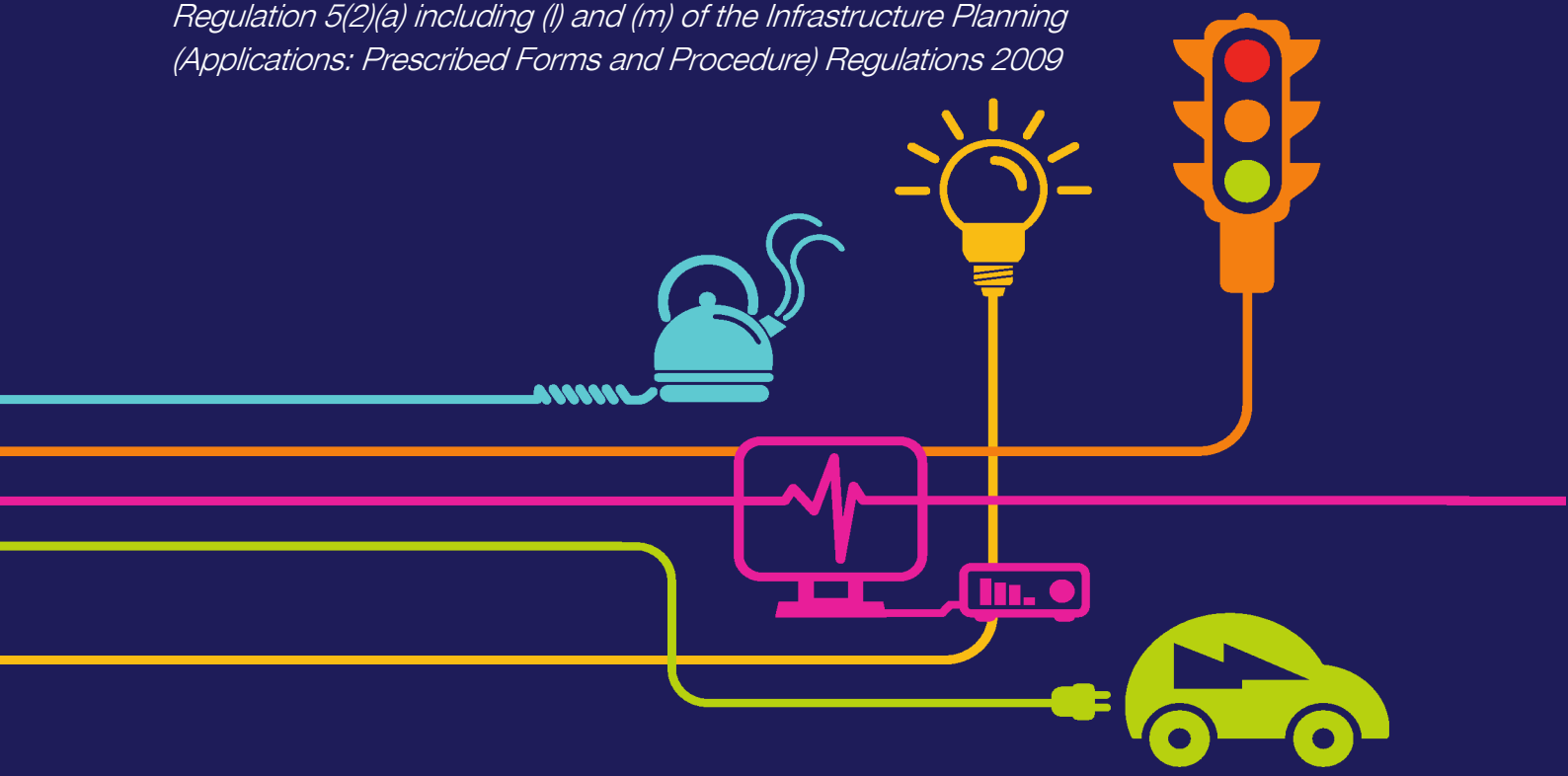
nationalgrid

DOCUMENT 5.6

Environmental Statement Document 5.6 EIA Methodology and Basis of Assessment

National Grid (North Wales Connection Project)

Regulation 5(2)(a) including (l) and (m) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



Application Reference EN020015

September 2018

nationalgrid

North Wales Connection Project

Volume 5

Document 5.6 EIA Methodology and Basis of Assessment

National Grid
National Grid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Final September 2018

Page intentionally blank

Document Control			
Document Properties			
Organisation		AECOM	
Author		Nigel Pilkington	
Approved by		Charlotte Clinton	
Title		Environmental Statement Chapter 6 EIA Methodology and Basis of Assessment.	
Document Reference		Document 5.6	
Version History			
Date	**Version**	**Status**	**Description/Changes**
September 2018	Rev A	Final	Final for Submission

Page intentionally blank

Contents

Page intentionally blank

1 Introduction

1.1.1 This chapter sets out the general approach that has been followed in undertaking the Environmental Impact Assessment (EIA) of the Proposed Development, how the assessment has dealt with aspects for the Proposed Development for which there is flexibility included within the draft Development Consent Order (DCO) (**Document 2.1**), and consideration of different assessment scenarios. It summarises the key stages that have been followed, in line with statutory requirements and formal advice provided by the Planning Inspectorate under Section 51 of the Planning Act 2008. It also describes the terminology used within this Environmental Statement (ES).

