HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project
Environmental Statement Addendum

PINS Reference Number: EN010007

19 February 2019

Revision 1.0
Examination Deadline 6

Regulation Number: 5(2)(a)

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Horizon Internal DCRM Number: WN0902-HZDCO-PAC-REP-00243

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Contents

List of Tables

List of Figures

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1 Executive Summary

1.1.1 This report is an Addendum to the Environmental Statement (the 'original Environmental Statement') submitted with the application for development consent for the Wylfa Newydd DCO Project in June 2018. The purpose of the Addendum is to capture and provide a record of the environmental assessment of the Wylfa Newydd DCO Project taking into account updated information on the development that has arisen since the application for development consent was made in June 2018.

1.1.2 This Addendum seeks to address the Planning Inspectorate Advice Note 15 'Drafting Development Consent Orders', which advises that, *"If during the course of an Examination 'environmental information' is provided which affects the findings in the ES then applicants should consider if this information should also form part of the certification of the ES since it may have been relied upon by the decision maker."*

1.1.3 The Addendum presents an assessment of updates to the application including plans, design principles and mitigation secured in control documents that have been submitted during the course of Examination. These are considered relevant updates in so far as these matters pertain to the contents of an 'Environmental Statement' under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.

1.1.4 It should be noted that the matters considered here are not new but report on how items submitted throughout the Examination affect the findings of the original ES. The updates include some minor modifications to embedded mitigation in plans and design principles that provide betterment and additional mitigation applied to environmental effects developed during engagement with Statutory Parties and Interested Parties.

1.1.5 Where additional information has been obtained since the original ES was prepared and submitted into Examination (e.g. new or updated baseline information) this is included in this Addendum along with an assessment of the implications on the outcomes of the EIA.

1.1.6 The updated information has been considered using the original EIA methodology. The effects reported here reflect the beneficial nature of the updates to design and mitigation. This Addendum provides a record of those updates and will be certified as part of the 'Environmental Statement' under Schedule 18 of the Draft DCO. The updates reported do not result in any new or greater significant residual adverse effects.

1.1.7 This version of the Environmental Statement Addendum is submitted at Deadline 6 (19 February 2019). It is expected that a subsequent submission will be made to take account of any further updates or relevant information arising prior to the close of Examination.

2 Introduction

2.1 Purpose

2.1.1 The purpose of this report is to capture and provide a record of the environmental assessment of the Wylfa Newydd DCO Project taking into account updated information submitted during the course of Examination.

2.1.2 During the Examination, Horizon has provided updated information in response to requests from the ExA during written questions and hearings, and in response to submissions from Statutory Parties and Interested Parties including Local Impact Reports and Written Representations.

2.1.3 For example, this has included updated plans and design principles and provision of updates to the 'control documents' where additional mitigation, or updates to embedded mitigation already proposed within the application, has been included.

2.1.4 Where additional baseline information or data has been submitted in to Examination, this is included in this Addendum along with an assessment of the implications on the outcomes of the Environmental Impact Assessment (EIA).

2.1.5 The reported updates have been reviewed by EIA specialists to consider whether they would lead to an update to the effects reported in the application. The updates considered are summarised in the site specific chapters of this report.

2.1.6 This version of the report has been submitted at Deadline 6 (19 February 2019) (as defined in the ExA's Rule 8 Letter) to allow consideration of matters arising from the First Written Questions, the Issue Specific Hearings in January and updates to control documents submitted at Deadline 5 (12 February 2019). Horizon proposes that a final version of this report will be submitted at Deadline 8 (25 March 2019). This would include consideration of any updated information arising from the Further Written Questions, the Issue Specific Hearings scheduled for March 2019 and any further requests for information made by the ExA prior to Deadline 8 (25 March 2019).

2.2 Status

2.2.1 The Environmental Statement (ES) is a certified document as set out in Schedule 18 of the draft Development Consent Order [WN0902-CLC-PAC-REP-00004]. At the close of Examination, the final ES to be certified following grant of the DCO would comprise the original ES (as referenced in Schedule 18) and this ES Addendum.

2.2.2 Where reports submitted during the course of examination update information contained in the original ES, these will be included for certification. However to avoid resubmitting existing information into Examination, these are not appended to this version. The documents identified at the time of writing this version of the ES Addendum are:

- Air Quality Mitigation Report [REP3-052]

- Addendum to 2018 Chough Baseline Report [REP3-046]
- Dalar Hir FCA Addendum [REP2-372] and blockage modelling [WN0902-HZDCO-PAC-REP-00204]
- Off-site Power Station Facilities - Building M3 Bat Survey Results [REP3-049]

2.2.3 This ES Addendum reflects the conclusions based on the updated information and provides an update where changes to the residual significant effects of the Wylfa Newydd DCO Project have arisen.

2.2.4 As this Addendum considers matters such as additional mitigation or betterment of embedded mitigation in the design, where updates occur, these are of a beneficial nature.

Consideration of Errata

2.2.5 Appendix A of this ES Addendum includes summary tables of errata (related to the ES only) identified during the course of the Examination. The errata in Appendix A do not alter the meaning of the documentation submitted but provide a record of clarifications.

2.3 Structure

2.3.1 This report utilises the broad structure of the ES submitted with the application for development consent. The chapters in this report provide an addendum to the corresponding ES volumes as outlined below.

- Chapter 4 – Project Wide (ES Volume C, APP-087 to APP-119)
- Chapter 5 – Wylfa Newydd Development Area (ES Volume D, APP-120 to APP-238)
- Chapter 6 – Off-site Power Station Facilities (ES Volume E, APP-239 to APP-265)
- Chapter 7 – Park and Ride (ES Volume F, APP-266 to APP-303)
- Chapter 8 – A5025 Off-line Highway Improvements (ES Volume G, APP-304 to APP-354)
- Chapter 9 – Logistics Centre (ES Volume H, APP-355 to APP-383)

2.3.2 ES Volumes A [APP-066 to APP-087], B [APP-055 to APP-065] and J [APP-398 to APP-400] are not specifically covered in their own chapter as part of this ES Addendum. In general, they cover matters that remain fixed such as methodology or items that represent an earlier phase of the assessment process such as baseline data or EIA Scoping.

2.3.3 In relation to Volume J, for reference to updates to the 'Schedule of Environmental Commitments', please refer to the Final Schedule of Mitigation to be submitted at Deadline 7 (14 March 2019). Any updates to the residual significant environmental effects included in Volume J are recorded in Chapters 4 to 10 outlined above.

3 Methodology

3.1 Introduction

3.1.1 This section outlines the methodology employed for the ES Addendum. The overarching and topic specific methodologies in ES Volume A and B remain unchanged and have been applied during the assessment of the updates identified in the following sections to ensure there is consistency between the ES and the ES Addendum.

3.2 Basis of assessment

3.2.1 The focus of this report is updated information that has been submitted during the course of Examination. However, not all of these updates are of relevance to the environmental assessments. The updates considered can be summarised as follows:

- Draft Development Consent Order including Schedule 1 (Authorised Development), Schedule 2 (Approved Plans) and Schedule 3 (Requirements);
- Updates to the control documents. For example, those that define the embedded, good practice and additional mitigation such as a measure in the Code of Construction Practice or sub-CoCPs or a design principle; and
- Additional information that has developed understanding e.g. updated baseline information that has been submitted during Examination, and through engagement with stakeholders.

3.2.2 This ES Addendum does not include consideration of matters that have been merely clarified during the Examination, such as updates to securing mechanisms for mitigation, additional approvals by a statutory body e.g. for a detailed design, or procedural matters for implementing mitigation. This is because such matters do not alter an assessment but provide further certainty on their implementation or procedures for this.

3.2.3 Similarly, where additional detail has been provided on an existing commitment to provide environmental monitoring, this would not alter the conclusions of the assessment. For example, where the number, location and type of air quality and noise monitors has been defined in the Code of Construction Practice documents.

3.2.4 The updates of relevance are summarised in tables in each of the site-specific chapters that follow or where they are part of an overarching document they are provided in Section 3.3 below. The text for any amended or additional mitigation measures has not been repeated in full but appropriate cross-reference provided to avoid unnecessary duplication. Similarly, any references are provided to the location of updated plans or design principles.

3.2.5 Additional topic information, such as development in baseline information or data, is reported under the ‘Additional Information’ sub-heading where required.

3.2.6 The updates have been considered by qualified EIA professionals familiar with the original assessment and, following the original methodology and/or applying appropriate professional judgement, a conclusion is drawn as to whether the updates amount to an alteration of the assessment and conclusions regarding residual significant effects.

3.2.7 Any updates to residual significant effects experienced by a receptor or receptor group are provided in table format and represent an addendum to the corresponding ES volume. Such updates generally provide betterment (e.g. where additional mitigation is applied) or otherwise remain within the envelope of effects identified.

3.2.8 A review of ES Volume I (Cumulative effects, [APP384-397]) has been undertaken following assessment of the updates reported in this Addendum. There has been no relevant update to this assessment that changes the conclusions which remain as reported in the original ES.

3.3 Updates to the application

Draft development consent order

3.3.2 The Draft DCO was submitted with the application for development consent in June 2018. A number of revisions have been submitted during the Examination with the latest at Deadline 6 (19 February 2019) [WN0902-CLC-PAC-REP-00004].

Schedule 1 and Schedule 2

3.3.3 Schedule 1 details the 'Authorised development' and Schedule 2 lists the 'Approved Plans' for which development consent has been sought. These were assessed as submitted in June 2018, as described in the EIA methodology in the original ES [Volume B, APP-066 to APP-087]. Updates to the description of the Works in Schedule 1 and plans in Schedule 2 are outlined in the applicable site chapter where they are of relevance to the basis of the assessment.

Schedule 3

3.3.4 Schedule 3 sets out a number of Requirements relating to the authorised development. These secure key mitigation and often provide for the submission of further detail following DCO grant at a defined time, in accordance with relevant plans and control documents, for approval by the Isle of Anglesey County Council (IACC), in consultation with the appropriate statutory bodies as appropriate e.g. Natural Resources Wales (NRW).

3.3.5 Updates to the Requirements have not resulted in any changes of relevance to the assessments in the ES but provide further certainty or clarity on delivery of mitigation, or otherwise outline the requirement for further detail to be provided post-DCO grant. The embedded, good practice or additional mitigation already considered in the assessment must be complied with in the development of further detail.

3.3.6 For example, the update to Schedule 3 of the Draft DCO of Project-wide requirement PW7 (Wylfa Newydd CoCP and Schemes) and related site specific schemes outlined in the requirements (e.g. WN1) and Schedule 21 serve the function described above. It is important to note that the schemes must be prepared in accordance with the principles of the Wylfa Newydd Code of Construction Practice [WN0902-JAC-PAC-REP-00007] and/or relevant sub-CoCPs which have already been taken account of in the assessment of environmental effects. These schemes are required to be submitted to the IACC (in consultation with others as identified) for approval prior to commencement of the Power Station Works to secure approval of details not available at the time of Examination.

3.3.7 The provision of these schemes in accordance with existing principles would not change the assessment of effects.

Control documents

3.3.8 The Schedule 3 requirements provide that the Wylfa Newydd DCO Project will be delivered in compliance with a number of control documents listed as follows. The latest version of the control documents on which this ES Addendum is based are referenced below:

- Code of Construction Practice [WN0902-JAC-PAC-REP-00007] and sub-CoCPs Rev 3.0
- Construction Method Statement Rev 2.0 [WN0902-HZDCO-PAC-REP-00232]
- Code of Operational Practice Rev 3.0 [WN0902-JAC-PAC-REP-00008]
- Design principles within the Design and Access Statement Volumes 1 to 3 [REP4-016 to REP4-018]
- Design principles within the Landscape and Habitat Management Strategy Rev 3.0 [WN0902-HZ-PAC-REP-00008]
- Workforce Management Strategy Rev 2.0 [WN0902-HZDCO-PAC-REP-00115]

3.3.9 The relevant updates to the control documents are summarised on a site by site basis. Where they are updates relevant to the topics in the project-wide effects assessment, they are detailed in Chapter 4. Assessment of these updates is reported in Chapters 4 to 10 of the ES Addendum.

Phasing Strategy

3.3.10 The updates to the Phasing Strategy [WN0902-HZDCO-PAC-REP-00114] sets triggers for the timing of key embedded mitigation measures that are part of the Wylfa Newydd DCO Project. The purpose of the update is to secure the implementation of this mitigation at an appropriate time to minimise the likely significant environmental effects of the DCO Project and does not have a resultant effect on the assessments.

Requests for Non-Material Change

3.3.11 Horizon has submitted requests for non-material change during the Examination as follows:

- Change Request 1 – Blasting Strategy (Deadline 1, AS-019)
- Change Request 2 – Marine Vessel Movement (Deadline 1, AS-020)
- Change Request 3 – Worker Shift Patterns (Deadline 4, REP4-011)
- Change Request 4 – HGV Movements (Deadline 4, REP4-013)
- Change Request 5 – Working Hours (Deadline 4, REP4-012)

3.3.12 Change Requests 1 and 2 have been accepted into the Examination, while Change Requests 3, 4 and 5 are still being considered by the ExA. This ES Addendum is submitted at Deadline 6 (19 February 2019) and, in consideration of the ongoing process, does not include any of the requests for change to avoid presenting an interim position which may lead to uncertainty.

3.3.13 It is intended that, where accepted and formally made part of the Authorised Development, the scope of these changes and related environmental assessments would require certification under Schedule 18 of the draft DCO.

3.3.14 Prior to their submission, each of the above changes have been reviewed and assessed and have not been found to result in any materially new or different likely environmental effects than those reported in the ES. Each of the change requests are accompanied by an environmental appraisal which provide and can be referred to for further detail.

