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Subject: Wylfa Newydd DCO Deadline 3 Submissions [NOT PROTECTIVELY MARKED]
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Attachments: [18 Horizon's Response to Written Representation - IACC .pdf](#)
[19 Horizon's Response to Written Representation - North Wales Police .pdf](#)
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Good Evening

This is the second in a series of 8 e-mails for the Wylfa Newydd DCO Examination Deadline 3 deliverables.

The list below provides a complete list of all documents attached to this e-mail and we will also be delivering 2x USB pen drives containing all of our Deadline 3 submission to your offices at 10:00 tomorrow (Tuesday 18th December).

16 Horizon's Response to Written Representation - Welsh Anti-Nuclear Alliance .pdf
17 Horizon's Response to Written Representation - Zencity Limited .pdf
18 Horizon's Response to Written Representation - IACC .pdf
19 Horizon's Response to Written Representation - North Wales Police .pdf
20 Horizon's Response to Written Representation - North Wales Fire and Rescue Service .pdf
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Kind Regards

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Wylfa Newydd Project

Horizon's Response to Written Representation – NWWT

PINS Reference Number: EN010007

18 December 2018

Revision 1.0

Examination Deadline 3

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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1 Introduction

1.1.1 Horizon Nuclear Power Wylfa Limited (“Horizon”) has reviewed the North Wales Wildlife Trust WR which comprises two documents; *Biodiversity – Cemlyn Nature Reserve* [REP2-348] and *Biodiversity – Tre'r Gof SSSI and the Temporary Site Campus* [REP2-349]. The document *Biodiversity – Cemlyn Nature Reserve* was also submitted by RSPB [REP2-360] and the National Trust [REP2-318]. Horizon will provide a single Deadline 3 response to these submissions titled *A response to the eNGO Written Rep – Biodiversity Cemlyn Nature Reserve*. Therefore, the current document responds to the key issues raised within *Biodiversity – Tre'r Gof SSSI and the Temporary Site Campus* [REP2-349] only. This response has been made by overarching topic areas.

1.1.2 The key issues addressed in this response are:

1. Biodiversity – Tre'r Gof SSSI and the Site Campus;
National planning policy and other guidance in relation to biodiversity;
TSC site selection process;
Baseline data collection and evaluation;
 - CHEG grassland fungi;
 - Chough (Annex 1 Birds Directive, Schedule 1 Wildlife & Countryside Act, Section 7 Species and an Anglesey BAP species);
 - Species rich semi-natural grassland;
 - Reptiles;Construction impacts of Site Campus;
 - Rising foul main diversion;
 - SSSI hydrology the impacts of cut & fill and installing infrastructure;
 - Chough during construction;
 - Grasslands and soil structure for CHEG grassland fungi;
 - Bats;Reinstatement;
Critique of sufficiency of information to inform the proposal;
SSSI compensation sites;
Air quality.

2 Biodiversity – Tre'r Gof SSSI and the Temporary Site Campus

2.1 National planning policy and other guidance in relation to biodiversity

- 2.1.1 The Site Selection Report – Volume 4 – Temporary Workers' Accommodation [APP-439] provides the justification for the Site Campus location and need for its proximity to the main construction zone within WNDA.
- 2.1.2 As explained in the Site Selection Report, Horizon concluded that the environmental and social effects of the construction workforce on the existing community is best managed through locating a significant proportion of them in a single, temporary purpose-built campus as close as possible to the Power Station.
- 2.1.3 The Site Campus is an integral part of the DCO application and as such it is entirely appropriate to include it in the Environmental Statement.
- 2.1.4 The other Associated Development sites have their own Environmental Statement volumes because of their geographical isolation from each other and the WNDA and not, as North Wales Wildlife Trust assert, because they are Associated Developments.
- 2.1.5 There is no requirement under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, or any guidance, to separate different aspects of the project out into different ES volumes. Horizon have chosen to publish the relevant environmental information for the different sites as different ES volumes because it makes it much easier for local residents of the Associated Developments to identify the impacts relevant to them. This would not be the case for the Site Campus, which is located wholly within the WNDA, and having a separate Environmental Statement volume for the Site Campus would make it more difficult to understand the overall effect of the project on receptors within and close to the WNDA.
- 2.1.6 There will never be a scenario where the Wylfa Newydd Power Station didn't get approval, but the Associated Developments did so the Site Campus would never be a stand-alone development in planning terms and it is therefore not necessary for the planning and environmental effects of the Site Campus to be considered in isolation.
- 2.1.7 The Planning Statement [APP-406] at Appendix C assesses the Site Campus in respect of National Policy Statement (NPS) EN-1, NPS EN-6, and national and local policy. It concludes that the Site Campus proposal is appropriate in planning terms in their own right and are supported by local planning policy including Strategic Policy PS 10 of the Joint Local Development Plan. The Planning Statement finds that the facility is also integral to the delivery of the Wylfa Newydd DCO Project and its associated benefits and should be considered in the context of the urgent need for nuclear power.
- 2.1.8 It should be noted that in providing significant efficiencies compared to transporting workers from multiple locations, the Site Campus is particularly