1.1.2 Section 4.9 of this chapter presents a typical approach to assessing the significance of effects, using a combination of sensitivity/value of receptors and magnitude of impacts. However, for many of the topics included in this ES there are standards and guidelines for the assessment of effects and their significance. For other topics and sub topics although there are no standard published guidelines, the general approach set out in this chapter may also not be appropriate. For details of the topic specific methods used to assess the significance of effects, reference should be made to section 4 of each of the technical chapters (**Documents 5.7 – 5.18**).

2 Objectives of EIA

2.1.1 EIA is the process of compiling, evaluating and presenting information about the likely significant environmental effects, both adverse and beneficial, of a proposed project; in this case the Proposed Development. The assessment is designed to help produce an environmentally sympathetic scheme and to provide decision makers and statutory consultees with the environmental information they require during determination of an application for consent. The early detection of likely significant adverse environmental effects enables appropriate mitigation (i.e. measures to avoid, reduce or offset likely significant adverse effects) to be identified and incorporated into the design of a scheme, or commitments to be made, for example to environmentally sensitive construction methods and practices. The approach is iterative and involves close working between the undertaker, the EIA team and the designers.

2.1.2 Consultation is a constituent element of effective EIA. Since 2012 National Grid has been consulting on proposals for the North Wales Connection Project and this consultation has helped to inform the various stages of the EIA process.

2.1.3 Further and more detailed consideration of the consultation process undertaken for this ES can be found in Chapter 5 EIA Consultation (**Document 5.5**).

2.1.4 Although EIA is a statutory requirement for certain projects, such as the Proposed Development, National Grid also has an additional duty to consider the environmental effects of its work under Schedule 9 of the Electricity Act 1989, entitled 'preservation of amenity and fisheries'. Schedule 9 states that:

(1) In formulating any relevant proposals, a licence holder or a person authorised by exemption to generate, distribute, supply or participate in the transmission of electricity —

(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and

(b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

2.1.5 The process of EIA therefore also provides a means for National Grid to demonstrate it has discharged its duties under Schedule 9 of the Electricity Act 1989.

3 EIA Regulations and Guidance

3.1 EIA REGULATIONS

3.1.1 This ES is being submitted with an application for Development Consent under the Planning Act 2008 and has been prepared in compliance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263) ('the 2009 Regulations').

3.1.2 Although the 2009 Regulations have since been superseded by The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the 2017 Regulations'), the transitional arrangements for the 2017 Regulations state that the 2009 Regulations continue to apply to projects for which a request for a Scoping Opinion was submitted prior to the date upon which the 2017 Regulations came into force, which was 16 May 2017. As the request for a Scoping Opinion for the Proposed Development was submitted in May 2016, the 2009 Regulations are therefore applicable and not the 2017 Regulations.

3.1.3 The Proposed Development is considered to be EIA development in accordance with the definition within the 2009 Regulations. To enable the decision maker to understand the likely significant environmental effects of the Proposed Development the ES provides environmental information in accordance with Schedule 4 of the 2009 Regulations, which sets out the information that must be included within an ES. The ES provides sufficient information to inform stakeholders, including the local community, of the main environmental effects that are likely to arise as a result of the Proposed Development.

3.1.4 On 23 May 2016 National Grid notified the Secretary of State (SoS), in accordance with Regulation 6(1b) of the 2009 Regulations, that an ES would be being submitted with an application for development consent in respect of the Proposed Development.

3.1.5 Schedule 4 of the 2009 Regulations highlights the information to be included in an ES. Part 1 highlights such information 'as is reasonably required' and Part 2 the information that must be provided as a minimum. These requirements are set out in Table 6.1 below, which also provides confirmation of where the information is provided within this ES.