Other updates

Section 106

3.3.15 The draft s.106 obligations have been discussed and developed with the IACC during the course of the Examination. This version of the ES Addendum is based on draft revised s.106 (as issued to IACC on 23 January 2019).

3.3.16 The draft s.106 includes items proposed and included as mitigation in the original ES but for which subsequent development of detail with IACC is ongoing. For example, the Community Impact Fund, Tourism Fund and Emergency Services funding are key items of mitigation for socio-economic effects. These have been developed (and in some cases renamed) in the draft s.106 but do not change the conclusions of the original ES where the mitigation has already been considered.

3.3.17 Further provisions in the draft s.106 have been developed in relation to a range of environmental topics. Where these are of significance to the assessment of environmental effects at a site level (e.g. providing additional mitigation), these are outlined in the site chapters that follow.

Local Noise Mitigation Strategy (LNMS)

3.3.18 Following feedback during the Statement of Common Ground process with the North Anglesey Councils Partnership and Isle of Anglesey County Council, Horizon has revised the eligibility criteria so that a greater number of buildings will qualify for noise insulation measures.

3.3.19 The reduced threshold levels for construction noise are based on the onset of a medium magnitude of change (which results in a major adverse effect at high sensitivity receptors) under the adopted magnitude scale for long-term construction plant and machinery noise set out in ES Chapter D6 – Noise and Vibration [APP-125].

3.3.20 Major adverse road traffic noise effects are reported in chapter C5 [APP-092], and therefore Horizon consider it appropriate to also reduce the qualification criteria for traffic noise levels. Therefore, the LNMS road traffic acoustic criteria have been reduced to 63 dB $L_{A10,18hrs}$ during the daytime. This is 5 dB lower than the original threshold included in the Wylfa Newydd CoCP [APP-414] which was based on the Noise Insulation Regulations 1975 as amended.

3.3.21 In the Wylfa Newydd CoCP [APP-414], Figure 8-1 LNMS WNDA Construction Boundary Plan shows all properties that are automatically eligible for the LNMS regardless of noise modelling results. Horizon recognises the importance of Figure 8-1 of the Wylfa Newydd CoCP in demonstrating to stakeholders which properties are automatically eligible for the LNMS, so has updated this figure in line with the change in acoustic criteria and the predicted extent of eligibility. This revised figure is included in the Wylfa Newydd CoCP [WN0902-JAC-PAC-REP-00007].

3.3.22 Horizon has also decided to offer additional measures as part of the LNMS, beyond those included in Section 8.3 of the Wylfa Newydd CoCP (Revision 2.0), as submitted at Deadline 2 (4 December 2018) [REP2-031] where there would be a clear benefit in reducing noise arising as a consequence of the Wylfa Newydd DCO Project. These new measures will include:

- Noise attenuating fences
- Re-glazing of conservatories

3.3.23 These additional measures will be made available on a case-by-case basis only and would be subject to a survey. Further information on the updated LNMS can be found in the Local Noise Mitigation Companion Guide [REP3-051] submitted at Deadline 3 (18 December 2018).

3.3.24 It is noted that the revisions described above are of a beneficial nature, however, the Environmental Statement Chapter D6 Noise and vibration [APP-125] methodology does not rely upon the measures in the LNMS to reduce the residual effects at noise sensitive receptors and no change to the effects are reported here.

4 Project-wide effects assessment

4.1 Introduction

4.1.1 Tables 4-1 and 4-2 outline the updates that have occurred at a project-wide level since the application for development consent that are of relevance to the ES Volume C [APP-087 to APP-119]. A review of these updates has been undertaken by EIA specialists across all topics assessed in the original ES and the following sections provide an update to those assessments.

4.1.2 It has been concluded that the updates are not applicable to the assessment for the following topics, Traffic on Public Access and Recreation; Traffic on Air Quality; Traffic on Noise and Vibration; Waste and Materials and Combined Topic Effects.

4.2 Socio-economic effects

Table 4-1 Updates relevant to the assessment of socio-economic effects

Section Reference	Relevant updates arising since submission
Draft s.106 [WN0902-HZDCO-PAC-REP-00093]	
s.106 – Schedule 3 – Tourism	The Visitor Centre is now defined and a commitment to providing it is secured through the draft s.106 agreement (as issued to IACC on 23 January 2019). "Visitor Centre" means the permanent visitor centre associated with the Wylfa Newydd DCO Project to be located in the vicinity of the Wylfa Newydd Development Area which will include: main exhibition space including room for an audio-visual element; a Café with food preparation facilities; a multipurpose stakeholder room; education facilities; visitor centre staff facilities/offices and small meeting room; an outside play area; restrooms; and car parking. The draft s.106 (as issued to IACC on 23 January 2019) provides detail on how this commitment will be secured. This is an updated commitment to provide a Visitor Centre and detail on what will be included developed since the application.

Relevant updates

4.2.1 Additional information is now available on the implementation of a permanent Visitor Centre. A commitment to providing the Visitor Centre is now included in the draft s.106 which requires Horizon to apply for planning permission (within three months of DCO Project implementation) and, subject to certain permissions detailed in the draft s.106, implement a permanent Visitor Centre (with a target for opening of two years following grant of planning permission).

Revised assessments

4.2.2 The Visitor Centre is now defined and a commitment to providing it is secured through the draft s.106 agreement. The additional information available on the facilities to be provided in the Visitor Centre, and the commitment to a defined timeline for construction has a beneficial effect on the socio-economic assessment, especially in relation to tourism. However, the new information is not of sufficient scale to affect the significance of residual effects within the assessment. Therefore, the significance of residual effects remains as presented in chapter C1 [APP-088].

4.3 Traffic and transport effects

Table 4-2 Updates relevant to the assessment of traffic and transport effects

Section Reference	Relevant updates arising since submission
Draft DCO [WN0902-CLC-PAC-REP-00004]	
Work No. 1L and Requirement WN16 – Operational Parking	Amendment to car parking space provision from a maximum of 700 permanent spaces to 500 permanent spaces and 200 temporary spaces in the Power Station Site southern car park.
Work No. 1N and Requirement WN16 – Operational Parking	Amendment to car parking space provision from 200 permanent spaces and 650 overspill spaces to 800 temporary spaces in the Power Station Site northern car park.
Requirement WN16 – Operational Parking	Clarification that the 200 spaces at the simulator and training car park are permanent.
Requirement PR5 - Operational car and cycle parking	Amendment to confirm that the 1,900 parking spaces provided are for cars but exclude spaces for minibuses or motorcycles.
Wylfa Newydd Code of Construction Practice [WN0902-JAC-PAC-REP-00007]	
Section 5.6	Construction vehicle routes (if appropriate), including construction workers sticking to 'A' class roads, and subsequently avoiding 'B' class roads, 'C' class roads, and unclassified roads, wherever practicable (to avoid causing unnecessary nuisance and disturbance to local communities).
Section 5.8	Before the opening of the A5025 Off-Line Highway Improvement Works, Horizon commit to limiting the number of HGV deliveries so as not to exceed a maximum of 22 HGV deliveries (44 movements) per

Section Reference	Relevant updates arising since submission
	hour, 160 HGV deliveries (320 movements) per day, and 2,500 HGV deliveries (5,000 movements) each way (location: A5025 at Valley) per month.
Section 5.10	Commitment to manage, monitor and regulate the availability of car parking spaces to reflect the number of workers on the Project.
Plans, Sections and Drawings 2.11 – Park and Ride	
WN0902-HZDCO-ADV-DRG-00041-00043 Rev 3.0	Design levels for the car park and spine road have been raised to at least 16.45m AOD requiring additional material deliveries to the site.

Revised assessments

4.3.2 Revisions to Requirement WN16 and PR5 provide alignment of the information on parking provision contained in the Draft DCO with that assessed in the Transport Assessment. Changes to the Wylfa Newydd Code of Construction Practice [WN0902-JAC-PAC-REP-00007] reflect updates to commitments consistent with the existing Integrated Traffic and Transport Strategy [APP-107] assessed in chapter C2 of the original ES.

4.3.3 The updates listed in Table 4-2 provide consistency between a number of DCO documents but are not drivers of travel demand. Travel demand for construction workers is determined by the number of workers in each assessment year, the times at which they travel, and the way that they travel (mode share). These have not changed, which means that total traffic does not change and the assessment parameters for traffic effects remain unchanged.

4.3.4 Because there are no changes to the assessment parameters for Traffic and Transport effects there is no change to significant residual effects in chapter C2 of the original ES.

4.3.5 The updates to the level of the Park and Ride Facility at Dalar Hir require additional material to be delivered to the site by construction vehicles. These additional construction vehicles have the potential to affect traffic flows on the road network used to access the Park and Ride Facility at Dalar Hir. However, as shown below, the number of additional construction vehicles is relatively low and the traffic impacts are within those already assessed in the DCO application.

4.3.6 The additional material is assumed to be delivered to the Park and Ride Facility within the first 12 months of the construction programme of the Wylfa Newydd DCO Project. Approximately 9,600 cubic metres of material is expected to be required and this is to be delivered by construction vehicles, with 20 cubic metres of material delivered in each load. This means that 480 construction deliveries of material are required in total over 12 months.

4.3.7 This in turn means that 40 deliveries are required each month and with approximately 22 working days per month this means that approximately two deliveries are required each working day.

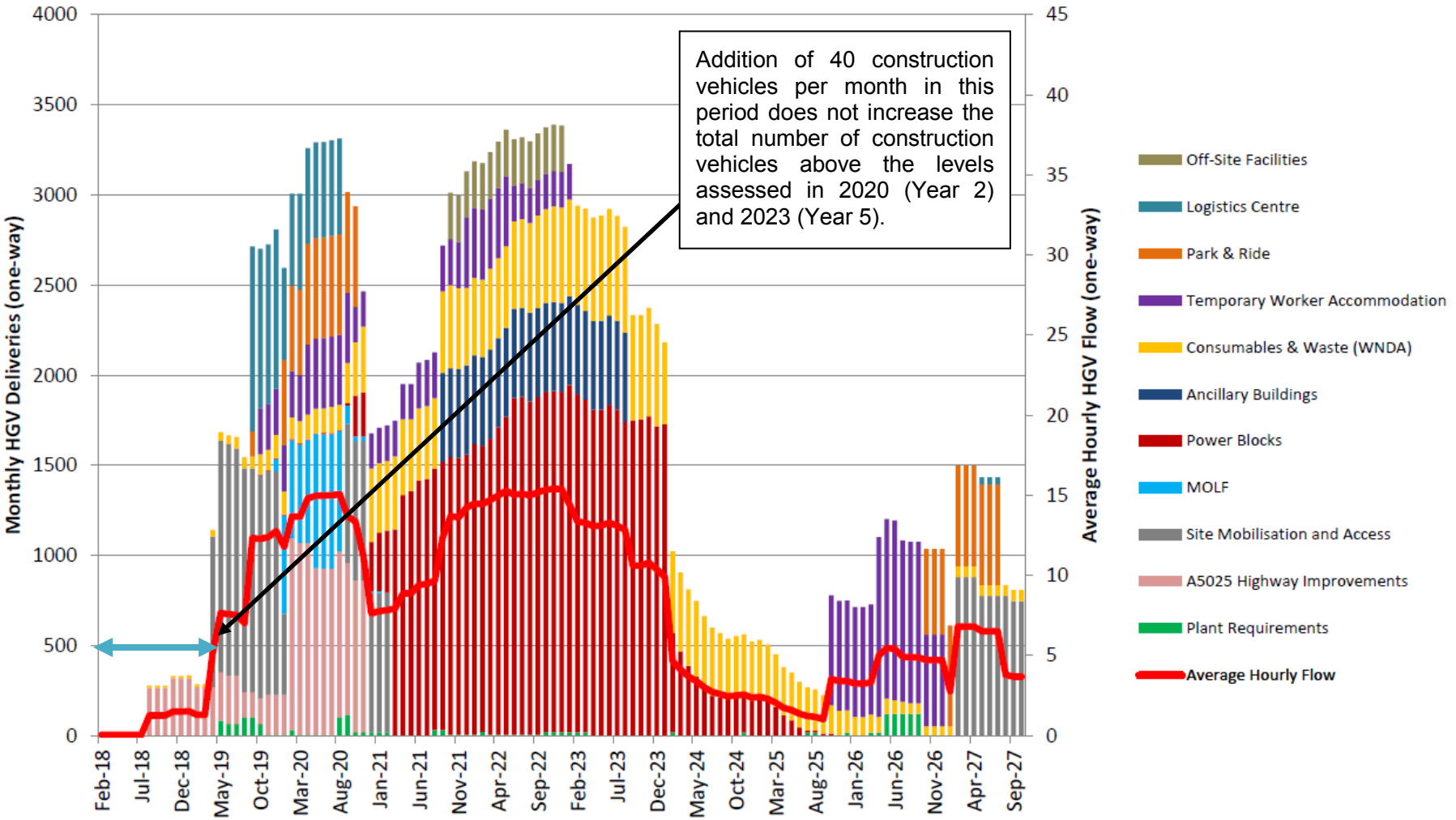
4.3.8 These deliveries would be expected to travel to the Park and Ride Facility via the A55 and Junction 4 of the A55 as per the controls provided in the Wylfa Newydd Code of Construction Practice.

4.3.9 Figure 7-2 of the DCO TA Appendix F Integrated Traffic and Transport Strategy [APP-107] shows the profile of HGV movements along the A55 during the duration of the Wylfa Newydd DCO Project. This figure is repeated overleaf as Figure 4-1 for ease of reference.