important in order to be able to deliver an efficient construction project which is capable of delivering the Wylfa Newydd Power Station as early as possible, in accordance with NPS EN-1 and NPS EN-6.

2.2 Site Campus selection process

- 2.2.1 The North Wales Wildlife Trust assert that the site selection process is not compliant with NPS EN-1 because of the damage that the Environmental Statement predicts will occur to Tre'r Gof SSSI. However, paragraph 13.1 of NPS EN-1 states that an exception could be made where the benefits (including need) of the development clearly outweigh the impacts. There are a number of significant benefits associated with the project, including its contribution to meeting the documented need for new energy infrastructure. Please refer to the Planning Statement for more detail [APP-406]. There are also significant benefits associated with the Site Campus itself, such as its contribution to meeting the need for worker accommodation during construction and mitigating impacts across the island e.g. traffic and transport. Please refer to the Workforce Accommodation Strategy for more detail [APP-412]. The site selection process is therefore compliant with NPS EN-1.
- 2.2.2 Horizon's approach and justification in relation to the site selection process for temporary workers is set out in detail in the Site Selection Report Volume 4 – Temporary Workers' Accommodation [APP-439].
- 2.2.3 Horizon's proposals for locating components, including the Site Campus, were largely driven by the need to deliver and operate the Power Station in a timely, safe and efficient manner. As a result, many of the permanent components are limited in terms of where they can be located, particularly the main plant. This means that a degree of flexibility needed to be applied to some of the other components, particularly the temporary ones, such as the Site Campus. Once the components with more specific locational demands had been located, this left very limited options in terms of where the Site Campus could be located in the WNDA. Indeed, the aim of the site selection process was not to identify every piece of land within a defined search area or every possible layout, but rather to identify realistic sites/layouts that would meet the needs of the project.
- 2.2.4 Horizon considered two options (Option A and Option B) on the Wylfa Newydd Development Area for locating of temporary workers accomadation. This process is covered in Site Selection Report Volume 2 [APP-437]. Option B was also being located adjacent to the Tre'r Gof SSSI, but was much closer to residential properties than Option A. It was located in closer proximity of the main part of the construction site and was ultimately discounted because the site determined that the land associated with Option B is required for landscape mounding.
- 2.2.5 The Site Campus proposal has number of significant benefits, in particular the improvements to the health and well-being of the construction workforce by reducing travel times for a large proportion of workers. The Site Campus proposals are appropriate in planning terms in their own right, and are supported by local planning policy including Strategic Policy PS 10 of the JLDP and policy GP28b of the Wylfa Newydd Supplementary Planning

Guidance (SPG), which supports the location of temporary worker accommodation on the WNDA. Further detail about the benefits of the Site Campus are set out in Horizon's response to Q10.1.3 of the Examining Authority's first Written Questions [REP-001], submitted at Deadline 2 (4 December 2018).

- 2.2.6 The Site Selection Report explains how other alternative sites, including sites in Amlwch (Rhosgoch), Holyhead and other locations were considered, and why these were rejected. Horizon has thoroughly explored the use of the existing consents at Cae Glas and Kingsland before considering other sites for temporary worker accommodation, however, the sites are not practical or deliverable and would require significant changes to make them suitable for use by Wylfa Newydd construction workers.