Table 6.1 Information Required for Inclusion in an Environmental Statement	
EIA Regulations: Schedule 4, Part 1	Location within ES
Description of the development, including in particular : A description of the physical characteristics of the whole development and the land use requirements during the construction and operational phases; A description of the main characteristics of the production processes, for instance, nature and quantity of the materials used; An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.	Chapter 3 Description of the Proposed Development (**Document 5.3**) Chapter 4 Construction, Operation , Maintenance and Decommissioning of the Proposed Development (**Document 5.4**) Chapter 14 Air Quality (**Document 5.14**) Chapter 16 Operational Noise (**Document 5.16**)
An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects.	Chapter 2 Alternatives and Proposed Development History (**Document 5.2**)
A description of the aspects of the environment likely to be significantly affected by the development, including in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.	Each of the technical assessment chapters (Chapters 7-18 (**Documents 5.7 - 5.18**)) include a section (section 7) on the baseline environment which has the potential to be adversely affected.

Table 6.1 Information Required for Inclusion in an Environmental Statement	
EIA Regulations: Schedule 4, Part 1	Location within ES
A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from: The existence of the development; The use of natural resources; The emission of pollutants, the creation of nuisances and the elimination of waste It also requires a description of the forecasting methods used to assess the effects on the environment.	Section 8 of each technical chapter (**Documents 5.7 – 5.18**) identifies the potential effects of the Proposed Development and section 9 presents the mitigation and residual effects. Any forecasting methods used are described in section 4 of each chapter, which details the methodology applied to each assessment.
A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	Section 9 of each technical chapter (**Documents 5.7 – 5.18**) presents the mitigation measures that have been committed to in order to prevent, reduce or offset significant adverse effects.
A non-technical summary of the above information.	A separate Non-Technical Summary (NTS) of the findings of the EIA is presented as **Document 5.0**
An indication of any difficulties (technical deficiencies or lack of know-how) encountered in compiling the required information.	Details of any assumptions or difficulties encountered with the assessment are reported in section 4 of each technical chapter (**Document 5.7 – 5.18**) which covers methodology.
EIA Regulations: Schedule 4, Part 2	**Location within ES**
Description of the development, comprising information on the site, design and size of the development.	Chapter 3 Description of the Proposed Development (**Document 5.3**)

Table 6.1 Information Required for Inclusion in an Environmental Statement	
EIA Regulations: Schedule 4, Part 1	Location within ES
A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	Section 9 of each technical chapter (**Documents 5.7 – 5.18**) presents the mitigation measures that have been committed to in order to prevent, reduce or offset significant adverse effects. The Schedule of Mitigation (**Document 5.28**) summarises the mitigation measures relied on by each technical chapter and where each of the mitigation measures are secured within the draft DCO (**Document 2.1**).
The data required to identify and assess the main effects which the development is likely to have on the environment.	Section 7 of each of the technical chapters (**Documents 5.7 - 5.18**) reports on the baseline environment that has the potential to be adversely affected.
An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects.	Chapter 2 Alternatives and Proposed Development History (**Document 5.2**).
A non-technical summary of the above information.	A separate NTS of the findings of the EIA is presented as **Document 5.0.**

3.2 EIA GUIDANCE

3.2.1 As well as legislative requirements, various guidance documents have been developed by decision makers, developers and professional institutions to guide the EIA process and preparation of the ES. The approach taken to individual technical assessments is presented in section 4 of Chapters 7 to 18 (**Documents 5.7 - 5.18**), and any relevant topic specific technical assessment guidelines are detailed within these chapters, as appropriate.

3.2.2 In addition, the Planning Inspectorate has published a number of Advice Notes to help guide applicants through the application process, the Planning Inspectorate Advice Notes directly relevant to the EIA are as follows:

- Planning Inspectorate (August 2017 – Version 7). Advice Note three: EIA Consultation and Notification;
- Planning Inspectorate (February 2016 – Version 7). Advice Note six: Preparation and submission of application documents;
- Planning Inspectorate (December 2017 – Version 6). Advice Note seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping;
- Planning Inspectorate (April 2012 – Version 2). Advice Note nine: Rochdale Envelope;
- Planning Inspectorate (November 2017 – Version 8). Advice Note ten: Habitat Regulations Assessment relevant to nationally significant infrastructure projects;
- Planning Inspectorate (March 2018 – Version 5). Advice Note twelve: Transboundary Impacts;
- Planning Inspectorate (December 2015 – Version 1). Advice Note seventeen: Cumulative Effects Assessment; and
- Planning Inspectorate (June 2017 – Version 1). Advice Note eighteen: the Water Framework Directive.

4 Overview of the Environmental Impact Assessment Process

4.1 INTRODUCTION

4.1.1 There are a number of standard steps in the EIA process; these are described below (adapted from the IEMA 2011 '*Special Report –The State Of Environmental Impact Assessment in the UK*'):

- Proposal Identification: the need or opportunity for development is identified, alternatives are considered and draft plans are drawn up, which generally include the potential location, proposed land use and initial design concepts.