4.3.10 The figure has been annotated to show the period when the additional deliveries to the Park and Ride Facility are to be made. The figure shows that adding a further 40 deliveries per month during the first year of the construction programme would mean that the total number of construction vehicle deliveries using the A55 would still be considerably less than the total number of construction vehicle deliveries already assessed as part of the DCO Transport Assessment [APP-101] in 2020 (Year 2 - early-years) and 2023 (Year 5 - peak construction year). This means that the potential traffic impacts of the additional deliveries of top soil to the Park and Ride Facility are less than the assessed traffic impacts presented in chapter 11 of the DCO Transport Assessment [APP-101]. This includes traffic impacts on the operation of the A55 (and the Britannia Bridge) and the operation of Junction 4 of the A55.

This analysis shows that the inclusion of the additional construction vehicle movements associated with the delivery of top soil to the Park and Ride Facility does not change the conclusions presented in the DCO Transport Assessment [APP-101] or in chapter C2 Traffic and Transport [APP-089] of the Environmental Statement for the Wylfa Newydd DCO Project and no further mitigation or restrictions are required.

Figure 4-1 Monthly HGV deliveries on A55 (annotation of Figure 7-2 from [APP-107])



5 Wylfa Newydd Development Area

5.1 Introduction

Site-specific updates

5.1.2 Table 5-1 outlines the updates that have occurred in relation to the Wylfa Newydd Development Area since the application for development consent that are of relevance to the ES. A review of these updates has been undertaken by EIA specialists across all topics assessed in the original ES and the following sections provide an update to those assessments. It has been concluded that the updates are not applicable to the assessment for the following topics, Soils and Geology; Socio-economics; Radiological Effects; Shipping and Navigation and Combined Topic Effects.

5.1.3 Where necessary, additional information of relevance to the assessment is discussed in the topic specific sections of this chapter.

Table 5-1 Updates at the Wylfa Newydd Development Area

Section Reference	Relevant updates arising since submission	Relevant topics
Draft DCO [WN0902-CLC-PAC-REP-00004]		
Schedule 3, Requirement WN1	Measures to mitigate the effects on heritage assets will be secured through inclusion in an Archaeological Mitigation Scheme which has been made a requirement of the DCO. See also Main Site sub-CoCP, Section 12.1 in this table.	Cultural Heritage
Plans, Sections and Drawings 2.6.1 Wylfa Newydd Development Area and Power Station Site Plans		
WN0902-HZDCO-LFM-DRG-00005 Rev 2.0	Amendments to the illustrative 'Reference Point 5 – Operation' plan which has been amended to reflect the changes to reinstatement in the form of increased biodiverse habitat provision including wildlife ponds as provided for in the updated LHMS design principles (see LHMS section below).	Terrestrial and Freshwater Ecology Landscape and Visual Cultural Heritage
Main Power Station Site Sub- CoCP [WN0902-JAC-PAC-REP-00019]		
Section 4.2	Main power island laydown area, behind Mound B, will allow for remote switching of lighting in zones within the laydown area	Landscape and Visual Cultural Heritage

Section Reference	Relevant updates arising since submission	Relevant topics
	when access is required to a specific zone during darkness Variable lighting levels for the Wylfa Newydd Development Area car park (during construction) will be applied. These are new commitments that were not included in the original sub-CoCP.	
Section 7.5	90% of Non-road Mobile Machinery to meet EU stage IV emissions (EC Directive (97/68/EC), 10% of NRMM to meet stage IIIB emissions. Relevant marine vessels undertaking marine works to comply with International Maritime Organisation (IMO) MARPOL Annex VI Tier III NOx emissions standards. This proportion of plant of higher standards was not quantified in the original sub-CoCP. NRMM were assumed to comply with the Stage IIIB EU NRMM emission standards (EC Directive 97/68/EC) in the original ES.	Air quality Terrestrial and Freshwater Ecology Cultural Heritage
Section 10.4	Appropriate groundwater monitoring will be undertaken to determine if there is an effect on Tre'r Gof SSSI. If this monitoring identifies an effect on the qualifying groundwater dependent terrestrial ecosystems, further additional mitigation could include: • Controlling water loss from the site to avoid drying and oxidation of the peat body • Construction methods to reduce groundwater ingress to cooling water	Surface Water and Groundwater

Section Reference	Relevant updates arising since submission	Relevant topics
	tunnel e.g. grouting of major inflow fractures • Groundwater recharge Monitoring and mitigation will be integrated with wider adaptive water management within the Tre'r Gof catchment. This is a new commitment that was not included in the original sub-CoCP.	
Section 12.1	Measures to mitigate the effects on heritage assets will be secured through inclusion in an Archaeological Mitigation Scheme which will be made a requirement of the DCO. The Archaeological Mitigation Scheme will include a Written Scheme of Investigation and will be submitted to and approved by IACC, in consultation with Cadw, prior to the commencement of the Power Station Works. This is an update to the commitments in the original sub-CoCP. See also related item under Draft DCO in this table.	Cultural Heritage
Table 12-1	Level 4 historic building survey for Felin Gafnan Corn Mill (Grade II* Listed Building, Asset 137), Mill House at Felin Gafnan (Grade II* Listed Building, Asset 144), Corn-drying House at Felin Gafnan (Grade II Listed Building, Asset 141). This is a new commitment that was not included in the original sub-CoCP.	Cultural Heritage
Marine Works Sub- CoCP [WN0902-JAC-PAC-REP-00020]		
Section 11.2	Further proposals have been detailed for around the shoreline protection and restoration of the intertidal zone which will be	Marine Environment

Section Reference	Relevant updates arising since submission	Relevant topics
	implemented following removal of the temporary causeway. This includes: - aim to return topography of the substrate including gradient and structural heterogeneity - replacement of 15 rockpools	
Section 11.3	Ecological enhancement of marine works including: - 90 precast vertical rockpools will be installed at various heights on the MOLF wall (initial installations will be immediately following construction of the MOLF, with final installations occurring at the end of Main Construction); - Areas of rock armour (including the leeward face of the western breakwater, and any rock revetment) will be seeded with natural rock won from the site, where practicable (alternatively, imported material akin to natural rock will be used); - 10 x pre-cast rockpools installed in rock armour on western breakwater; - Ecological enhancement of 16m3 precast concrete units on the breakwaters, to include textured surfaces; - Retaining surface roughness within the dredged area to promote recolonisation; - Seeding or transplanting marine kelp in subtidal areas; - Ecological monitoring programme and adaptive management as required	Marine Environment Landscape and Visual Cultural Heritage

Section Reference	Relevant updates arising since submission	Relevant topics
	This expands on and provides additional commitments that were not included in the original sub-CoCP.	
Section 11.5	Coastal geomorphology monitoring programme and adaptive management approach. Horizon will agree details with NRW through the marine licence but the monitoring programme will include: - Annual topographic surveys during the construction phase of the Wylfa Newydd DCO Project to monitor the topography of Esgair Gemlyn. Relevant data collected through the construction phase will be used to inform future monitoring and management. This is a new commitment that was not included in the original sub-CoCP.	Marine Environment
Construction Method Statement (CMS) [WN0902-HZDCO-PAC-REP-00232]		
Section 4.1	The cooling water tunnels will be lined post-construction within the Tre'r Gof catchment such that there will be no ingress or loss of water from the tunnel. This is a new commitment that was not included in the original CMS.	Surface Water and Groundwater
Landscape and Habitat Management Strategy (LHMS) [WN0902-HZ-PAC-REP-00008]		
Section 4.1 and 5.4	Design principle requiring detailed drainage design to ensure there is no increase in flow from the WNDA to Cemaes Stream. This would include consideration of increased infiltration, minimising catchment area increase from landform changes, reducing flow	Surface Water and Groundwater Landscape and Visual

Section Reference	Relevant updates arising since submission	Relevant topics
	path slopes and further attenuation if necessary. This is a new design principle that was not included in the original LHMS.	
Section 6.5	Increase in provision of biodiverse habitat areas during reinstatement where previously agricultural land use was proposed. This totals approximately 40ha and includes increases in coarse-sward species-rich grassland, close-sward species-rich grassland, marshy wet grassland and fen, and woodland trees and scrub. Nine wildlife ponds will also be provided. This is a change from the provision of sympathetically agricultural grassland included in the original LHMS.	Landscape and Visual Cultural Heritage Terrestrial and Freshwater Ecology
Section 4.1	During construction, the outer face of the landscape mound opposite Tregele shall be no steeper than 1:2, except for a short section (approximately 100 metres in length) to the west and south of Tregele Services where the slope will need to be steeper to facilitate utility routing. The steeper mound slope will also be designed to facilitate native planting, including shrubs and small trees. This is an update to the original LHMS principles.	Landscape and Visual Cultural Heritage
Draft Section 106 [WN0902-HZDCO-PAC-REP-00093]		
Schedule 3, Section 6	The Visitor Centre is now defined and a commitment to providing it is secured through the draft s.106 agreement.	Public Rights of Way Cultural Heritage

Section Reference	Relevant updates arising since submission	Relevant topics
	"Visitor Centre" means the permanent visitor centre associated with the Wylfa Newydd DCO Project to be located in the vicinity of the Wylfa Newydd Development Area which will include: main exhibition space including room for an audio-visual element; a Café with food preparation facilities; a multipurpose stakeholder room; education facilities; visitor centre staff facilities/offices and small meeting room; an outside play area; restrooms; and car parking. The draft s.106 (as issued to IACC on 23 January 2019) provides detail on how this commitment will be secured. This is an updated commitment to provide a Visitor Centre and detail on what will be included developed since the application.	

Ecological Compensation Sites

5.1.4 The proposal for the three Ecological Compensation Sites are set out in ES Volume D - WNDA Development App D9-24 - SSSI Compensation Strategy – Vol II document, a revised version of which has been submitted into Examination at Deadline 6 (19 February 2019). Since submission of the application for development consent, soil surveys and the collection of hydrological data at the Cors Gwawr and Cae Canol-dydd sites have taken place, the hydrological monitoring work being part of a minimum 12 month programme. The scope of these surveys have been designed in discussion with NRW, the data being used to refine the overall scheme designs to maximise the extent of rich-fen habitat creation possible at these two sites.

5.1.5 The third site, Ty Du, is distinct as rich-fen creation is not proposed there; instead the existing mire habitats present will be managed to increase their quality. No additional information is therefore provided on Ty Du other than that presented in the application for development consent.

5.1.6 Discussions with NRW over the preliminary findings of the soil and hydrological monitoring information concluded that the data collected to date provides positive evidence that the two compensation sites can be managed to develop the target habitat (rich-fen), although the amount of habitat creation possible is still uncertain.

5.1.7 The objective of ongoing hydrological monitoring work is to gather data to inform and give confidence in the compensation proposal, to refine the understanding of the site and to develop the detailed design of the proposal. Given the complexity of natural wetland ecosystems there will be residual uncertainty in the design outcome. Habitat creation and enhancement works would therefore integrate a phased approach within the adaptive management of construction works. Within a given phase of habitat creation or enhancement works, multiple methods aimed to establish target hydroecological regimes or vegetation could be employed.

5.1.8 In the first instance, works would aim to create habitat through minimal intervention techniques, such as removal of field drains. More intensive methods such as topsoil stripping would be used where there is strong evidence from the hydrological monitoring that a minimalist approach would not achieve the target conditions.

5.1.9 The response of vegetation, water tables or other relevant factors to the works would be assessed against targets to identify the most successful approaches. This trial and refinement approach will allow lessons learnt to be carried forward to later phases to maximise the success of the habitat creation works.

5.1.10 The SSSI Compensation Strategy – Vol II document has been updated to take account of the initial data collection and interpretation, and discussions over a phased habitat creation approach. This is included as Appendix D9-24-A to this ES Addendum, and comprises:

- Updated SSSI Compensation Strategy – Vol II report
- Further soil investigation reports for the two sites
- Hydrological monitoring reports for the two sites

5.1.11 Whilst it is anticipated that the information collected to date, and the refined phased approach to habitat creation, will allow works to be undertaken with minimal effect on the local environment, it is not yet possible to draw any revised conclusions relating to this. The assessment of effects from these works presented in ES Volume D - WNDA Development App D1-2 - Ecological Compensation Sites: Assessment of Environmental Effects [APP-137] therefore remains unchanged and presents a likely worst case scenario.

5.1.12 Following grant of the DCO, Schedule 3 Requirements ECS4 and ECS2 would allow further refinement of details following further hydrological data collection.

5.2 Public access and recreation

Relevant updates

5.2.1 The additional commitments in the draft s.106 Agreement which relate to the provision of the Visitor Centre are of relevance to the assessment of effects on Public Access and Recreation.

5.2.2 Horizon's target of opening the Visitor Centre within two years of grant of permission (for the Visitor Centre) would mean that the Visitor Centre and

associated facilities would be available to the public both during construction and operational phases of the Power Station.

5.2.3 It is intended the Visitor Centre would be accessible either directly from the Wales Coast Path (WCP) or from other sections of the public right of way network.

5.2.4 The proposed route of the Wales Coast Path during operation has also been amended in consultation with IACC, this update is shown on the updated Rights of Way Plans submitted at Deadline 5 (12 February 2019) (Wylfa Newydd Development Area - Rights of Way For Operation - SHEET 3 (WN0902-HZDCO-ROW-DRG-00026)).

Revised assessments

5.2.5 The provision of the Visitor Centre would provide additional mitigation with benefits to walkers and improvements to the recreational amenity of the route. However, due to the remaining impacts and resultant effects from the DCO Project on the Wales Coast Path during construction and operation the residual effects would remain unchanged.

5.2.6 The assessment of effects on on-shore recreation during construction and operation would also remain unchanged. However, the provision of the Visitor Centre, which would potentially be linked to the cycle link spur along the A5025 from the Copper Trail (NCN Route 566), would improve the recreational amenity of that cycle route as toilet and café facilities would be available.

5.2.7 The effect of the updated route for the Wales Coast Path in operation is to reduce the length of the diversion by approximately 1km. However, due to the overall increase in distance, even with this amended route, the effect would remain major adverse.

