODS AND BAT SITES / COEDYDD DERW A SAFLEOEDD YSTLUMOD MEIRION SAC

General Site Character

Inland water bodies (Standing water, Running water) (2%)
 Bogs, Marshes, Water fringed vegetation, Fens (0.1%)
 Heath, Scrub, Maquis and Garrigue, Phygrana (0.9%)
 Improved grassland (0.1%)
 Broad-leaved deciduous woodland (93.9%)
 Mixed woodland (2%)
 Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) (1%)

Annex I habitats that are a primary reason for selection of this site

91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles

Meirionnydd Oakwoods are a very large example of **old sessile oak woods** in north Wales, with an outstanding Atlantic flora of bryophytes and lichens. Notable bryophyte species include the endangered *Sematophyllum demissum* and the nationally scarce *Campylopus setifolius* and *Leptoscyphus cuneifolius*. The woods – primarily of sessile oak *Quercus petraea* with an acidic ground flora – extend along a series of inter-connected valleys, with a wide variety of slopes and aspects, and include many narrow ravines and gorges. Management is diverse, including grazed and ungrazed areas, and stands managed silviculturally, or as minimum intervention. This wide range of environmental, topographic and management conditions contributes to the high biological diversity of this exceptional site. The woods extend into the adjacent Rhinog cSAC.

91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)

Meirionnydd Oakwoods and Bat Sites includes probably the most extensive area of alder *Alnus glutinosa* **alluvial forest** in north Wales. The woodland occurs on a dynamic floodplain, allowing cyclical regeneration and decay of alder stands, and the development of a natural structure, rich in dead wood. There is a rich ground flora, with notable plant species including globe-flower *Trollius europaeus* and creeping-jenny *Lysimachia nummularia*. The woodland occurs in a mosaic with species-rich marsh and wet grassland, and is continuous with stands of **91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles**. The site is also important for wildfowl.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

3260 Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation

4010 Northern Atlantic wet heaths with *Erica tetralix*

4030 European dry heaths

9180 *Tilio-Acerion* forests of slopes, screes and ravines * Priority feature

91D0 Bog woodland * Priority feature

Annex II species that are a primary reason for selection of this site

1303 Lesser horseshoe bat *Rhinolophus hipposideros*

This large composite site includes most of the known maternity roosts in Meirionnydd and some hibernacula, and comprises the centre of distribution for **lesser horseshoe bats *Rhinolophus hipposideros*** in Wales. The sheltered river valleys provide excellent tree cover and numerous suitable maternity roosts.

Annex II species present as a qualifying feature, but not a primary reason for site selection

Not applicable

Conservation Objectives

Habitats: Woodlands

The vision for the Woodland SAC feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The total extent of the woodland area, including woodland canopy and scrub, woodland glades and associated dry heath, bracken and grassland shall be maintained as indicated on maps, see Annex 2, some 1826 ha in total.
2. The location of the different woodland SAC features, as listed in the title above, will be as shown in Annex 2. The distribution of these woodland communities is largely a reflection of the topography, soils, geology and aspect and is unlikely to change.
3. The tree canopy percentage cover within the woodland area for the whole SAC (see maps in Annex 2) shall be no less than 80%, 87% being the current canopy cover (excepting natural catastrophic events). Some units will have a lower canopy cover which is acceptable provided this is compatible with safeguard of the habitat, features and special interest.

4. The canopy and shrub layer comprises locally native species, see Table 2 for the relevant species for each woodland SAC feature.
5. There shall be sufficient natural regeneration of locally native trees and shrubs to maintain the woodland canopy and shrub layer, by filling gaps and allowing the recruitment of young trees, and encouraging a varied age structure.
6. The typical ground layer species of each woodland SAC feature will be common, see Table 2. It is important for most of the woodland SAC that the vegetation does not become rank and overgrown with a height above 40cm and/or dominated by species such as bramble, ivy and young holly. Limits may be set on a unit or compartment basis.
7. The abundance and distribution of common and typical (Atlantic, sub-Atlantic, western, oceanic) mosses and liverworts, lichens (and slime moulds), will be maintained or increased. Refer to indicative lists in Tables 3 and 4.
8. The abundance and distribution of uncommon mosses and liverworts, lichens and slime moulds, will be maintained or increased. Refer to indicative lists in Tables 5 & 6 in Annex 3.
9. There will be a scattering of 5 mature trees per hectare within the existing tree canopy or parkland, that is trees of c60cm diameter plus for oak and ash and/or with signs of decay, holes etc. In the longer-term, by 2060 there should be 1 veteran trees per hectare that is trees of c100cm diameter plus for oak and ash and 75cms birch.
10. The volume of dead wood will exceed 30 cubic metres per hectare throughout and consist of a mixture of fallen trees (minimum 1 per hectare), broken branches, dead branches on live trees, and standing dead trees (minimum 1 per hectare). Volumes of deadwood are currently at relatively low levels because the woodlands, in general, have an even-age structure and lack mature trees and any quantity of deadwood because of past silvicultural management. Some lower plants are dead wood specialists but these woodlands tend to lack the rare dead wood invertebrate assemblage found in other parts of the UK.
11. Invasive non-native species such as rhododendron, Japanese knotweed and Himalayan balsam will not be present.
12. All factors affecting the achievement of these conditions are under control.