- Screening: in order to determine whether an EIA is needed for a given project it is 'screened' by the relevant consenting authority. The regulations require that some projects are always subject to EIA whilst others may be subject to an EIA where there is the likelihood for significant environmental impacts.

- Scoping: where an EIA is required, scoping focuses the assessment onto the key environmental issues that the assessment will consider in further detail. The scoping stage should ensure that only aspects of the environment likely to be significantly affected are included in the later stages of the assessment.

- Iterations of: Design > Assessment > Alteration, Mitigation & Enhancement: in order to predict the likely environmental effects of a proposed development the assessment must consider the current condition of the environment and likely future changes to it without the development, the changes the development would have on this and the significance of such effects. Negative environmental effects predicted to result from the development are reduced through alterations to design or through the inclusion of mitigation measures. At this stage opportunities to enhance the environment should also be identified. The assessment also considers the interaction between environmental effects caused by the development in order to identify secondary, cumulative and synergistic effects that may occur as a result of taking action to reduce negative environmental effects.

- ES: this is the document which communicates the results of the EIA to the decision-maker and other stakeholders. Criteria for what must be included are set out in the regulations, with the NTS (NTS being the most widely distributed component of the document.

- Submission and consultation: in order to allow the stakeholders and the public to participate the ES is consulted upon, helping to ensure quality in the EIA process. Where deficiencies are identified the consenting authority should assess their significance to the decision-making process and request further information from the applicant, where necessary.

- Decision making: at this point all the application information is reviewed and the decision whether to grant development consent is taken. The views expressed during the public consultation process and the EIA's findings contained in the ES must be considered in making the decision.

- Post consent: if the development is granted consent, mitigation measures should be implemented and the environmental effects of construction and operation may be monitored. An Environmental Management Plan (EMP) is a useful tool to manage this stage of the process and allows the developer to demonstrate that the environmental outcomes are no worse than those predicted by the EIA.

4.1.2 Key steps in the process and how they have been applied to the EIA of the Proposed Development are described below.

4.2 SCREENING

4.2.1 National Grid notified the Planning Inspectorate of its intention to submit an ES (on 23 May 2016), thus removing the need for a Screening Opinion.

4.3 SCOPING

4.3.1 The process of scoping helps to ensure that the topics covered, the baseline information used, and the methods of assessment, are appropriate, and have taken into account the views of decision makers, and consultees where appropriate.

4.3.2 There are two main stages in the scoping process. Firstly the undertaker compiles information to inform their view as to the scope of issues that should be covered in the main ES; this usually takes the form of a Scoping Report and is based on initial consultation, data searches and baseline surveys. The Scoping Report is submitted to the decision maker. The

second stage in the scoping process is for the decision maker to issue a Scoping Opinion, outlining what they expect to be covered in the ES, having consulted a range of statutory bodies, and taken into account the information provided by the applicant in their Scoping Report.

4.3.3 The scoping process aims to:

- identify the topics and issues to be the focus of the EIA;
- eliminate any topics and issues not requiring further consideration (i.e. those that are not likely to lead to significant effects and which would therefore not be considered further in the EIA);
- define the technical, spatial and temporal scope of the study for each of the topics and issues to be considered;
- define the approach and methodologies for conducting baseline studies;
- define the approach and methodologies for predicting environmental effects and for evaluating the significance of environmental effects; and
- identify the methods to be adopted for incorporating mitigation and other environmentally driven modifications into the design.

4.3.4 A Scoping Report for the Proposed Development was received by the Planning Inspectorate on 23 May 2016 and a Scoping Opinion was received from the SoS on 1 July 2016, a copy of which is available on the Planning Inspectorate's National Infrastructure Planning Website[1]. The Scoping Opinion provided comments from the SoS on the proposed scope of the EIA, and included copies of responses from the Consultation Bodies (see Chapter 5 Consultation (**Document 5.5**) for a full list of the statutory Consultation Bodies, as prescribed in Schedule 1 of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009).

[1] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020015/EN020015-000071-Scoping%20Opinion

4.3.5 In section 3 of each of the technical chapters (**Documents 5.7 – 5.18**) presented in this ES, a table is provided which includes extracts from the Scoping Opinion that relate specifically to the technical chapter, and information is provided to explain how and where the issue is addressed in the ES.

Geographical Scope

4.3.6 The study area for each of the technical assessments is described in each of the individual technical chapters (**Documents 5.7 – 5.18**) and is dictated by the extent to which an effect could be experienced. For some issues, such as direct impacts on buried archaeology, the study area is simply the extent of the Order Limits, but for other issues the study area extends some distance beyond the Order Limits, for example when considering the potential effects on landscape character.