5.3 Air quality

Relevant updates

5.3.1 The improvements in non-road mobile machinery (NRMM) plant emissions standards and reduced NOx emissions from marine vessels/plant as summarised in Table 5-1 are relevant to the assessment of air quality effects.

Additional topic information

5.3.2 An assessment was undertaken of the potential air quality effects of emissions from construction plant, machinery and marine vessels with the additional mitigation described above in place. This considered the effects of the additional mitigation at human and ecological receptors (including Cestyll garden, a cultural heritage receptor) and was reported in the Air Quality Mitigation Quantification Report submitted to the ExA at Deadline 3 (18 December 2018) [REP3-052]. The assessment was undertaken for the same two construction scenarios used for the original assessment reported in chapter D5 of the Environmental Statement [APP-124] (i.e. year 2 peak earthworks and Marine Works and year 5 peak construction).

Revised assessments

5.3.3 With the measure of using newer NRMM in place, the predicted concentrations of NOx and NO_2 and nitrogen and acid deposition rates at human receptors are considerably lower than those presented in section 5.5 of chapter D5 [APP-124] of the original ES.

5.3.4 The assessment set out in the Air Quality Mitigation Quantification Report [REP3-052] confirmed that the residual effects reported in section 5.7 of chapter D5 [APP-124] with regard to NO_2 concentrations at human receptors are not significant with the additional mitigation in place.

5.3.5 The revised assessments for Terrestrial and Freshwater Ecology and Cultural Heritage are reported in this Addendum in Sections 5.5 and 5.7 respectively.

5.4 Surface water and groundwater

Surface Water

Relevant updates

5.4.1 The revised Landscape and Habitat Management Strategy [WN0902-HZ-PAC-REP-00008] now includes a construction phase design principle requiring the drainage system to be designed to ensure that there is no increase in flow from the WNDA to Cemaes Stream.

5.4.2 This requirement was discussed and agreed in principle at a meeting with Natural Resources Wales on 14th September 2018 as an outcome that was indicative of no impact on flood risk to receptors on Cemaes Stream.

Additional Information

5.4.3 The above is further reinforced by information submitted in response to actions set in an Issue Specific Hearing on 11th January 2019, which confirms that there will be no increase in flow from the WNDA to Cemaes Stream, and also to the Afon Cafnan and to the Nant Cemlyn (Horizon's Deadline 6 Responses to Actions set in Issue Specific Hearing on 7 - 11 January 2019 (Appendix 1-6 WNDA Site Drainage and Flood Risk in the Afon Cafnan, Cemaes Stream and Nant Cemlyn)).

Revised assessments

5.4.4 The updates above result in a beneficial change to the assessment. ES Volume D - WNDA Development D8 - Surface water and groundwater [APP-127] and the ES Volume D - WNDA Development App D8-4 - Flood Consequence Assessment (Part 1 of 8) [APP-150] both identified that the drainage design presented in ES Volume D - WNDA Development App D8-8 - Summary of preliminary design for construction surface water drainage [APP-167] would be developed at the detailed design stage to avoid any increase in flood risk.

5.4.5 Horizon's Deadline 6 Responses to Actions set in Issue Specific Hearing on 7 - 11 January 2019 (Appendix 1-6 WNDA Site Drainage and Flood Risk in the Afon Cafnan, Cemaes Stream and Nant Cemlyn) demonstrates that the current preliminary drainage design presented in Appendix D8-8 [APP-167] will result in no increase in flow to Cemaes Stream, Afon Cafnan and Nant Cemlyn, and indeed under many scenarios there will be a small reduction in runoff rates. Consequently, the conclusions of the assessment presented in Chapter D8 will change from a magnitude of Small to Medium (Adverse) to one of Negligible to Small (Beneficial) and the residual effect following implementation of the preliminary drainage strategy would be negligible to minor beneficial during construction and operation. This is reflected in Table 5-2.

5.4.6 The addition of this important principle secures this mitigation to ensure there is no significant effect. As a result, the summary of residual effects presented in D8 [APP-127] does not change as there is already a conclusion of a negligible magnitude of change and a negligible significance of effect.

Groundwater

Additional topic information

5.4.7 The conceptual model understanding of groundwater behaviour in the Tre'r Gof catchment has been broadened since the application for development consent. This is based on further groundwater monitoring undertaken and results in alignment of the interpretation with Natural Resources Wales and takes uncertainty in interpretation into account. These matters have been discussed with NRW during meetings including those for the Statement of Common Ground and are reflected in the updated SoCG submitted at Deadline 6 [WN0902-HZDCO-PAC-REP-00008] .

5.4.8 The original findings were presented in Groundwater Baseline Report (ES Volume D, Appendix D8-3 [APP-147 to 149]) and the Tre'r Gof Hydroecological assessment (ES Volume D, Appendix D8-5 [APP-158]). These appendices have been updated with two change logs that are Appendix D8-3-A and D8-5-A of this Addendum.

5.4.9 The conceptual model revision confirms that deeper seated bedrock aquifers and superficial aquifers form a continuous groundwater body. This is reflected in a revised set of groundwater contours, Figure 6.1 and 6.2, presented in Appendix D8-3-A to this Addendum.

5.4.10 The conceptual model revision acknowledges that even though the flow of deeper-seated groundwater emerging at or near to Tre'r Gof SSSI is only a very small component of the water balance, this may be important to the functioning of groundwater dependent terrestrial ecosystems (GWDTE) at Tre'r Gof SSSI.

Revised assessments

5.4.11 Following the revisions to the conceptual model described above, a full change log is presented in Appendix D8-A to this Addendum for ES Volume

D, WNDA Development - D8 - Surface Water and Groundwater [APP-127]. The following summarises the revisions to the assessment:

- Clarification that the groundwater model assessed the effect of dewatering of the deep excavation and not dewatering of the cooling water tunnels;
- Review of the influence of construction dewatering activities associated with deep excavations and the cooling water tunnels in view of the broadened interpretation and limitations of the groundwater model;
- Details embedded mitigation for the cooling water tunnels which will be lined post construction as secured in the Construction Method Statement [WN0902-HZDCO-PAC-REP-00232] and reflected in Table 5-1; and
- Details additional mitigation secured within the revised Main Power Station Site sub-CoCP Section 10.4 [WN0902-JAC-PAC-REP-00019] and reflected in Table 5-1.

5.4.12 The potential effect on groundwater levels and flows in the vicinity of Tre'r Gof SSSI from construction dewatering of the main excavation and the cooling water tunnels would change from minor (as reported in 8.5.53 to 8.5.56 of D8) to moderate adverse prior to the application of the mitigation referenced above and in Table 5-1. With the updated and secured embedded and additional mitigation, the revised residual assessment would be minor adverse. This has been reflected in Table 5-2. This does not have an effect on the conclusions of the Terrestrial and Freshwater Ecology assessment ES Volume D [APP-128]

5.5 Terrestrial and freshwater ecology

Relevant updates

5.5.1 The Landscape and Habitat Management Strategy [WN0902-HZ-PAC-REP-00008] provisions have been updated such that upon reinstatement there will be an increase of approximately 40ha of land managed with the principal objective of maximising its biodiversity value which was originally proposed for agricultural grassland. In addition, there is provision of nine wildlife ponds. Further detail is provided in Table 5-1 and also Figure 6-19 and Figure 6-21 to 6-23 of the updated LHMS and Fig 6-13 and 6-14 for the wildlife ponds.

5.5.2 The improvements in NRMM plant emissions standards and reduced NOx emissions from marine vessels/plant as summarised in Table 5-1 are relevant to the assessment of air quality effects on ecological receptors.

Additional topic information

5.5.3 Horizon undertook additional chough survey work during 2018 and has begun habitat management on Wylfa Head as mitigation reported in chapter D9 of the original ES [APP-128]. The surveys show an increased use of Wylfa Head

and a decrease in use of the area where the Site Campus would be located by choughs.

5.5.4 The survey results and assessment of change in use of Wylfa Head and the area of the Site Campus since the start of the habitat management on Wylfa Head is provided in the Addendum to 2018 Chough Baseline Report [REP3-046].

5.5.5 Following field surveys, factual ecological reports were produced for the three SSSI compensation sites: Cae Canol-dydd; Cors Gwawr; and, Ty du. These reports form Appendix D1-2-A, and supplement the baseline information available for each site, as presented in the Ecological Compensation Sites: Assessment of Environmental Effects [APP-137].

Revised assessments

5.5.6 The provision of an additional nine ponds, which will be managed for biodiversity throughout the operational life of the power station, is an additional beneficial detail for the embedded mitigation measure of reinstatement, but is not of a scale that would change the level of significance for residual effects on ecological receptors. There would therefore be no change to the residual significant effects assessed in chapter D9 of the original ES.

5.5.7 The increase in provision of 40ha of habitat managed with the principal objective of maximising biodiversity value adds to the magnitude of this mitigation measure. It is considered that the provision of this additional mitigation will result in a net gain in biodiversity within the WNDA in the long-term, compared to the existing predominantly agricultural landscape of the WNDA. This strengthens the conclusion presented in paragraph 9.7.20 of chapter D9 [APP-128] that the provisions of the LHMS have the potential to result in net biodiversity gain which would preserve and possibly enhance the conservation status of ecological receptors present.

5.5.8 There would therefore be no change to the residual significant effects assessed in chapter D9 of the original ES.

5.5.9 The survey results from the chough survey in 2018 demonstrates that the area of the Site Campus is not of significant importance to foraging chough and that the ongoing mitigation proposed to mitigate loss of chough habitat (enhanced habitat management of Wylfa Head for the benefit of foraging chough) is beginning to be successful. Combined, these findings add additional detail to the assessment in the original ES on the effects of habitat loss and evidence to confirm the effectiveness of proposed mitigation. However, as some habitat within the core foraging area will still be lost and success of the mitigation was assumed in the assessment, the new information does not change the level of significance for residual effects on chough. There would therefore be no change to the residual significant effects assessed in chapter D9 of the original ES.

5.5.10 The assessment of air quality effects at ecological receptors with the additional mitigation in place is described in Air Quality Mitigation Quantification Report [REP3-052]. The report concluded that the overall effect on Tre'r Gof SSSI

from changes in air quality would be minor adverse and therefore not significant. However, the combined effect to Tre'r Gof SSSI from changes to air quality and hydrology remains major adverse. For Cae Gwyn SSSI, the air quality and overall combined effect with changes to hydrological conditions is minor adverse, which is not significant. The overall assessment of air quality effects on Arfordir Mynydd y Wylfa - Trwyn Penrhyn (Wylfa Head) Wildlife Site and associated fungi remains minor adverse and air quality effects to lichens were also concluded to be minor adverse, and not significant.

5.5.11 All other ecological receptors previously taken forward for further consideration in chapter D9 [APP-128] due to changes in air quality were screened out from requiring further consideration (i.e. air quality changes at Cemlyn Bay SSSI / SAC, and ancient woodland were now below the criteria and air quality changes were considered to be negligible).

5.5.12 The assessment of effects on ecological receptors presented Ecological Compensation Sites: Assessment of Environmental Effects [APP-137] concludes that, with the implementation of embedded and good practice mitigation measures, there would be no residual minor, moderate or major adverse effects as a result of the proposals.

5.5.13 The factual ecological reports presented in Appendix D1-2-A provide additional detail on the baseline for receptors identified in APP-137 but do not add new receptors into this assessment. It is considered that the embedded and good practice mitigation presented remains appropriate and robust and the conclusions regarding residual effects provided within APP-137 remain as presented.

5.6 Landscape and visual

Relevant updates

5.6.1 The relevant updates listed in Table 5-1 that are applicable to landscape and visual issues comprise:

- updates to section 4.2 of the Main Power Station Site Sub-CoCP [WN0902-JAC-PAC-REP-00019];
- updates to section 11.2 of the Marine Works Sub-CoCP [WN0902-JAC-PAC-REP-00020]; and
- updates to sections 4.1, 5.4 and 6.5 of the Landscape and Habitat Management Strategy [WN0902-HZ-PAC-REP-00008].

Additional topic information

Supplementary community views assessment

5.6.2 The assessment of community views is presented in chapter D10 of the original ES [APP-129]. Whilst that assessment is considered adequate to understand the likely significant effects on local communities, a supplementary community views assessment is presented in Appendix D10-A of this ES

Addendum to aid the Isle of Anglesey County Councils (IACC's) understanding of the visual effects on the communities in Cemaes and Tregele, following requests made by the IACC in submissions to the ExA and at a meeting held between Horizon and the IACC on 17 October 2018.

5.6.3 The supplementary community views assessment is supported by an addendum to visual effects schedule in the original ES (Appendix D10-7 [APP-198]), providing a detailed assessment of supplementary representative viewpoints, supplementary photomontage views (which represent an addendum to Appendix D10-8 [APP-199]) and revised figure D10-16 [APP-237] showing the location of supplementary representative viewpoints and photomontages.

5.6.4 The supplementary community viewpoints assessment confirms the findings of the assessment of visual effects on the communities in Cemaes and Tregele presented in chapter D10 of the original ES [APP-129]. The visual effects identified at all of the supplementary representative community viewpoints are either within the existing range of effects identified for these communities or of a lower significance of effect than what is reported in chapter D10 of the ES [APP-129].

Revised assessments

5.6.5 The use of remote switching to manage lighting for the laydown area behind Mound B and the Wylfa Newydd Development Area car park during construction is consistent with the additional mitigation measure for construction lighting set out in table D10-40 of chapter D10 of the ES [APP-129]. Whilst this measure provides a more specific commitment to mitigate visual night-time effects for some receptors, including the community in Tregele, there would be no change to the significance of the residual night-time visual effects assessed in chapter D10 of the ES during construction.