Species: Lesser horseshoe bats (*Rhionolphus hipposideros*)

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

1. The population of lesser horseshoe bats should be maintained at its current size and encouraged where possible to increase. See Table 7 for summaries of population counts at recorded roost sites and maps in Annex 4, showing the locations of the roosts. As there has been an upward trend in lesser horseshoe bats numbers in Wales it is reasonable to expect the Gwynedd population to increase.
2. There are sufficient breeding roosts (buildings, structures and trees) and hibernation roosts (mines and buildings) of appropriate quality. The other types of roost such as

night, transitional, leks and swarming sites, should also be maintained as our knowledge of these often significant roosts improves.

3. Foraging or feeding habitat in the SAC and surrounding countryside, including grasslands and some gardens, is of appropriate quality, extent and connectivity across the range.
4. The range of the population within the SAC/Gwynedd is stable or increasing. 5 All factors affecting the achievement of these conditions are under control.

APPENDIX B – NO SIGNIFICANT EFFECTS REPORT

Project Name	Visual Impact Provision (VIP) Project – Snowdonia Project
Natura 2000 Site under Consideration	Meirionnydd Oakwoods and Bat Sites/ Coedydd Derw a Safleoedd Ystlumod Meirion Special Area of Conservation (SAC).
Date	Author
02/12/2019	Will Holden
<i>Name and location of European Site</i>	Meirionnydd Oakwoods and Bat Sites/ Coedydd Derw a Safleoedd Ystlumod Meirion Special Area of Conservation (SAC).
<i>Description of the project</i>	<p>The aim of the Proposed Project is to underground a 3.5km section of existing OHL using a tunnel from National Grid's existing Sealing End Compound (SEC and remove the existing VIP subsection (pylons and conductors).</p> <p>At the western end, the project is close to the Meirionnydd Oakwoods and Bat Sites/ Coedydd Derw a Safleoedd Ystlumod Meirion Special Area of Conservation (SAC). Here the project will involve the construction of a new permanent tunnel head house compound and underground cable to the existing SEC.</p> <p>At the nearest point, the construction compound is c.25 m from the SAC and the closest area of permanent development (tunnel head house) is c. 175 m from the SAC. No works will be conducted within the SAC boundary itself.</p>
<i>Is the project directly connected with or necessary to the management of the site (provide details)?</i>	No
<i>Are there other projects or plans that together with the project being assessed could affect the site (provide details)?</i>	No

The Assessment of Significance of Effects

<p><i>Describe how the project (alone or in combination) is likely to affect the European Site</i></p>	<p>During construction and operation there is the potential for indirect impacts from night-time lighting and noise on Lesser Horseshoe Bats and dust on important oakwood habitats.</p> <p>Disturbance from noise and lighting would be likely to cause Lesser Horseshoe Bats to leave the local area.</p> <p>Dust deposition may cause damage to sensitive habitats in the SAC.</p> <p>No impacts on the other qualifying features (habitats or species) are anticipated.</p>
<p><i>Explain why these effects are not considered significant.</i></p>	<p>Mitigation measures are proposed as detailed in the Construction Environmental Management Plan (CEMP).</p> <p>This includes details on lighting, measures to reduce noise impacts and methods to suppress the release of dust from the construction activities.</p> <p>Implementation of mitigation will reduce the level of any impacts to not significant.</p>
<p><i>List of agencies consulted: provide contact name and telephone or e-mail address.</i></p>	<p>None</p>
<p><i>Response to Consultation</i></p>	<p>N/A</p>

Data Collected to carry out the Assessment

<i>Who carried out the assessment?</i>	<i>Sources of data</i>	<i>Level of assessment completed</i>	<i>Where can the full results of the assessment be accessed and reviewed?</i>
<p>Will Holden</p>	<p>COFNOD – LRC; JNCC; Environmental Appraisal</p>	<p>Appropriate Assessment</p>	<p>Environmental Appraisal</p>