4.3.7 Throughout the various stages of the design of the Proposed Development, there have been different study areas, which have reflected the evolution from broad options, through to the 'Scoping Corridor' considered in the Scoping Report[2], the 'Proposed Project Boundary' considered during the Stage 3 Consultation (and considered in the Preliminary Environmental Assessment Report[3]) and down to the Order Limits and Limits of Deviation as presented on the Works Plans (**Document 4.4**) and the parameters included on the Design Plans (**Document 4.13**) accompanying the DCO application.

Temporal Scope

4.3.8 The high level construction programme is provided in section 2.9 of Chapter 4, Construction, Operation, Maintenance and Decommissioning of the Proposed Development (**Document 5.4**) of the ES. The construction period is programmed to achieve the connection date for the Wylfa Newydd Power Station, which is programmed to be Q3 2026. Enabling and construction work associated with the tunnel would require approximately 6.25 years, from establishment of the construction compounds to the end of testing in

[2] Available at https://infrastructure.planninginspectorate.gov.uk/projects/wales/north-wales-connection/?ipcsection=docs

[3] Available at http://www.northwalesconnection.com/current-documents-and-maps.aspx

readiness for the connection going live. It is likely that the OHL construction would take approximately four years to construct, albeit there would also be a pre-commencement period of up to two years to allow for archaeological works. Similarly substation works would take up to approximately four years to construct. Aspects of flexibility in relation to the programme are discussed in section 5.3.1 of this chapter.

4.3.9 The draft DCO (**Document 2.1**) allows for construction to commence in any year up to five years following grant of the DCO. A sensitivity test has therefore been undertaken for each topic to consider whether the effects or mitigation requirements reported would be any different if construction were to commence at any point up to five years after grant of a DCO.

Technical Scope

4.3.10 Each technical chapter (**Documents 5.7–5.18**) describes the technical scope of works undertaken. The proposed technical scope for each of the EIA topics was detailed in the Scoping Report. Each technical chapter provides information about how comments provided in the Scoping Opinion have been addressed as part of the assessment. A schedule of the comments and queries raised by the SoS in the Scoping Opinion, and how they have been addressed through the EIA process and in the ES, is also included in Appendix 1 of Chapter 5 EIA Consultation (**Document 5.5.2.1**). Appendix 3 of Chapter 5 EIA Consultation (**Document 5.5.2.3**) also provides Information about the responses received from Stakeholders following the Technical Stakeholder Review and how these have been addressed within the scope of work undertaken and reported in the ES.

4.4 CONSULTATION

4.4.1 Pre-application consultation is essential to the EIA process, and is a statutory requirement under Section 42 of The Act, which requires that consultation be undertaken with a range of consultees. Under Section 47 there is also a statutory requirement to consult local communities.

4.4.2 There have been a number of consultation stages throughout the development of the Proposed Development, including statutory consultation undertaken under Sections 42 and 47 of the Act. Further details about the consultation, and how this has influenced the Proposed Development, are included in Chapter 5 EIA Consultation (**Document 5.5**).

4.5 BASELINE DATA COLLECTION

4.5.1 This stage includes the gathering of relevant existing information for the study areas and undertaking field surveys in order to identify and describe the existing conditions, or environmental character, of the area potentially

affected by the Proposed Development. This data is used to identify environmental receptors. Environmental receptors are the features and aspects of the physical, cultural, and socio-economic environment that could potentially be impacted by the Proposed Development.

4.6 FUTURE BASELINE

4.6.1 For some technical topics, the baseline situation during the construction period or operational years is unlikely to be any different from the existing baseline, as studied during the EIA process (2015-2018). However for other topics the baseline will not be static and it is important to include a forecast of changes to the baseline, if that baseline is expected to be different from the existing one. Table 6.2 explains the need for baseline forecasting for each technical chapter.

Table 6.2 Approach to Future Baseline Forecasting.

Chapter	Approach to Baseline Forecasting
Landscape and Visual Amenity	No forecasting required as although there are likely to be changes to the landscape over the operational period of the Proposed Development, these cannot be predicted, other than for two elements. Firstly there will be an influence from new development – to address this, all foreseeable developments are included in the assessment of inter-project cumulative effects (see Chapter 20 Inter-Project Cumulative Effects (**Document 5.20**)). Secondly, there is likely to be a continued loss of ash (*Fraxinus excelsior*) due to ash dieback disease – the effects of which are difficult to address, although replacement planting does not include ash due to the risk of ash die back disease.
Ecology and Nature Conservation	No forecasting required. Climate change could alter the distribution of certain species, and changes to rainfall patterns could alter the hydrology of habitats; however these changes cannot be predicted with any certainty. The assessment includes consideration of inter-project cumulative effects with other known developments.
Historic Environment	No forecasting required as it is not anticipated that the historic environment baseline will change to any significant extent over the Proposed Development timescales.
Geology, Hydrogeology and Ground Conditions	No forecasting required as it is not anticipated that the baseline has any potential to change substantially over the lifetime of the Proposed Development.