5.6.6 The ecological mitigation measures set out in section 11.2 of the Marine Works Sub-CoCP [WN0902-JAC-PAC-REP-00020], including the textured surfaces of precast concrete units, installation of precast rockpools and use of natural rock won from the site to provide rock armour, is consistent with the additional mitigation measures for structures within the marine environment listed in table D10-40 and D10-41 of chapter D10 of the original ES [APP-129], which states that the selection of appropriate materials would *"seek to integrate new structures within the marine environment."* These measures would therefore contribute to integration of the structures within the natural seascape at Porth-y-pistyll, particularly once the surfaces become colonised by intertidal vegetation but would not change the significance of residual landscape and visual effects assessed in chapter D10 of the original ES when considered in the wider context of the WNDA development [APP-129].

5.6.7 The detailed drainage design would be completed following grant of the DCO. However, it is likely that the potential requirement for additional surface water attenuation could be achieved by either increasing the depth of the sedimentation pond that is already proposed or by a slight increase in its area and would not therefore change the significance of the residual landscape and

visual effects assessed in chapter D10 of the original ES [APP-129] during construction or operation.

5.6.8 The increase in proposed biodiverse habitat areas for landscape reinstatement, including coarse sward species rich grassland, is considered in keeping with the generally pastoral character of the local landscape. This is because it is proposed that landscape restoration areas within the Wylfa Newydd Development Area would still primarily be grazed as described in the overarching landscape design principles, with the exception of the protected ecological areas and woodland, as shown in Figure 6-18 of Part 1 of the Landscape and Habitat Management Strategy [WN0902-HZ-PAC-REP-00008].

5.6.9 The addition of nine wildlife ponds in accordance with the illustrative design in the updated Landscape and Habitat Management Strategy (Rev 2.0) [REP2-039], would result in relatively inconspicuous landscape features in keeping with characteristic wetland and marshy habitats of the locality, for example, those at Tre'r Gof SSSI and Cae Gwyn SSSI. As such, there would be no change to the significance of the residual landscape and visual effects assessed in chapter D10 of the original ES [APP-129].

5.6.10 Slopes steeper than 1:2 on the outer face of the landscape mound adjoining the A5025 (Mound B) would be limited to no more than 100m in length, to the west and south of Tregele Services. The mound slope would be designed to facilitate native shrub and small tree planting. The design of the slope will incorporate measures to facilitate planting and given the location of the steeper part of the mound slope, it will be partially concealed behind Tregele Services in views from the A5025 and from Tregele. The potential reduction in effectiveness of planting mitigation during construction is not expected to change the significance of residual effects assessed in chapter D10 of the original ES [APP-129] during construction for any landscape or visual receptors, due to the 'worst case' scenario assessed.

5.6.11 By year 15 of operation, the overall screening and softening of Power Station views would not be noticeably reduced, despite the growth of planting trees on the steeper part of the mound slope being potentially less vigorous than elsewhere, since by year 15 the substantial area of woodland planting on the final landscape mound behind the outer face would have established. As such, there would be no change to the significance of residual effects assessed in chapter D10 of the original ES [APP-129] for any landscape or visual receptors during operation.

5.7 Cultural heritage

Relevant updates

5.7.1 The relevant updates listed in Table 5-1 that are applicable to Cultural Heritage are:

- updates to section 4.2, 7.5, 9.5 and 12.1 of the Main Power Station Site Sub-CoCP [WN0902-JAC-PAC-REP-00019];

- updates to Reference Point 5 in Plans, Sections and Drawings 2.6.1
- updates to section 11.2 of the Marine Works Sub-CoCP [WN0902-JAC-PAC-REP-00020]; and
- updates to sections 4.1, 5.4 and 6.5 of the Landscape and Habitat Management Strategy [WN0902-HZ-PAC-REP-00008].
- updates to Schedule 3 of the draft s.106 [WN0902-HZDCO-PAC-REP-00093]

Revised assessments

5.7.2 After undertaking the measures to mitigate the effects on heritage assets, included in a Archaeological Mitigation Scheme (which is secured in the Draft DCO (WN1) and detailed in the Main Power Station Site Sub-CoCP, Section 12, there would be no change in the significance of any residual effects presented in chapter D11 (Cultural heritage) [APP-130] and appendix D11-6 [APP-213].

5.7.3 As identified in paragraph 11.4.12 of chapter D11 [APP-130], embedded mitigation for cultural heritage included the provision of landscape mounding and woodland planting would to help soften views of the Power Station and to help integrate the Power Station into the landscape. The assessment of effects presented in chapter D11 was based on Reference Point 5 – Operation drawing Rev 1 in Landscape and Habitat Mitigation Strategy [APP-424 and APP-245], which showed a higher proportion of more Sympathetically Managed Agricultural Grassland than is now proposed (see Table 5-1 for more information on this update). It is however not considered that increasing the proportion of habitats proposed from that presented in the ES would significantly affect the integration of the Power Station into the landscape, and therefore no changes to the significance of residual effects on the setting of cultural heritage assets from those predicted in chapter D11 and appendix D11-6 are predicted.

5.7.4 The use of remote switching of lighting in zones within the laydown area when access is required to a specific zone during darkness would not reduce the effect of lighting on the setting of cultural heritage assets as reported in chapter D-11 and appendix D11-6. No change in the significance of residual effects as assessed in chapter D-11 and appendix D11-6 is therefore predicted.

5.7.5 An assessment of the potential effects resulting from an increase in the deposition of NOx, and increased nitrogen deposition and acid deposition on Cestyll Garden, a Grade II Registered Historic Park and Garden, were assessed in chapter D11. The assessment identified that:

- due to construction lasting a relatively short period of time in the lifespan of woody species and the ability of the soil to buffer against acidification from increased nitrogen deposition the effects of changes in air quality on woody species are likely to be limited;

- even with the potential for soil acidification, the pH is likely to remain within a healthy range for species such as rhododendrons and azaleas; and
- there is some potential for other plant species present within the valley garden plants to be affected due to changes in air quality, in particular an increase in the deposition of NOx, increased nitrogen deposition and acid deposition.

5.7.6 As identified in the Air Quality Mitigation Quantification Report [REP3-052], with the improvement in plant emissions standards, the predicted annual mean and maximum 24-hour mean NOx concentrations and annual mean SO2 concentrations at Cestyll Garden are below the criteria for requiring further consideration in the terrestrial and freshwater ecology assessment (see chapter B5 Air quality [APP-070] for more detail of these criteria). On this basis, effects due to increases in NOx concentrations are concluded to be negligible, and not significant for Cestyll Garden.

5.7.7 In addition, given the levels of nitrogen deposition and acid deposition now predicted, the potential for significant effects to plant species from nitrogen deposition and acid deposition is considered to be extremely limited. However, as a precaution, the mitigation measure identified in paragraph 11.6.16 of chapter D11 of consulting with the landowner of Cestyll Garden to implement appropriate monitoring of soil pH and a visual inspection of the condition of plants during the bulk earthworks of the construction period, would still be undertaken.

5.7.8 Due to other effects, including removal of the kitchen garden, removal of part of the Essential Setting, noise and visual intrusion during construction and decommissioning, and visual intrusion during operation, the significance of residual effect for Cestyll Garden would remain as predicted in chapter D11.

5.7.9 While the updated commitment to undertake Level 4 historic building survey for Felin Gafnan Corn Mill (Grade II* Listed Building, Asset 137), Mill House at Felin Gafnan (Grade II* Listed Building, Asset 144), Corn-drying House at Felin Gafnan (Grade II Listed Building, Asset 141) as identified in Main Power Station Site Sub-CoCP above would help offset the effects on these historic buildings, it would not reduce the significance of residual effects identified in chapter D11.

5.7.10 While the ecological enhancement of marine works as described in Marine Works Sub-CoCP, Section 11.2 in table 5-1 above would help to soften the views of the MOLF and the Western Breakwater from heritage assets including Cestyll Garden and Felin Gafnan Corn Mill (Grade II* Listed Building, Asset 137), a Grade II Registered Historic Park and Garden, the construction of these elements would still introduce noise and visual intrusion into the setting of these heritage assets during construction and their continued presence during operation and decommissioning would continue to affect their settings. As such this update would not reduce the significance of effect for heritage assets as described and predicted in chapter D11.

5.7.11 The update to the design principles requiring detailed drainage design to ensure there is no increase in flow from the WNDA to Cemaes Stream as described under Landscape and Habitat Management Strategy, Section 4.1 and 5.4 in table 5-1 above would not result in any changes to the significance of residual effects assessed in chapter D-11 and appendix D11-6.

5.7.12 As identified in paragraph 11.4.7 of chapter D11, embedded mitigation for cultural heritage included:

- the phased implementation of landscape mounding, seeding of pasture and woodland planting to include early creation of the outer slopes of the linear landscaped mound adjacent to Tregele, and landscape mounding on the edge of Cemaes, and
- the provision of landscape mounding and woodland planting would to help soften views of the Power Station and to help integrate the Power Station into the landscape.

5.7.13 Steepening of a short section of the outer face of this mound opposite Tregele as described in the Landscape and Habitat Management Strategy, Section 4.1 in table 5-1 above is not considered to reduce the effectiveness of this embedded mitigation and therefore would not change the significance of any residual effects presented in chapter D11.

5.7.14 While the Visitors Centre could provide the venue for exhibitions that would aid in the dissemination of the results of the archaeological and other recording identified as mitigation in chapter D11, it would not change any of the significance of residual effects presented in chapter D11 and appendix D11-6.

5.8 Coastal processes and coastal geomorphology

Relevant updates

5.8.1 Additional mitigation has been developed to support the assessments made on the potential effect of the Wylfa Newydd Development on Esgair Gemlyn. These updates are presented in Section 11.5 of the Marine Works sub-CoCP and summarised in Table 5-1.

Additional topic information

5.8.1 A technical note was entered into examination at Deadline 2 [REP2-007] which summarised additional work undertaken with respect to coastal processes since the submission of the Wylfa Newydd DCO and Marine Licence and to provide a response to comments raised by NRW through the informal advice received on the Marine Licence application. The content of the memo also provided supplementary information requested at the HRA meeting with NRW on the 27 September.

5.8.2 Additional information was entered into Examination at Deadline 5 in response to the Issue Specific Hearing on Biodiversity [WN0902-HZDCO-PAC-REP-

00192]. This provided additional information with respect to the effect of the cooling water discharge on coastal processes with relevant information summarised below.

Waves and shear stress

5.8.3 NRW raised specific concerns through the statement of common ground process and in their written representation [REP2-325] relating to the potential effects on Esgair Gemlyn from the Wylfa Newydd DCO Project.

5.8.4 The technical memo [WN0902-HZDCO-PAC-REP-00192] provided additional information relating to:

- the effect of the 99 percentile winter wave condition on the bed shear stress and its implications for the morphological functioning of Esgair Gemlyn;
- the effect of the cooling water discharge on coastal processes.

5.8.5 Additional work showed that whilst storms from the north-west give rise to a reflected wave condition within Cemlyn Bay, these waves (and their reflected components near to the ebb tidal delta) would result in a small increase in wave height (<20cm) and bed shear stress in a very localised area (the western fringes) under worst case conditions. While small increases occur at certain worst case conditions during a 99%ile winter storm decreases on baseline conditions occur in other areas of Cemlyn Bay. The degree of changes are not sufficient to modify the sediment transport regime to any significant degree in comparison to energetic events arising from waves, and shear stress generated from winds from a northerly sector. In this respect, it is the northerly storms that are considered to govern the largest scale morphological adjustments within the Bay and along the Esgair Gemlyn ridge, and not lower energy events.

Tidal vectors

5.8.6 Modelling was examined to look at the effect of the CW flow on the tidal vectors in the vicinity of the outfall as well as the wider environment. The magnitude of the change in the predicted flow field for the case with the development and the 99%ile winter wave can be seen in Figure 5-1 and 5-2, and also presented in WN0902-HZDCO-PAC-REP-00192. In these figures the flow conditions with the CW flow are shown in red and without the CW flow in blue.

5.8.7 Figure 5-1 shows the plotted the depth averaged mid flood velocity on a spring tide. There is a small increase in velocity near the outfall with the CW flow included. There are also some differences north of Cemlyn Bay in the wave induced flow towards the southern end of the breakwater. In general, the differences on the flood tide are fairly localised and the inclusion of the CW flow doesn't change the overall pattern of the tidal flow with the development in place and a 99%ile winter wave.

5.8.8 Figure 5-2 shows the mid ebb spring tide 99%ile winter wave developed case. The influence of the CW discharge on an ebb tide (with a 99%ile winter wave)

can be seen in a change in predicted current direction around the outfall and in a line west from the outfall past the north of the western breakwater. There is some change to the detail of the predicted flow pattern in Cemlyn Bay but not to the overall picture of a counter clockwise flow. The inclusion of the CW flow does not change the overall pattern of the counter rotating flows in Cemaes Bay.