2.3 Baseline data collection and evaluation

CHEG grassland fungi

- 2.3.1 Horizon considers that the baseline data against which the assessment of effects on fungi was made is comprehensive and adequate. The baseline report submitted to support the EIA progress report details data and provides a high-level assessment of the area's value from survey work undertaken in 2013. The report was revised in 2017 following additional survey effort in 2016. The additional data collected in 2016 were included for review within the revised report, allowing more detailed site valuations to be made.
- 2.3.2 This updated report is distinct from the version submitted to support the EIA progress report, as indicated by the revised report date and version number given on its cover.
- 2.3.3 In line with comments made by North Wales Wildlife Trust during consultation, further baseline survey was undertaken in 2017 (Fungi Technical Summary Report [APP-168]), and the findings of this, combined with all earlier baseline survey data, were used to provide the site valuations that formed the basis for the assessment of effects presented in Chapter D9 - Terrestrial and freshwater ecology of the Environmental Statement [APP-128].
- 2.3.4 The fungi technical summary report [APP-168], states *"The majority of the areas of interest were semi-natural coastal grassland habitats which have probably had little agricultural intervention apart from grazing and had been identified as supporting grassland fungi from the previous survey effort. Most of the grassland further inland appears to be either agriculturally improved or has been disturbed by groundwork or archaeological excavations and is of limited mycological value."*
- 2.3.5 The extent of grassland habitat types, from semi-natural coastal grassland habitats to grassland associated with agricultural improvement is detailed in Figure 3.7 within the National Vegetation Classification (NVC) Technical Summary Report [APP-175], demonstrating the semi-natural coastal grassland habitats extend approximately 30m inland, south of which are lower diversity habitats in line with agricultural improvement. The NVC surveys were undertaken between 2010 and 2015, prior to any archaeological excavations so provide a baseline unaffected by these works.

- 2.3.6 This information also supports further consideration within the fungi technical summary report regarding the coastal strip which runs between Wylfa Head in the west, towards Porth y Wylfa in the east, and parallel to the northern boundary of the Site Campus. *“The vegetation here was typical of coastal grassland, Agrostis, Festuca, Plantago etc. and grassland fungi were found all along the length of the coast and inland to approximately 20 (30) metres. Further inland the grassland was herb-rich with Rumex acetosa, Hypochaeris, Ranunculus, Trifolium, Heracleum, Lolium and Agrostis and was lush, indicating that it could have been improved to some extent e.g. with fertiliser input or previous disturbance; this area was mainly very poor for grassland fungi.”.*
- 2.3.7 This inland grassland area, identified as being mainly very poor for grassland fungi, would be directly affected by the footprint of the Site Campus, whereas the coastal grassland sites identified as nationally important, would be outside its boundary.

Chough (Annex 1 Birds Directive, Schedule 1 Wildlife & Countryside Act, Section 7 Species and an Anglesey BAP species

- 2.3.8 Transect surveys for all breeding and wintering bird species carried out annually from 2009 to 2015 showed chough use of habitats mainly on Wylfa Head, at Trwyn Pencarreg and to a lesser extent in the fields immediately south of Porth-y-pistyll and Cemlyn Bay. During surveys specifically for chough in 2017, choughs were recorded using these same areas, correlating with the 2009-2015 surveys, but also using the Site Campus field, an area in which they had not been recorded previously. Surveys carried out in 2018 specifically for chough again recorded choughs using habitats on Wylfa Head and areas to the west of the existing power station (again correlating with results of the 2009-2015 surveys) but showed minimal use of the Site Campus field. The results of the 2018 additional chough surveys will be submitted to the examination at Deadline 3 (18 December). The high use of the Site Campus field observed in 2017 therefore appears to be an unusual occurrence and this suggests that the Site Campus field is not typically a critical resource for breeding chough.
- 2.3.9 The habitat areas on Wylfa Head traditionally used by chough and areas west of the Existing Power Station are the habitats which have been shown to provide sufficient temporal and spatial components for a successful chough foraging strategy and are largely retained. In 2017, chough use of the Site Campus field was primarily restricted to the rocky outcrops and the relatively narrow strip of unimproved coastal grassland along the northern, seaward edge of the field, areas where the better, less agriculturally-improved (and probably the most invertebrate rich) habitats exist – and which will be retained. The photograph of the Site Campus field (Photo 4) provided by NWWT and captioned ‘optimal chough foraging’ shows an expanse of the field that was not used by foraging choughs in 2017 and does not show the areas which were used for foraging.

Species rich semi-natural grassland

- 2.3.10 Horizon considers the assessment of terrestrial habitats presented in Chapter D9 - Terrestrial and freshwater ecology of the Environmental Statement [APP-128], to be robust and that the area affected by the Site Campus is of low ecological value, albeit with functional linkage to higher value receptors such as Tre'r Gof SSSI, Arfordir Mynydd y Wylfa - Trwyn Penrhyn Wildlife Site, though foraging habitat and fungi, each receptor having been fully assessed within Chapter D9 - Terrestrial and freshwater ecology of the Environmental Statement [APP-128].
- 2.3.11 Horizon refutes the claim that the area directly affected by the Site Campus is of substantive ecological value beyond that assessed within Chapter D9 – Terrestrial and freshwater ecology of the Environmental Statement [APP-128]. All grasslands (and indeed all habitats) vary in response to micro differences in topography and soils to a degree and the site is not considered to show an exceptional variation.