Table 6.2 Approach to Future Baseline Forecasting.	
Chapter	Approach to Baseline Forecasting
Water Quality, Resources and Flood Risk	The assessment of flood risk and consequences has taken into account climate change in setting a future baseline.
Traffic and Transport	A Trip End Model Presentation Program (TEMPRO) growth factor has been applied to represent background traffic growth between 2016 and 2023. 2023 has been chosen as the future baseline year as it represents the final year of significant construction activity
Air Quality	Due to the uncertainty in the rate of improvement in air quality, a range of projected background values are provided for both existing and future baseline scenarios, however the modelling work has assumed 2013, as this is the worst case year as it does not take advantage of any baseline improvements
Construction Noise and Vibration	The future baseline traffic data indicate that there would be a minor increase in baseline noise levels from road traffic due to natural growth. However, the increases are very low and are unlikely to have an influence on the assessment. Therefore, these changes have only been accounted for within the road traffic noise assessment as they are unlikely to influence other assessments.
Operational Noise	No baseline forecasting has been necessary, as it is considered unlikely that the existing noise baseline will change substantially over the timescales of the Proposed Development
Socio-Economics	Where the assessment of socio-economic effects has drawn upon the results of other technical assessments, any forecasting undertaken for those assessments will naturally apply. There has been no need for forecasting for assessments undertaken solely within the socio-economic assessment
Agriculture	Although there could be changes to Agri-Environment Schemes, or to the use of individual fields (e.g. pasture to arable) these cannot be predicted, and so no future baseline forecasting has been undertaken.

4.7 IDENTIFICATION OF POTENTIAL EFFECTS

4.7.1 The likely significant effects (beneficial and adverse) of the Proposed Development are predicted and evaluated using appropriate evaluative techniques, many of which follow specific best practice guidelines for a particular topic. Potential effects are identified first, usually in summary, as an indication of what effects could theoretically occur in the absence of mitigation (other than mitigation inherent in the design of the Proposed Development).

4.8 MITIGATION MEASURES

4.8.1 For the purposes of this ES mitigation has be categorised as follows:

- **Mitigation by Design (DM):** These are measures that have been built into the design, such as the design of the OHL, Limits of Deviation (LOD) to avoid certain receptors and the location of the Tunnel Head House (THH) and Cable Sealing End Compounds (CSEC) sites.

- **Control and Management Measures (CMM):** These are measures which are included within the Construction Environmental Management Plan (CEMP) (**Document 7.4**) and other control and management plans such as the use of road sweepers and the implementation of measures to control silt laden runoff during construction etc.

- **Mitigation Measures (MM):** These are measures over and above mitigation by design, for example anything that has been added to the design purely to mitigate an effect such as landscape planting.

4.8.2 Mitigation by Design measures, for example the sensitive routeing of the OHL, the use of a tunnel under the Menai Strait and the Area of Outstanding Natural Beauty (AONB), and careful siting of the THH/CSECs, have been critical in avoiding or reducing the number and extent of potential environmental effects. Where the design of the Proposed Development has been unable to resolve potentially significant effects, further mitigation measures have been identified that would need to be implemented. Commitments to certain further design measures, in the form of limitations on the extent or type of work that could be undertaken within the Order Limits or LOD are included in the Schedule of Environmental Commitments (**Document 7.4.2.1**), which forms an appendix to the CEMP (**Document 7.4**).

4.8.3 These committed measures are secured either through individual DCO Requirements, through the CEMP (which itself is secured by Requirement 6)

or through other management plans, such as the Outline Materials Management Plan (**Document 7.12**) and the Outline Traffic Management Plan (**Document 7.5**), for example.

4.8.4 In addition to mitigation measures there may be compensation measures and enhancement measures; these are explained below:

- **Compensation measures**: Compensation measures are not mitigation measures, as they do not address the original effect directly, however they can offset the effect elsewhere, or in a different way. Compensation measures are used when the above mitigation measures cannot be implemented for any reason. There are relatively few compensation measures identified throughout the ES, either because mitigation has been identified that would more effectively address the effect, or because there has been no need for either mitigation or compensation.