Figure 5-1 Effect of CW flow on tidal vectors during spring tide mid-flood with 99%ile winter wave

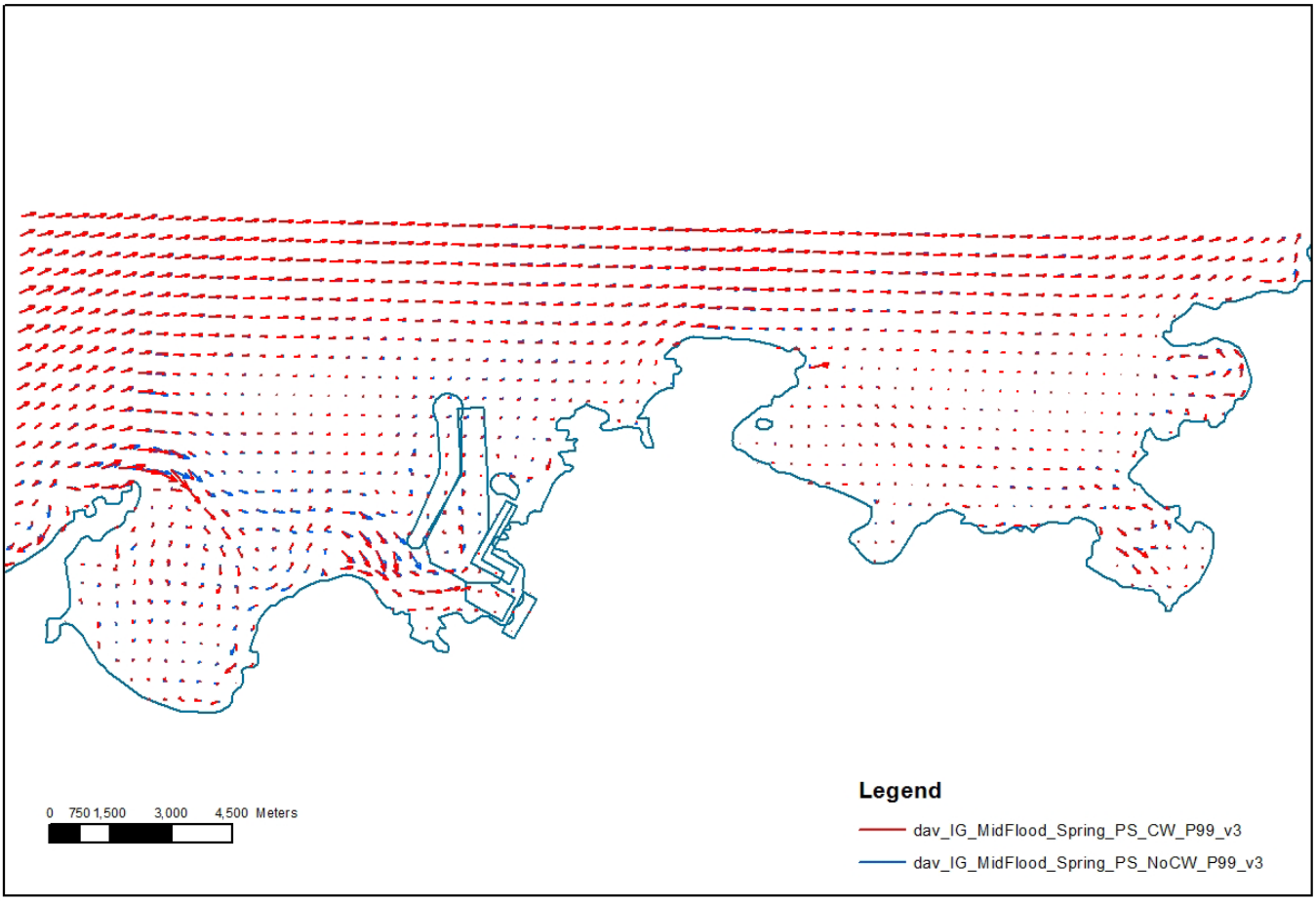
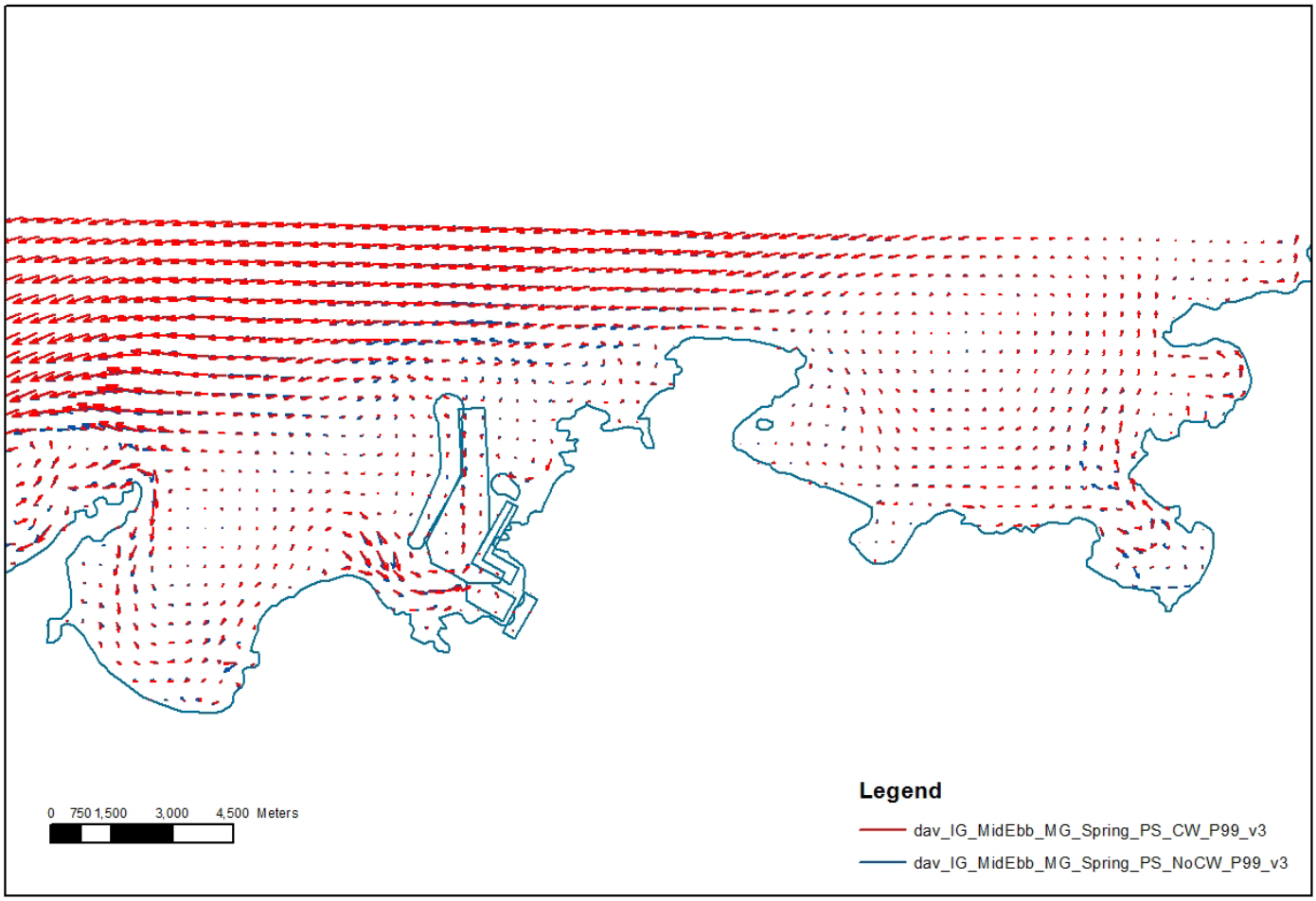


Figure 5-2 Effect of CW flow on tidal vectors during spring tide mid-ebb with 99%ile winter wave



Additional mitigation

5.8.9 To validate the modelling and assessment work undertaken to predict the no effect of coastal processes on Esgair Gemlyn Horizon will implement a coastal geomorphology monitoring programme and adopt an adaptive management approach. The principles for which will be secured in the Marine Works sub-CoCP [WN0902-JAC-PAC-REP-00020] and further details agreed with NRW through the Marine Licence. The monitoring programme will consist of:

- Annual ground topographic surveys during the construction phase of the Wylfa Newydd DCO Project. Surveys would monitor the topography of Esgair Gemlyn and consist of a terrestrial laser scanner or aerial LIDAR surveys.
- The relevant data collected during the construction phase (i.e. data from the surveys described above but also wider water quality data as part of construction water discharge Environmental Permit licence conditions) will be used to inform a future coastal geomorphology monitoring programme and management approach.

Revised assessments

5.8.10 In light of the above information there are no changes to the conclusions presented in chapter D12 [APP-131], (and also the Shadow HRA [APP-050 / 051]) with respect to the potential effects of coastal processes on Esgair Gemlyn in that there are no significant differences from baseline conditions. Based on the additional modelling scenarios undertaken and reported above, it can be concluded that the 98th and 99th percentile wave conditions are comparable worst cases in terms of the effect on bed shear stress and potential to affect coastal processes. The evidence presented together with the conceptual understanding of the potential changes to Cemlyn Bay and Esgair Gemlyn led to the conclusion that coastal processes within the Bay and the dynamic equilibrium of the ridge would be unlikely to change due to the presence of the western breakwater. Erosion and/or scour of the ridge would be unlikely given that sediment supply would not be expected to change and any variations in ebb and flood flows would likely be small.

5.8.11 It is apparent from the figures presented regarding tidal vectors that any changes to the flow field are localised and are not large enough to change the overall patterns within the Anglesey North waterbody, nor The Skerries waterbody. The natural gyres seen within Cemaes Bay and Cemlyn Bay are unaffected by the CW discharge.

5.9 Marine environment

Relevant updates

5.9.1 During the Examination process and statement of common ground, two key areas of concern were raised by NRW and the eNGOs. These included the following elements:

- The effectiveness of marine mitigation for the loss of benthic habitats; and
- The cumulative effect of land drainage and dredging on the marine environment.

In response to this, the additional mitigation has been developed further to provide assurance in the assessments made. These updates are presented in Sections 11.2 and 11.3 of the Marine Works sub-CoCP and summarised in Table 5-1.

Additional topic information

Ecological enhancement

5.9.2 In response to concerns around marine mitigation for habitat loss, Horizon have considered the views raised by NRW through the SOCG and Examination process.

5.9.3 Horizon has submitted a detailed report at Deadline 4 [REP4-023] outlining the additional information that has been requested by NRW through SOCG meetings to expand upon the details submitted in the SOCG with NRW at

Deadline 2 [REP2-049]. This new report expands on the engineering options appraisal undertaken to determine the ecological enhancement measures that are viable and can be considered as part of the Wylfa Newydd DCO Project to mitigate loss of marine habitats and species.

5.9.4 The report also details the mitigation proposed to address the impact of the Marine Works footprint that includes the implementation of shoreline protection and restoration of the intertidal zone following removal of the temporary causeway and habitat enhancement.

Effects on benthic habitats

5.9.5 The assessment of direct habitat loss shows that 23.5ha of subtidal (i.e. coastal bed) and 7.6ha of intertidal invertebrate habitat would be lost under the footprint of the Marine Works (which includes the cooling water discharge infrastructure) in the Wylfa Newydd Development Area (including both permanent and temporary structures). Based on a worst-case TRO discharge (as set out in Chapter D13 [APP-132] paragraph 13.6.747 onwards of the original ES) it is estimated that an additional area of 5.6ha could be affected by the cooling water discharge. It is important to recognise that this effect does not result in a loss of 5.6 ha, instead this represents a mixing zone extent where the EQS of TRO is exceeded in the water column.

5.9.6 Within the calculations in paragraph 5.9.5,

- 27ha of the Skerries waterbody subtidal area (representing 0.6% of total area) would be affected cumulatively by the Wylfa Newydd DCO Project. Potential Cooling Water operational effects to intertidal areas within The Skerries waterbody are expected to be highly localised, being limited to less than 200m to the west of the Cooling Water outfall. Consequently, there is a limited cumulative impact to invertebrates found intertidally.
- 4.1ha of the Anglesey North waterbody, the majority of which would occur subtidally, (representing 0.03% of the total area) would be affected cumulatively by the Wylfa Newydd DCO Project.

5.9.7 It is not anticipated that all invertebrates within the total area of The Skerries and Anglesey North waterbodies potentially affected by the Wylfa Newydd DCO Project would be at risk of deterioration. Outfall surveys at the Existing Power Station have shown that acute effects such as reduced species diversity and abundance, as well as the loss of key characterising species would only likely occur within a couple of hundred metres of the outfall. Beyond 300m, no significant differences in the subtidal communities were observed during Cooling Water outfall surveys of the Existing Power Station (appendix Chapter D13-5 Subtidal Dive Surveys at the Cooling Water Outfall for the Existing Power Station), [APP-223]. Although the Wylfa Newydd Power Station will discharge Cooling Water at a greater rate, the Cooling Water outfall has been designed to direct the plume away from the seabed thereby reducing effects to benthic invertebrates further.

5.9.8 As set out in section 13.6 of Chapter D13-5 Subtidal Dive Surveys at the Cooling Water Outfall for the Existing Power Station [APP-223], Horizon

considers that most benthic invertebrate species would not experience lethal effects from TRO at the highest concentrations (i.e. 0.1mg/L) modelled close to the outfall. In addition, Horizon considers there to be no impact to invertebrate species from additional chemical changes associated with Cooling Water and other construction or operational water discharges (e.g. metal concentrations, dissolved oxygen, pH and ratio of ionised to unionised ammonia).

5.9.9 Therefore, while deterioration of habitat and sessile invertebrate species is likely to occur under the footprint of the Marine Works and within the immediate vicinity of the Cooling Water outfall (i.e. a couple of hundred metres), significant deterioration is not anticipated outside this area. Furthermore, mobile benthic invertebrates would be able to move away from areas of disturbance or unfavourable conditions, and so while habitat may be lost, fatalities may not occur. Subtidal and intertidal habitats along the north Anglesey coastline are not considered to be a limited resource for marine invertebrates known to be present within the area potentially affected.

5.9.10 Based on the worst-case assessment outlined above, the proportion of The Skerries waterbody potentially at risk of deterioration for marine invertebrates does not exceed 5% of its surface area, nor does it cover a contiguous surface area which exceeds 0.5km^2. This conclusion remains valid when intertidal and subtidal areas are considered in combination and isolation.

Revised assessments

5.9.11 The updates above do not result in changes to the assessments made within ES Volume D - WNDA Development D13 - Marine environment [APP-132] because the mitigation for ecological enhancement had already been considered within the assessment. In addition, the cumulative effect on benthic habitats does not require more mitigation than that already presented.