Reptiles

- 2.3.12 Horizon considers that the assessment carried out for effects on reptiles is comprehensive and that the survey and desk study information is sufficient to understand the potential for significant effects. Surveys were undertaken between 2010 and 2014, focusing on good quality habitats for reptile foraging/shelter across the site and therefore provide robust data on presence, species composition and population size. Sampling methodologies for survey of common and widespread species are commonplace and the assessment accepts that there are suitable habitats scattered throughout the WNDA. Where surveys were carried out, reptile populations were shown to be low.
- 2.3.13 Details of the reptile mitigation strategy, including capture effort, will be provided following pre-construction surveys and will form part of the Main Power Station Site sub-CoCP [APP-415] in a revised draft to be submitted at Deadline 4 (17 January 2019).
- 2.3.14 Horizon will submit into Examination at Deadline 4 (17 January 2019), any relevant raw data available in relation to reptile surveys referred to in the reptile technical summary report [APP-117] .

2.4 Construction impacts of temporary site campus

Rising foul main diversion

- 2.4.1 NWWT refer to the cumulative impacts of the foul water rising main diversion at the Site Campus. This would be undertaken by Dwr Cymru Welsh Water (DCWW) as part of the upgrade required to the wastewater treatment works. This is considered under AN26 in the Reasonably Foreseeable Future Projects (RFFP) long-list in Table I2-2 of the Wylfa Newydd DCO Project Environmental Statement Volume I – Cumulative Effects I2 – Scope [APP-385]. This project was scoped out at long-list stage due to the lack of information available.

- 2.4.2 Horizon continue to liaise closely with DCWW over the required upgrade works and will provide an update where possible during the Examination on review of any further information.

SSSI hydrology the impacts of cut & fill and installing infrastructure

- 2.4.3 Horizon is proposing to take all reasonable steps to mitigate adverse effects on Tre'r Gof SSSI. With regards to hydrological impacts, this would include the use of construction buffer zones and implementation of drainage and water treatment measures in an attempt to maintain the SSSI's baseline hydrological and hydrogeological regime. The predicted residual major adverse effect in spite of these proposed mitigation efforts is due to uncertainties inherent in predicting the response of such a complex and sensitive system and the associated good practice application of the precautionary principle.
- 2.4.4 As a result of being unable to rule out a major adverse effect on Tre'r Gof SSSI, Horizon is proposing to offset this potential effect via the creation of compensatory rich fen habitats similar to those which could be lost. The aim of Horizon's compensation proposals is to ensure no net loss of biodiversity.

Chough during construction

- 2.4.5 NWWT cites the concerns of RSPB regarding the loss of the Site Campus field as a chough foraging resource during the construction years, potentially resulting in an overall foraging resource insufficient to support the birds which use the area, leading to loss of the species altogether from Wylfa. The chough baseline data (including the results of the 2018 additional chough surveys will be submitted to the examination at Deadline 3 (18 December)), indicate the Site Campus field is not used regularly, e.g. only approximately 5% of time spent foraging by chough in the 2018 breeding season took place in this field. Chough use of the Site Campus in the 2017 breeding season centred on the habitats at the rocky outcrops and along the coastal strip of grassland immediately adjacent to the sea along the northern edge of the field. Whilst the rocky outcrops will be within the boundary of the Site Campus, the well-used northern strip will remain outside the Site Campus boundary and therefore be freely available to chough should they choose to select it as a foraging resource. Choughs could also still use habitats around the rocky outcrops during the construction period. Given the irregular use of the Site Campus field and that much of the previously used chough foraging habitat within it will remain available, it is highly likely that the overall foraging resource available to chough during the construction years will be sufficient to support the breeding and wintering birds which currently use the area.

Grasslands and soil structure for CHEG grassland fungi

- 2.4.6 Horizon therefore considers its assessment of the receptors associated with this area as robust. It is worth noting that the area of grassland affected by the Site Campus has no designation and, although adjacent to the Wildlife Site, is not included within its boundary. Mitigation measures associated with this area include the creation of coastal heath / grass mosaic, and close sward species-rich grassland, which is designed to maximise biodiversity value at

this location and across the WNDA. These measures are secured through the provisions of the Landscape and Habitat Management Strategy [APP-424 and APP-425]. An update to this document was submitted at Deadline 2 (4 December 2018) [REP2-039].