- **Enhancement measures**: Enhancement measures are typically measures that are not required to lessen or compensate for significant effects; they are usually improvements on the baseline environmental conditions, implemented in addition to any benefits that already result from the Proposed Development. Although there are enhancements proposed as part of the Proposed Development these are not generally reported in the ES and where they may lessen an adverse effect, this is not taken into account when assessing residual effects. The potential beneficial effects of these enhancement measures are also not reported in the ES. Potential enhancements are, however, included in the Enhancement Strategy (**Document 7.13**).

4.9 ASSESSMENT OF RESIDUAL LIKELY SIGNIFICANT EFFECTS

4.9.1 Once mitigation measures are taken into account it is possible to identify residual environmental effects. These are the effects that would be likely to occur if the Proposed Development were implemented and delivered, including all of the mitigation measures identified.

4.9.2 A key requirement of EIA is that it should assess the likely significant effects of a project on the receiving environment. It is therefore important that each of the technical assessments identifies what constitutes a ‘likely’ and ‘significant’ effect.

4.9.3 There is no statutory definition of what constitutes a ‘significant’ effect within the EIA Regulations. However, significance is generally taken as a function of the importance, value and/or sensitivity of a receptor (including aspects

such as rarity, fragility, whether it can be replaced, and its inherent value, as well as the resilience of the feature potentially affected to the type of impacts envisaged) and the magnitude of the potential impact (which may encompass matters such as spatial extent, intensity, duration and frequency of the effect). Significance is sometimes determined on the basis of expert judgement applied to qualitative or quantitative information. However, for certain environmental effects the significance is determined with reference to the predicted level of impact set against accepted levels of exposure, for example when assessing the significance of traffic noise impacts on residential properties.

4.9.4 In order to help describe the general process through which significance is determined, the following paragraphs and tables provide a generic approach which has guided the development of topic specific criteria in this ES. The detailed approach taken for each of the separate topics may vary from this approach, based on topic specific guidelines published by government departments or professional institutions. Where this is the case these guidelines have been used and references made to the relevant publication. However, the basic principles apply to most of the technical assessments.

4.9.5 The following generic criteria are typically used to inform the assessment of the significance of an effect:

- Extent and magnitude;
- Duration of effect i.e. short, medium or long-term;
- Reversibility of effect;
- Sensitivity and value of the receptor;
- Comparison with legal requirements, policies and standards;
- Comparison with applicable environmental thresholds; and
- Effectiveness of mitigation (residual effects only).

4.9.6 Typical sensitivity definitions are included in Table 6.3. The examples presented are from the assessment of effects relating to the aquatic environment and Water Framework Directive watercourses. It is not possible to give examples from all topic assessments as the range and value/sensitivity is not always the same. It should be noted that similar criteria are used for defining receptor sensitivity and value for beneficial effects.

Table 6.3: Example Sensitivity Criteria for Water Quality and Resources.

Sensitivity Value for Receptor	Criteria	Receptor Type	Example
Very high	Feature with a very high yield, quality or rarity with little potential for substitution.	Aquatic environment	Conditions supporting sites with international conservation designations (SACs, SPAs, Ramsar sites), where the designation is based specifically on aquatic features. High status WFD water bodies
	Water resources supporting human health and economic activity at a regional scale.	Water resources	Regionally important public surface water supplies or permitted discharges.
High	Feature with a high yield, quality or rarity with a limited potential for substitution.	Aquatic environment	Conditions supporting sites with national conservation designations (e.g. SSSI, NNR) where the designation is based specifically on aquatic features. Receptor WFD water body currently attaining at least good status/potential. Non-reportable WFD river water bodies (usually coastal catchments with an area of <10 km^2 that NRW are not required to monitor, classify or report on) are assumed to be at good status.
	Water resources supporting human health and economic activity at a local scale.	Water resources	Local public surface water supplies. Licensed non-public surface water supply abstractions or permitted discharges which are large relative to available resource, or where raw water quality is a critical issue, e.g. industrial process water.
Medium	Feature with a	Aquatic	Sites with local conservation

Table 6.3: Example Sensitivity Criteria for Water Quality and Resources.			
Sensitivity Value for Receptor	Criteria	Receptor Type	Example
	moderate yield, quality or rarity with some potential for substitution.	environment	designations (e.g. LNRs, County Wildlife Sites) where the designation is based specifically on aquatic features. Receptor WFD water body currently attaining a status/potential of moderate or lower.
	Water resources supporting human health and economic activity at household/individual business scale.	Water resources	Licensed non-public surface water supply abstractions which are small relative to available resource, or where raw water quality is not important, e.g. cooling water, spray irrigation. Unlicensed potable surface water abstractions or permitted discharges, e.g. private domestic water supplies.
Low	Water resources do not support human health, and of only limited economic benefit.	Water resources	Unlicensed non-potable surface water abstractions, (e.g. livestock supplies).