5.10 Residual effects summary

5.10.1 Table 5-2 presents a summary of where residual effects have been updated compared to Volume F of the original ES.

Table 5-2 Summary of residual effects for the Wylfa Newydd Development Area

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Surface water and groundwater								
Tre'r Gof SSSI	High	Reduction of flow of groundwater at seeps and flushes due to dewatering.	Potentially affecting water availability and water quality maintaining groundwater dependent ecosystems in Tre'r Gof SSSI	Moderate	Moderate adverse	Monitoring to identify any changes, controlling water loss from the site via the underground culvert to avoid the drying and oxidation of the peat body, construction methodologies to reduce groundwater ingress to the Cooling water tunnels, recharging groundwater in areas	Minor	Minor adverse

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
						potentially affected by dewatering during the construction period, adaptive water management mitigation within the Tre'r Gof catchment with a Hydrological Clerk of Works to oversee.		
Residential properties (Cemaes Catchment, Afon Cafnan Catchment and Nant Cemlyn Catchment including Cemlyn Road)	High	Reduction in flood depth	Beneficial Local Long-term	Negligible to Small	Negligible to Minor beneficial	None required	Negligible to Small	Negligible to Minor beneficial

6 Off-Site Power Station Facilities

6.1 Introduction

Site-specific updates

6.1.2 Table 6-1 outlines the updates that have occurred at the Off-Site Power Station Facilities since the application for development consent that are of relevance to the ES. A review of these updates has been undertaken by EIA specialists across all topics assessed in the original ES and the following sections provide an update to those assessments.

6.1.3 It has been concluded that the updates are not applicable to the assessment for the following topics, Socio-economics; Public Access and Recreation; Air Quality; Noise and Vibration; Soils and Geology; Surface Water and Groundwater and Combined Topic Effects.

6.1.4 Specialists have investigated the changes to lighting presented in respect of Landscape and Visual and Cultural Heritage assessments, and it has been concluded there are no resulting changes to the ES.

Table 6-1 Updates at the Off-Site Power Station Facilities

Section Reference	Relevant updates arising since submission	Relevant topics
Code of Operational Practice [WN0902-JAC-PAC-REP-00008]		
Section 4.3	Off-site Power Station Facilities will have three lighting levels: • Everyday lighting to allow staff to enter and exit work to the required British Lighting standards. • Evening security lighting for after working hours to comply with security lighting standards; and • emergency lighting levels to allow safe access to heavy machinery and equipment.	Landscape and Visual Cultural Heritage

6.2 Terrestrial and freshwater ecology

Additional topic information

6.2.1 Horizon has updated the preliminary roost assessments of trees and buildings for bats carried out in 2016 as reported in chapter F9 of the ES [APP-274]. Further surveys have been carried out of building M3, returning no records of bats using the building as a roost.

6.2.2 The emergence/re-entry survey of building M3 in 2018 is presented in Off-site Power Station Facilities - Building M3 Bat Survey Results [REP3-049].

Revised assessments

6.2.3 The additional survey information provides further evidence of the lack of bat roosts that could potentially be affected. The information is not considered to reduce the level of significance for residual effects on bats. There would therefore be no change to the residual significant effects assessed in chapter F9 of the ES.

7 Park and Ride

7.1 Introduction

Site-specific updates

7.1.2 Table 7-1 outlines the updates that have occurred at the Park and Ride since the application for development consent that are of relevance to the ES. A review of these updates has been undertaken by EIA specialists across all topics assessed in the original ES and the following sections provide an update to those assessments. It has been concluded that the updates are not applicable to the assessment for the following topics, Socio-economics; Public Access and Recreation; Air Quality; Noise and Vibration; Soils and Geology; Terrestrial and Freshwater Ecology and Combined Topic Effects.

Table 7-1 Updates at the Park and Ride

Section Reference	Relevant updates arising since submission	Relevant topics
Plans, Sections and Drawings 2.11 – Park and Ride [WN0902-HZDCO-ADV-DRG-00033 to WN0902-HZDCO-ADV-DRG-00047]		
WN0902-HZDCO-ADV-DRG-00033 Rev 2.0 WN0902-HZDCO-ADV-DRG-00035 Rev 3.0	Addition of flood storage basin / attenuation areas on plans for approval. See also addition of design principle in DAS Volume 3. These flood attenuation areas have been developed through further detailed design work and were therefore not proposed in the application for development consent.	Surface Water and Groundwater Landscape and Visual Cultural Heritage Noise and Vibration
WN0902-HZDCO-ADV-DRG-00035 Rev 3.0 (Operation) WN0902-HZDCO-ADV-DRG-00040 Rev 2.0 (Restoration)	Addition of maximum slope angles for the storage basin / attenuation areas of 1:3 during operation of the Park and Ride, 1:6 following restoration.	
WN0902-HZDCO-ADV-DRG-00041-Rev 2.0 WN0902-HZDCO-ADV-DRG-00042 Rev 3.0	Design levels for the car park and spine road have been raised to at least 16.45m AOD, the original levels were presented in the drawings WN0902-HZDCO-ADV-DRG-00041-00043 Rev 1.0 [APP-023].	

Section Reference	Relevant updates arising since submission	Relevant topics
WN0902-HZDCO-ADV-DRG-0004 Rev 2.0		
Park and Ride Sub-CoCP [WN0902-JAC-PAC-REP-00022]		
Section 4.3	The Park and Ride lighting will be managed and options such as a Central Management System and motion sensors could be used if reasonably practicable. Not all zones will be utilised for the entire construction period and when zones are not required, lighting will be deactivated. The carparking areas will be zoned and switched off if they are not in use. This is a new commitment that was not included in the original sub-CoCP.	Landscape and Visual Cultural Heritage
Section 10.4	Culvert apparatus within the site boundary will be periodically inspected for potential blockages and any debris found would be removed. This is a new commitment that was not included in the original sub-CoCP.	Surface Water and Groundwater
Section 11.2	The proposed security fencing around the Park and Ride will be finished using a visually recessive colour to mitigate potential adverse visual impacts. This is a new commitment that was not included in the original sub-CoCP.	Landscape and Visual Cultural Heritage
Design and Access Statement – Volume 3 – Associated Developments and Off-Site Power Station Facilities [REP4-018 and REP4-019]		
Section 3.4	Inclusion of two flood attenuation areas to the north-east of the site. See also Plans, Sections and Drawings. These two flood attenuation areas have been developed through further design work and were therefore not	Noise and Vibration Surface Water and Groundwater

Section Reference	Relevant updates arising since submission	Relevant topics
	proposed in the application for development consent.	

7.2 Noise and vibration

Relevant updates

7.2.1 Construction of the proposed flood attenuation areas will update the proposed construction programme, and the working areas of some construction plant items.

Additional topic information

7.2.2 The location and design principles of the flood attenuation areas are presented in the updated Plans, Sections and Drawings (see Table 5-1) and within Appendix 1.3 of the Design and Access Statement Volume 3 (Part 2 of 2) [REP4-019]

7.2.3 To construct the proposed flood attenuation ponds at the Dalar Hir site, it is proposed to mobilise the equipment that will be used for site clearance and groundworks earlier in the construction programme than has been assessed in ES Volume F - Park and Ride F6 - Noise and vibration [APP-271]. The following equipment will now be mobilised at the start of construction (rather than the start of month three):

- four tracked excavators,
- three bulldozers, and,
- six articulated dumper trucks.

7.2.4 It may also be the case that some of the equipment listed above is primarily located within the footprint of the flood attenuation ponds, which are situated to the north east of the Park and Ride site, rather than working across a wider area. All of the embedded and good practice noise mitigation set out in the DCO Application would be implemented.

Revised assessments

7.2.5 The construction noise modelling for the Park and Ride site has been updated to reflect these updates, and the scenarios for months one and two have been re-run. The noise emission data for these items of plant remains as stated in the rows for Activity ID 2 in Table 1-2 of Appendix F6-01 [APP-279].

7.2.6 The updated noise modelling, as shown in appendix F6-1-A, indicates that, whilst the noise levels at some receptors to the north and east of the Park and Ride may increase during months one and two, the façade incident noise levels at all properties will remain below 65 dB $L_{Aeq,T}$. The level of 65 dB $L_{Aeq,T}$ is given in BS5228-1:2009+A1:2014 [RD1] as an example threshold of potential significance for areas with pre-existing low ambient noise levels.

7.2.7 In accordance with Table F6-5 'Adopted magnitude scale for construction noise' in ES Volume F – Park and Ride F6 – Noise and vibration [APP-271] noise levels under 65 dB $L_{Aeq,T}$ are considered a negligible magnitude of change. This would result in minor (not significant) effects at approximately 85 residential properties and four non-residential receptors for up to 18 months during the construction of the Park and Ride. These receptor counts remain identical to those stated in the ES chapter F6 [APP-271], and therefore the construction of the proposed flood attenuation ponds at the Park and Ride does not change the conclusions of the original assessment.

7.3 Surface water and groundwater

Relevant updates

7.3.2 Relevant updates include the addition of flood attenuation areas in the north east of the site adjacent to Nant Dalar Hir. In addition, car park and spine road elevations within the site have been amended to ensure that these are above the predicted flood level in a 1% Annual Exceedance Probability (AEP) event, with a 15% allowance for climate change.

Additional topic information

7.3.3 The location and design principles of the flood attenuation areas are presented within Appendix 1.3 of the Design and Access Statement Volume 3 (Part 2 of 2) [REP4-019].

7.3.4 A Flood Consequence Assessment Addendum was submitted at Deadline 2 [REP2-372], which presents additional information on the baseline flood risk at the site, the risk to the proposed development from flooding and the impact from the proposed development on flood risk elsewhere.

7.3.5 In summary, the revised baseline information presented in REP2-372 indicates that the Dalar Hir site remains at flood risk from the Nant Dalar Hir, with extensive flooding of lower lying land within the central area of the site along the southern boundary. The depths of flooding simulated, however, are not as great as those presented within the original FCA for the site [APP-281].

7.3.6 Blockage modelling requested by Natural Resources Wales and provided at Deadline 5 [WN0902-HZDCO-PAC-REP-00204] has been taken account of and in the revised levels referred to in Table 7-1.

Revised assessments

7.3.7 The addition of the proposed flood attenuation areas which would be present during construction, operation and decommissioning alongside the development of the design to include appropriate ground elevations in the car park areas and along the spine road impacts the basis of the assessment in the following manner:

- The presence of the flood attenuation areas and ground spine road elevations provides further embedded mitigation. Note, the flood attenuation areas lie outside of the 15m buffer on Nant Dalar Hir, hence there is no change to this existing embedded mitigation;

- Further good practice mitigation during operation is expanded to include regular inspection of the culverts on the Nant Dalar Hir that lie on the southern, downstream boundary of the watercourse beneath the A55 and A5. This would focus on the presence, and lead to proactive clearance, of any debris to avoid the risk of blockage and flooding.

7.3.8 Taking the above embedded mitigation into account, the proposed flood attenuation areas and elevation updates act to control the location of flooding within the site during construction, operation and following decommissioning, such that the proposed development will be safe from flooding in events up to the 1% AEP event with a 15% allowance for climate change (because of the short lifespan of the proposed development). In addition, there will be a beneficial reduction in flood levels upstream and to the downstream A55 and A5, as well as downstream receptors further afield such as a farm and Llyn Traffwll SSSI. The magnitude of change to flood risk is considered to be large beneficial (as defined in Table B8-12 of chapter B8 [APP-073]) by virtue of its long-term nature.

7.3.9 Taking the above good practice mitigation into account, the residual risk of blockage will be managed over the development's lifespan, such that the proposed development will continue to provide a large beneficial magnitude of change to flood risk.

7.3.10 These updates result in an alteration to the conclusions regarding the residual significant effects reported in the original ES, from adverse to beneficial. This is summarised in Table 7-2.

7.4 Landscape and visual

Relevant updates

7.4.2 As listed in Table 7-1, the relevant updates applicable to landscape and visual issues comprise the:

- additional flood attenuation areas detailed in the update to Plans, Sections and Drawings in Section 2.11 [WN0902-HZDCO-ADV-DRG-00033 to WN0902-HZDCO-ADV-DRG-00047] and the Design and Access Statement – Volume 3 – Associated Developments and Off-Site Power Station Facilities [REP4-018 and REP4-019]; and
- updates to section 4.3 and section 11.2 of the Park and Ride sub-CoCP [APP-418] on the management of external lighting and colour of perimeter fencing respectively.

Revised assessments

7.4.3 The proposed updates comprise the updates of car park and spine road levels and addition of the flood attenuation areas, including topsoil stripping and storage in temporary mounds, excavation of flood storage basins and seeding the base and side slopes to form a permanent grass sward.

7.4.4 Updates to design levels are proposed in the east part of the site adjacent to the flood attenuation areas. Design levels would only be altered slightly

compared to the levels assumed for the DCO ES. The area identified for the proposed flood storage basins was previously identified as a soil storage area. Therefore, the construction of the flood storage basins would only result in a limited increase in the extent of construction area and construction activities would be similar to those described in chapter F10 of the ES [APP-275]. The proposed updates are not therefore considered to increase the significance of landscape effects and there would be no change to the effects assessed in chapter F10 of the ES during construction.

7.4.5 There would be some changes to views during construction of the flood attenuation areas from the Cartio Môn Go-Karting Centre, Gwyddfor Residential Home, the National Cycle Network Route 8 and from the local road network. However, the additional changes to views would only form a small proportion of the overall Park and Ride construction activity and are not considered to increase the level of significance of visual effects. The slight updates to design levels of the car park and spine road are not anticipated to result in any changes to the nature of views, compared to the assessment in chapter F10 of the ES. There would therefore be no change to the visual effects assessed in chapter F10 of the ES during construction.