Bats

- 2.4.7 As detailed in Chapter D9 - Terrestrial and freshwater ecology of the Environmental Statement [APP-128], surveys of the Tyn-y-Maes bat barn in 2015 show that it supported 50 bats of four different species (brown long-eared, common and soprano pipistrelles, and whiskered/Brandt's bats), and is therefore considered to be a successful design. This design has been followed at the two additional bat barns constructed to mitigate adverse effects to bats identified in Chapter D9 – Terrestrial and freshwater ecology of the Environmental Statement [APP-128].
- 2.4.8 Horizon considers its assessment of effects on bats, as presented in chapter D9, to be robust. It considers the potential for lighting, noise and vibration effects to disturb bats using the Tyn-y-Maes bat barn as a roost location and proposes additional mitigation to further offset adverse effects.
- 2.4.9 In their WR, submitted at Deadline 2 (4 December 2018), NRW state that they have reviewed the mitigation measures proposed for bats as outlined in chapter D9 [APP-128], and detailed within the draft European Protected Species mitigation licence with respect to bats [APP-187]. NRW go on to say that, as long as the mitigation measures are secured in relevant control documents (see the Wylfa Newydd CoCP [APP-414] and the Main Power Station Site sub-CoCP [APP-415] as updated at Deadline 2 (4 December 2018)), the effects of the Wylfa Newydd DCO Project are not likely to be detrimental to the maintenance of the favourable conservation status of the local bat population.

2.5 Reinstatement

- 2.5.1 The updated Landscape and Habitat Management Strategy submitted at Deadline 2 (4 December 2018) [APP-424 and APP-425] sets out Horizon's ambitious proposals for the creation of a Power Station landscape setting that delivers a long-term biodiversity net gain, among other benefits and mitigation. This will include 200ha of high quality habitat creation, as well as retention and enhancement of existing notable habitats, such as those at Wylfa Head.
- 2.5.2 Horizon is aware of the need for well-planned, scientifically informed design, implementation and management to achieve its ambitious biodiversity aims. Horizon also appreciates the importance of providing the correct soil conditions and hydrological regimes for the desired habitat types to establish. In the creation of a new landform within the WNDA, Horizon has the opportunity to influence these parameters and also to tailor the habitat proposals to fit the new landform. Horizon considers that this will help to ensure that its habitat creation objectives are realised.

- 2.5.3 Details of the proposed habitat creation techniques and long-term management will be provided in the Final Landscape and Habitat Scheme and associated Landscape and Habitat Management Schemes. These will be prepared in accordance with the design and management principles set out in the Landscape and Habitat Management Strategy and submitted to and approved by IACC in accordance with Requirements WN9 and WN11 of the Development Consent Order [APP-029].
- 2.5.4 All the areas identified as being of high value for CHEG fungi are located outside of footprint of the Site Campus (also see WR-89-3). Horizon considers that there is potential, albeit in the long-term (20-30 years plus), for CHEG fungi to spread from these retained high value areas into suitable areas of grassland habitat that will be created across the WNDA.
- 2.5.5 In responses to NWWT's comments at paragraph 3.128, the category 'species-rich grassland - coarse sward' is a broad habitat description, the detail and objective of which is addressed in detail in paragraph 6.5.8 of the Landscape and Habitat Management Strategy [APP-424 and APP-425]. This details the structure and species composition objectives of the habitat, and the biodiversity value it will offer, providing foraging and refuge opportunities to important ecological receptors including bats, reptiles, great crested newt and a wide variety of other species. The use of the term 'coarse sward' was originally intended to distinguish it from the 'close sward' habitat type proposed elsewhere (primarily for foraging chough). To help avoid confusion going forward, the terminology has been updated in the revised Landscape and Habitat Management Strategy submitted at Deadline 2 (4 December 2018); it is now referred to as 'coarse sward / species-rich grassland'. Paragraph 6.5.8 has also been updated accordingly.
- 2.5.6 The updated Landscape and Habitat Management Strategy includes a revised design principle to provide 200ha of terrestrial habitats which will be managed primarily to maximise biodiversity value (instead of 160ha, as previously). This is due to the removal of the previous commitment to the creation of 40ha of 'sympathetically managed agricultural grassland' and reallocation of this 40ha amongst the other habitat types, including an extra 20ha of coarse sward / species rich grassland (to a total of 120ha) and an extra 5ha of close sward species-rich grassland (to a total of 25ha).
- 2.5.7 Regarding the close sward species-rich grassland, Horizon considers there to be high potential for creating suitable conditions for foraging chough via the implementation of appropriate grazing regimes which would facilitate establishment of the necessary invertebrate fauna.