7.4.6 During operation, grass seeding of the flood attenuation areas would be established, helping to integrate the flood storage basins into the surrounding landscape. The slight updates to design levels of the car park and spine road are not anticipated to result in any changes to the landscape and visual effects assessed in chapter F10 of the ES. There would therefore be no change to the level of significance for residual landscape or visual effects assessed in chapter F10 of the ES during operation.

7.4.7 Following decommissioning at the end of Park and Ride operation, the flood attenuation areas would be retained with minor alterations, including slackening the gradient of perimeter slopes to 1:6 to help improve their integration into the surrounding landscape and facilitate restoration of the former land use for grazing. During decommissioning, the spine road and car park would be removed and the landform graded to tie in with the surrounding levels of the restored site. There would therefore be no change to the level of significance for residual landscape or visual effects assessed in chapter F10 of the ES following decommissioning.

7.4.8 The use of a Central Management System to manage Park and Ride lighting during operation is consistent with the embedded mitigation measure for construction lighting set out in Section 10.4 of chapter F10 of the ES [APP-275]. Whilst this measure provides a more specific commitment to mitigate visual night-time effects, there would be no change to the significance of the residual visual effects assessed in chapter F10 of the ES.

7.4.9 The use of a visually recessive colour for the proposed security fence would help mitigate potential adverse visual effects for visual receptors identified in chapter F10 of the ES [APP-275]. However, although this measure provides additional mitigation of the effects it is not considered to reduce the level of significance for residual visual effects. There would therefore be no changes to the residual significant effects assessed in chapter F10 of the ES.

7.5 Cultural heritage

Relevant updates

7.5.2 The relevant update applicable to Cultural Heritage issues comprises the design updates identified in the Plans, Sections and Drawings, Section [WN0902-HZDCO-ADV-DRG-00033 to WN0902-HZDCO-ADV-DRG-00047], of Table 7-1 the updates to the management of the lighting system identified in Park and Ride Sub-CoCP [WN0902-JAC-PAC-REP-00022], and the updates to the proposed security fencing in Section 11.2 of the Park and Ride Sub-CoCP [WN0902-JAC-PAC-REP-00022] as listed in Table 7-1.

Revised assessments

7.5.3 The design updates identified in Plans, Sections and Drawings, Section [WN0902-HZDCO-ADV-DRG-00033 to WN0902-HZDCO-ADV-DRG-00047] in Table 7-1 above would not result in the removal or partial removal of any additional heritage assets to those identified in chapter F11 (Cultural heritage) [APP-276] and therefore would not change the assessment of the significance of residual effects presented in chapter F11.

7.5.4 The design updates have the potential to be more visible from Bryngoleu Farmhouse and Buildings (Asset 9) during construction and operation than the proposed reinstated grassland assessed in chapter F-11. However, as the design updates would be seen in the context of the Park and Ride and would be partially screened in views west from Bryngoleu Farmhouse and Buildings (Asset 9) by existing vegetation which would be retained, they would not change the assessment of the significance of residual effect for this historic building presented in Appendix F11-5 [APP-301].

7.5.5 While the updates to the management of the lighting system identified in Park and Ride Sub-CoCP [WN0902-JAC-PAC-REP-00022], Section 4.3 in Table 7-1 would reduce the effect from lighting on the setting of Bryngoleu Farmhouse and Buildings (Asset 9) during operation, this reduction is not sufficient to reduce the significance of residual effect assessed in appendix F11-5.

7.5.6 The periodic inspection of culvert apparatus as described under Park and Ride Sub-CoCP [WN0902-JAC-PAC-REP-00022], Section 10.4 in Table 7-1 above would not change any of the significance of residual effects presented in chapter F11 or appendix F11-5.

7.5.7 While finishing of proposed security fencing using a visually recessive colour as identified in Park and Ride Sub-CoCP [WN0902-JAC-PAC-REP-00022], Section 11.2 in Table 7-1 would reduce the visual effect on the setting of Bryngoleu Farmhouse and Buildings (Asset 9) during operation, this reduction is not sufficient to reduce the significance of residual effect assessed in appendix F11-5.

7.6 Residual effects summary

7.6.1 Table 7-2 presents a summary of where residual effects have changed compared to Volume D of the original ES

Table 7-2 Summary of residual effects at the Park and Ride

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Surface water and groundwater								
Park and Ride (on-site flood risk)	Medium	Reduced risk of flooding to Park and Ride due to the flood attenuation areas and changes in land levels.	Beneficial Local Long-term	Large	Major beneficial	None required	Large	Major beneficial
A55 and A5	High			Medium	Moderate beneficial		Medium	Moderate beneficial
Caer Elen Farm and Llyn Traffwll SSSI (off-site flood risk), and				Small	Minor beneficial		Small	Minor beneficial

7.7 Non-technical summary update

7.7.1 Within the Surface Water and Groundwater assessment at the Park and Ride site, there are now three receptors where the overall effects have changed from adverse to beneficial.

7.8 References

Table 7-3 Schedule of references

ID	Reference
RD1	British Standards Institution. 2014. BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise. London: British Standards Institution.

8 A5025 Off-line Highway Improvements

8.1 Introduction

Site-specific updates

8.1.2 Table 8-1 outlines the updates that have occurred in relation to the A5025 Off-line Highway Improvements since the application for development consent that are of relevance to the ES. A review of these updates has been undertaken by EIA specialists across all topics assessed in the original ES and the following sections provide an update to those assessments.

8.1.3 It has been concluded that the updates are not applicable to the assessment for the following topics, Socio-economics, Public Access and Recreation, Air Quality, Noise and Vibration; Soils and Geology; Surface Water and Groundwater; Terrestrial and Freshwater Ecology and Combined Topic Effects.

Table 8-1 Updates to A5025 Off-line Highway Improvements

Section Reference	Relevant updates arising since submission	Relevant topics
A5025 Off-line Highway Improvements Sub-CoCP [WN0902-JAC-PAC-REP-00024]		
Section 4.4	Lighting around the construction compound buildings will be switched to a motion activated control system (motion sensors) at 18:00, except lighting required for security measures. A two-metre-high construction compound solid fence will further mitigate night time light trespass once it has been constructed. Where localised task lighting is required, this will be provided by mobile lighting units and lighting levels will be task dependant. Once works have finished for the day this lighting will be switched off. Construction vehicles, when working during the darker months in the vicinity of residential properties, shall dip their headlights to limit light spill and glare into residential properties, where reasonably practicable and providing this aligns with safe methods of working.	Landscape and Visual Cultural Heritage

Section Reference	Relevant updates arising since submission	Relevant topics
	These are new items that were not proposed in the original A5025 Off-line Highway Improvements Sub-CoCP, as they have arisen due to development of mitigation.	
Design and Access Statement – Volume 3 – Associated Developments and Off-Site Power Station Facilities [REP4-018 and REP4-019]		
Appendix 1-5, Section 3.3	Design principle 14 has been amended to reflect that the alignment of Section 5 of the A5025 Off-line Highway Improvements will be designed to avoid the AONB, with the exception of construction works to tie in the highway within the lay-by on the existing A5025 east of Llanfaethlu (which lie within the AONB).	Landscape and Visual Cultural Heritage
Section 106 [WN0902-HZDCO-PAC-REP-00093]		
Schedule 11, Section 6	Financial contribution to IACC to be applied in improving, supplementing or replacing the existing interpretation board at Capel Soar Standing Stone. This is a new item that was not originally included in the ES assessment.	Cultural Heritage

8.2 Landscape and visual

Relevant updates

8.2.1 The relevant updates s applicable to landscape and visual issues comprise updates to section 4.4 of the A5025 Off-line Highway Improvements sub-CoCP [WN0902-JAC-PAC-REP-00024]; and section 3.3 of appendix 1-5 of the Design and Access Statement – Volume 3 – Associated Developments and Off-site Power Station Facilities [APP-410] as listed in table 8-1.

Additional topic information

8.2.2 The Isle of Anglesey AONB boundary has been updated on figure 7 of the A5025 Landscape Scheme within appendix G10-9 [APP-344]. This updated figure has been appended to the ES addendum in appendix G10-9-A.

Revised assessments

8.2.3 The use of motion sensors and a solid fence at the construction compounds and dipped headlights on construction vehicles, as well as turning off mobile lighting units when not in use, would help mitigate potential adverse night-time visual effects for visual receptors identified in chapter G10 of the ES [APP-313]. However, although these measures provide additional mitigation of effects it is not considered to reduce the level of significance for residual night-time visual effects.

8.2.4 Part of section 5 of the A5025 Off-line Highway Improvements are located within the Isle of Anglesey AONB boundary as shown in Appendix G10-9-A, resulting in direct effects that were not previously discussed within appendix G10-3 [APP-338]. Section 5 construction works would result in the loss of a group of trees and grass verge area within the lay-by on the existing A5025, east of Llanfaethlu. Loss of trees within the lay-by would be noticeable in the landscape during operation until year 15, when establishment of proposed shrubs with intermittent trees would restore vegetation lost during construction. However, effects on the Isle of Anglesey AONB at section 5 would be very localised and would not result in any change in the residual (not significant) effect assessed within appendix G10-3.

8.3 Cultural heritage

Relevant updates

8.3.1 The relevant update applicable to Cultural Heritage are the updates to design Principle 14 in the Design and Access Statement – Volume 3 – Associated Developments and Off-Site Power Station Facilities [REP4-018 and REP4-019] and the update to Schedule 11 of the draft s.106 [WN0902-HZDCO-PAC-REP-00093], as listed in Table 8-1.

Revised assessments

8.3.2 While the use of a two-metre-high construction compound solid fence as described in A5025 Off-line Highway Improvements Sub-CoCP [WN0902-JAC-PAC-REP-00021], Section 4.4 in table 8-1 would result in the compounds being slightly more visible in the settings of cultural heritage assets in comparison with the 2m high mesh link fence assessed in the Environmental Statement, this update is not predicted to increase the significance of residual effects presented in chapter G11 (Cultural heritage) [APP-314] and in appendix G11-5 [APP-351].

8.3.3 The slight amendment to the wording of Design Principle 14 as identified in Design and Access Statement – Volume 3 – Associated Developments and Off-Site Power Station Facilities, Appendix 1-5, Section 3.3 in table 8-1 would not change the significance of residual effects assessed in chapter G11 (Cultural heritage) and in appendix G11-5.

8.3.4 While the provision of an interpretation board at Capel Soar Standing Stone (Asset 146) (see Section 106, Schedule 11, Section 6 in table 8-1 above) would help to offset the effects on this monument identified in chapter G11, it would not reduce the significance of residual effects assessed in chapter G11.

9 Logistics Centre

9.1 Introduction

Site-specific updates

9.1.2 Table 9-1 outlines the updates that have occurred in relation to the Logistics Centre since the application for development consent that are of relevance to the ES. A review of these updates has been undertaken by EIA specialists across all topics assessed in the original ES and the following sections provide an update to those assessments.

9.1.3 It has been concluded that the updates are not applicable to the assessment for the following topics, Socio-economics; Public Access and Recreation; Air Quality; Noise and Vibration; Soils and Geology; Surface Water and Groundwater; Terrestrial and Freshwater Ecology and Combined Topic Effects.

Table 9-1 Updates to the Logistics Centre

Section Reference	Relevant updates arising since submission	Relevant Topics
Logistics Centre Sub-CoCP [WN0902-JAC-PAC-REP-00023]		
Section 11.2	The proposed 2.4m high fence around the Logistics Centre will be finished using a visually recessive or otherwise appropriate colour to mitigate potential adverse visual impacts. Previously, the colour of the fence was not stipulated.	Landscape and Visual Cultural Heritage
Section 106 [WN0902-HZDCO-PAC-REP-00093]		
Schedule 11, Section 6	Financial contribution to IACC to be applied in improving, supplementing or replacing the existing interpretation board at Trefignath Burial Chamber and Ty Mawr Standing Stone. This is a new commitment that was not included in the original ES.	Cultural Heritage

9.2 Landscape and visual

Relevant updates

9.2.2 The relevant update applicable to Landscape and Visual issues comprises the update to Section 11.2 of the Logistics Centre sub-CoCP [WN0902-JAC-PAC-REP-00023] as listed in Table 9-1.

Revised assessments

9.2.3 The use of a visually recessive or otherwise appropriate colour for the proposed 2.4m high fence would help mitigate potential adverse visual effects for visual receptors identified in chapter H10 of the ES [APP-364]. However, although this measure provides additional mitigation of the effect it is not considered to reduce the level of significance for residual visual effects. There would therefore be no change to the residual significant effects assessed in chapter H10 of the ES.

9.3 Cultural heritage

Relevant updates

9.3.2 The relevant update applicable to Cultural Heritage issues comprises the update to Section 11.2 of the Logistics Centre sub-CoCP [WN0902-JAC-PAC-REP-00023] and Schedule 6 of the s.106 [WN0902-HZDCO-PAC-REP-00093] as listed in Table 9-1.

Revised assessments

9.3.3 While the finishing of the proposed 2.4m high fence around the Logistics Centre using a visually recessive or otherwise appropriate colour would help to soften the visibility of the Logistics Centre in the setting of heritage assets identified in appendix chapter H11 (Cultural heritage) [APP-365] and appendix H11-2 [APP-381], including Trefignath Burial Chamber (Asset 21) and Ty Mawr Standing Stone, Holyhead (Asset 22) Scheduled Monuments (AN011 and AN012) during operation, this would not reduce the significance of residual effects presented in chapter H11 and appendix H11-1.

9.3.4 While improving, supplementing or replacing the existing interpretation board at Trefignath Burial Chamber (Asset 21) and Ty Mawr Standing Stone, Holyhead (Asset 22) Scheduled Monuments (AN011 and AN012) would help to offset the effects on these designated heritage assets, this would not reduce the significance of residual effects presented in chapter H11 and appendix H11-1.