2.6 Critique of sufficiency of information to inform the proposal

- 2.6.1 Horizon considers that the assessment detailed in Chapter D9 – Terrestrial and freshwater ecology of the Environmental Statement [APP-128], is robust and that the detail of the proposed works, information about ecological receptors, and detailed mitigation measures are sufficient to understand the potential for significant effects within the WNDA.

- 2.6.2 As noted above, NRW consider that, as long as the mitigation measures are secured in relevant control documents (see the Wylfa Newydd CoCP [APP-414] and the Main Power Station Site sub-CoCP [APP-415] as updated at Deadline 2 (4 December 2018), the effects of the Wylfa Newydd DCO Project are not likely to be detrimental to the maintenance of the favourable conservation status of the local bat population.
- 2.6.3 Horizon has committed to pre-construction surveys, including reptiles to inform a mitigation strategy, through the provisions of the Wylfa Newydd CoCP [APP-414] and the Main Power Station Site sub-CoCP [APP-415]. Revised drafts of these documents will be submitted at Deadline 4 (17 January 2019).
- 2.6.4 Recreational use of the Arfordir Mynydd y Wylfa - Trwyn Penrhyn Wildlife Site by workers residing in the Site Campus will be managed through the provisions of the Workforce Management Strategy [APP-413]. The design of the Site Campus will prevent direct access onto Wylfa Head from the Site Campus (the only access between the two would then be a 4.7km walk each way). Information on the site and the key species' sensitivities will be provided to workers. Horizon will also employ or provide the funding for a warden to monitor these sensitive areas. A revised version of the Workforce Management Strategy will be submitted at Deadline 4 (17 January 2019).
- 2.6.5 Reinstatement of the area affected by the Site Campus will be in line with the provisions of the Landscape and Habitat Management Strategy [APP-424 and APP-425], which has as one of its principal objectives to maximise the biodiversity value of all areas of Horizon's soft estate within the WNDA and provide, as a minimum, no net biodiversity loss. Management strategies will be produced for all habitats and designated areas across the site, which will include those created within the Site Campus location, and these will be secured through the provisions of the Landscape and Habitat Management Strategy. A revised draft of this document was submitted at Deadline 2 (4 December 2018).

2.7 SSSI compensation sites

- 2.7.1 It is acknowledged that more detailed soil and hydrology data are required to validate the conclusions of ES Volume D - WNDA Development App D9-23 - SSSI Compensation Strategy - Volume I [APP-190] and enable development of detailed compensation designs. To this end, Horizon has undertaken further soil surveys at Cors Gwawr and Cae Canol-dydd in January and August 2018, the results of which have been shared with NRW and will be submitted to the Examining Authority at Deadline 6 (19 February 2019). Horizon also commenced 12 months of hydrological and hydrogeological monitoring at these sites in September 2018. The scope of the hydrological and hydrogeological monitoring is defined (with some minor differences) in ES Volume D - WNDA Development App D9-24 - SSSI Compensation Strategy - Volume II [APP-191]. Four months of hydrological and hydrogeological monitoring data will have been collected by mid-January 2019. Horizon is planning to prepare an interim monitoring report at this stage, which will be available, alongside the soil survey reports, to refine the compensation proposals (including the topsoil stripping proposals) and inform the DCO examination. The interim hydrological monitoring report and refined

compensation proposals will be submitted to the Examining Authority at Deadline 6 (19 February 2019). Horizon will continue to liaise with NRW throughout the refinement of the compensation proposals during and beyond the DCO examination period as further monitoring data become available.

- 2.7.2 The refined compensation proposals will contain additional information on the adaptive management approach which will be employed to mitigate uncertainty regarding the feasibility of the proposed quantity and quality of rich-fen habitat creation. Together with the soil survey and hydrological/hydrogeological monitoring data (submitted at Deadline 6 (19 February 2019)), it is considered that the adaptive management approach will enable adequate assurance to be provided during the DCO examination period that sufficient compensation will be delivered and that adverse effects impacts on adjacent designated sites will be avoided.
- 2.7.3 Long-term management of the sites will be undertaken in accordance with Landscape Habitat and Management Schemes prepared in accordance with the principles set out in Section 7 of the Landscape and Habitat Management Strategy and secured via Requirement ECS3 of the Development Consent Order [APP-029].

2.8 Air quality

- 2.8.1 The emissions to air from marine vessels required to construct the Marine Off-loading Facility (MOLF) and other aspects of the Marine Works were assessed using a detailed dispersion modelling technique. This is described in appendix D5-2 [APP-141] of the Environmental Statement. The results set out in Chapter D5 – Air quality (excluding emissions from traffic) of the Environmental Statement [APP-124] clearly show that the year 2 scenario representing the period during the peak earthworks and Marine Works leads to the highest predicted changes in NO_x concentrations and nitrogen or acid deposition at nearby ecological receptors, including Cemlyn Bay SSSI / SAC. The year 5 scenario which represents the peak Power Station construction phase and use of the MOLF leads to much lower changes in NO_x concentrations and deposition rates at
- 2.8.2 It is acknowledged that a request for a non-material change regarding marine vessel movements [AS-013] was submitted after submission of the DCO application. This is in relation to the increase of peak daily maximum vessel movements to the MOLF once operational and therefore does not affect the AQ assessment in the DCO application during year 2 scenario. For the air quality assessment in year 5 scenario, modelling shows very small increases in carbon monoxide, particulate matter (PM₁₀ and PM_{2.5}), sulphur dioxide (SO₂) and nitrogen dioxide (NO₂) which would not result in any perceptible difference and assessments would remain below Air Quality Objectives and not significant. The proposed change would also not result in a perceptible increase in nitrogen deposition at ecological receptors.
- 2.8.3 In response to the consultation undertaken for the request for non- material change for marine vessel movements [AS-013] NRW and IACC agreed with Horizon on the findings that the change did not result in any new or different

likely significant environmental effects and confirmed that the change was non-material.

- 2.8.4 The assessment set out in Chapter D5 – Air quality (excluding emission from traffic) [APP-124] considers the emissions to air from all construction related activities at the Wylfa Newydd Development Area, including emissions from marine vessels and plant items for constructing the MOLF and other elements of the Marine Works. It also considers the emissions of marine vessels delivering materials to the Wylfa Newydd Development Area once the MOLF is operational. The approach and methodology for the modelling assessment, including determination of the existing NO_x concentrations and deposition rates and agreement of the critical levels and critical loads for ecological receptors, was discussed and agreed with Natural Resources Wales (NRW) during pre-application consultation. The assessment shows that the predicted NO_x concentrations and nitrogen deposition rates at Cemlyn Bay SSSI / SAC were well within the relevant critical levels / loads.
- 2.8.5 Horizon has committed to adopting the Tier III emission standards for relevant marine vessels associated with the Marine Works (i.e. during the period of highest NO_x emissions as represented by the Year 2 scenario) to reduce adverse effects at nearby human and ecological receptors. The commitment was included in an update to the Main Power Station Site sub-Code of Construction Practice (CoCP) submitted to the Examining Authority at Deadline 2 (4 December 2018). A report setting out the revised air quality assessment to reflect adoption of the Tier III emission standards and other mitigation measures associated with the terrestrial-based construction plant and machinery will be submitted to the Examining Authority at Deadline 3 (18 December 2018).
- 2.8.6 The cutter suction dredger, and all other marine sources, were included in the dispersion modelling which formed the basis of the air quality assessment as described in appendix D5-2 [APP-141]. The fuel for all marine vessels was assumed to have a sulphur content of 1.5% which is a worst-case approach for the assessment presented in Chapter D5 – Air quality (excluding emissions from traffic) of the Environmental Statement [APP-124] as the global fuel sulphur limit reduces to 0.5% from 2020 onwards in areas outside of a sulphur emission control area (as set out in the MARPOL Annex VI fuel sulphur limits). All marine vessels will be required to use fuel with a maximum sulphur content of 0.5% during the construction of the Power Station.
- 2.8.7 The predicted increases in PM₁₀ concentrations due to emissions from the construction plant, machinery and marine vessels are negligible and concentrations remain representative of a rural area (see Chapter D5 – Air quality (excluding emissions from traffic) of the Environmental Statement [APP-124]). On this basis, the physiological health and reproductive fitness of birds is not expected to be affected.
- 2.8.8 A detailed and comprehensive air quality monitoring system will be put in place during the construction. This includes the following elements:
- Continuous real-time monitoring of NO_x/NO₂, total suspended particulates, PM₁₀ and PM_{2.5} at six locations (including dust deposition monitoring);

Use of stringent trigger values specified at levels well below the air quality objectives combined with thorough investigation and response mechanisms/actions when triggers are exceeded;

Close liaison and working with the stakeholders including the IACC and NRW, including provision of the monitoring data on a web-based environmental database to provide daily summaries and instant access to data;

Visual inspections, complaints recording, investigation and response processes; and

Regular reporting of air quality monitoring, complaints, responses and actions taken on site

2.9 Cooling water system

- 2.9.1 Horizon refers NWWT to paragraphs 13.6.541 to 13.6.602 of Chapter D13 – The marine environment of the Environment Statement [APP-132] which provides a detailed explanation and assessment of the direct effects of entrainment on marine organisms through the Cooling Water System (CWS) as well as indirect effects on higher tropic levels.
- 2.9.2 Horizon acknowledges that organisms small enough to pass through fine mesh screens will transit the entire CWS, during which time they would be vulnerable to mortality. Organisms in the CWS would be exposed to a range of stressors, including pressure and temperature differentials, mechanical effect and abrasion, hydraulic shear stress and biocide toxicity (chlorine and its derivatives). For the purposes of undertaking the assessment it has been assumed that all organisms entrained suffer 100% mortality (i.e. worst case) such that the extent of possible effects could be examined.
- 2.9.3 However, contrary to NWWT's WR, significant research has been undertaken on the effects of entrainment and this scientific evidence is presented and used within the assessments presented.
- 2.9.4 Survival rates through the CWS will vary and depend on the power station's operating regime, the time of year and the species present. Table D13-32 in Chapter D13 - The marine environment of the Environment Statement [APP-132] presents typical survival rates for planktonic organisms and shows for example shrimp could have survival rates up to 70% and lobster over 90%. Table D13-34 presents survival rates for fish larvae and presents survival rates for bass at between 54%-60%, and turbot between 15% and 30%.
- 2.9.5 In Horizon's assessment of effect upon ichthyoplankton (fish larvae) a total of 151 million fish larvae are predicted to be entrained annually. Whilst intuitively the potential loss of ichthyoplankton from entrainment seems high, it is important to consider annual entrainment estimates in the context of ichthyoplankton abundances within the source water body and the life characteristic of fish. With little or no parental care, fish eggs and larvae experience extremely high rates of natural mortality. For small, short lived species such as sprat and sand smelt, natural mortality following recruitment can reach 50% to 90%, whilst large, long lived fishes (e.g. bass) typically

experience lower natural mortality rates, i.e. 10% per year or less. To ensure population persistence, an individual fish will spawn thousands to millions of eggs each year on the basis that over its reproductive lifetime, only two offspring need to survive to adulthood to replace the parents within the population. Therefore, while estimates appear high, these values represent a small fraction of total ichthyoplankton abundance within the eastern Irish Sea.

- 2.9.6 To give an indication of the relevant value of ichthyoplankton to adult populations, extrapolated entrainment catches have been converted into Equivalent Adult Values (EAVs), an analysis technique which Horizon's consultants have led scientific research in.
- 2.9.7 Following EAV analysis it is predicted that the 151 million fish larvae entrained equates to between 81,000 and 110,000 adult equivalents. When compared against commercial fish landings and other quantifiable population data the predicted equivalent adult fish entrained annually through the Wylfa Newydd CWS would range between 0.0001% of the commercial stock for herring and 0.02% of the commercial stock for plaice (see table D13-35); representing a very small proportion of fish stocks. The effect of entrainment is therefore regarded as small and considered negligible.
- 2.9.8 In response to the mitigation proposals suggested by NWWT in section 7, on page 43, it should be noted that the cooling water abstraction and discharge have been designed and assessed in accordance with Best Available Techniques (BAT). The basis of assessment within Chapter D13 – The marine environment of the Environmental Statement [APP – 132] is on an abstraction volume of 126m³/s and temperature rise of 12°C (as worst case at Lowest Astronomical Tide (LAT)). At all other tidal states, the temperature rise, and discharge volume will be less.
- 2.9.9 In response to use of biocide; Horizon has provided a commitment within the Wylfa Newydd Code of Operational Practice [APP-421] to manage the biocide dosing regime in accordance with best practice. Detail included in this is the restriction of dosing to certain high-risk parts of the year (when water temperatures are above 10°C), and avoiding the intake fine mesh screen areas to minimise impacts to marine receptors.
- 2.9.10 In response to enhancement of other conservation sites; Horizon deem this impractical and unnecessary. Chapter D13 - The marine environment of the Environment Statement [APP-132] has undertaken a thorough assessment of the impact of the cooling water discharge on the water quality of the marine environment and concluded negligible effects from the following pathways:
- Thermal effects on marine water quality;
 - Thermal effects on dissolved oxygen;
 - Thermal effects on pH and on the ratio of ionised to unionised ammonia;
 - Total Residual Oxidant (TRO) on water quality; and
 - Chemical changes in discharge water.