4.9.7 Typical examples of magnitude are presented in Table 6.4 below. Again, the examples presented are for aquatic environment and Water Framework Directive watercourses, which are considered to represent a reasonably standard approach.

Table 6.4: Example of Water Quality and Resources magnitude of change			
Magnitude	Criteria	Receptor Type	Example of negative change
High	Results in major change (scale or duration) to feature,	Aquatic environment	Deterioration in river flow regime, morphology or water quality, leading to sustained,

Table 6.4: Example of Water Quality and Resources magnitude of change			
Magnitude	Criteria	Receptor Type	Example of negative change
	of sufficient magnitude to affect its use/integrity		permanent or long-term breach of relevant conservation objectives (COs), non-temporary downgrading of WFD status (including downgrading of individual WFD elements), or resulting in the inability of the water body to attain good status in line with the measures identified in the River Basin Management Plan.
		Water resources	Complete loss of licensed water resource or severely reduced resource availability and/or quality, compromising the ability of water users to exercise licensed rights. Complete loss of non – licensed water resource or severely reduced resource availability and/or quality.
Medium	Results in noticeable change to feature, of sufficient magnitude to affect its use/integrity in some circumstances	Aquatic environment	Deterioration in river flow regime, morphology or water quality that may lead to periodic, short-term and reversible breaches of relevant COs, or potential temporary downgrading of WFD status (including potential temporary downgrading of individual WFD elements) but would not affect the ability to achieve future WFD objectives).
		Water resources	Moderate reduction in licensed water resource availability and/or quality, which may compromise the ability of water users to exercise licensed rights on a temporary basis or for

Table 6.4: Example of Water Quality and Resources magnitude of change			
Magnitude	Criteria	Receptor Type	Example of negative change
			limited periods with no longer – term impact on the purpose for which the water is used. Moderate reduction in non – licensed water resource availability and/or quality with no longer term impact on associated users and no cessation of drinking water supply to associated users.
Low	Results in minor change to feature, with insufficient magnitude to affect its use/integrity in most circumstances	Aquatic environment	Measurable impact on river flow regime, morphology or water quality, but remaining generally within COs, and with no short-term or permanent change to WFD status (of overall status or element status).
		Water resources	Minor reduction in resource availability and/or quality, but unlikely to affect the ability of water users to exercise licensed rights.
Very Low	Results in little or no change to feature, with insufficient magnitude to affect its use/integrity	Aquatic environment	No measurable impact on river flow regime, morphology or water quality and no consequences in terms of COs or WFD designations.
		Water resources	No measurable change in licensed water resource availability or quality and no change in ability of water users to exercise licensed rights. No measurable change in licensed water resource availability or quality.

4.9.8 Once the sensitivity and value of the receptor and the magnitude of the impact have been identified, it is possible to determine the significance of

the effect. The identification of significance typically requires the application of professional judgement; however a significance matrix may also be used as a guide to help identify the likely significance of effects. An example of a significance matrix is provided in Table 6.5.

Table 6.5 Assessment Matrix

Sensitivity/Value of receptor	Magnitude of impact			
	High	Medium	Low	Very low
Very High	Major	Major	Moderate	Minor/Negligible
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Minor	Negligible	Negligible
Low	Minor/Negligible	Negligible	Negligible	Negligible

4.9.9 Moderate and major levels of significance are usually considered to be significant in EIA terms. Significance categories are described in Table 6.6 below.

Table 6.6 Significance Category Descriptions

Significance Category	Typical description	Significant effect?
Major	A large and detrimental change to a valuable/sensitive receptor; likely or apparent exceeding of accepted (often legal) threshold. A large and beneficial change, resulting in improvements to the baseline result in previously poor conditions being replaced by new legal compliance or a major contribution being made to national targets. These effects may represent key factors in the decision making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.	Yes

Table 6.6 Significance Category Descriptions		
Significance Category	Typical description	Significant effect?
Moderate	A medium scale change which, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy, rather than legal statute. These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making. A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets (e.g. UK BAP targets) are contributed to.	Yes (Typically)
Minor	A small change that, whilst adverse, does not exceed legal or guideline standards. Unlikely to breach planning policy. A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of a project, but are unlikely to be critical in the decision making process.	No
Negligible	A very small change that is so small and unimportant that it is considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.	No

(Adapted from DMRB Volume 11 Section 2 Part 5 HA205/08)

4.9.10 Each discipline has further refined the above typical criteria for assessing significance based on relevant standards/guidelines for the particular topic. Alternative categories have been applied where topic specific methodologies favour their use (for example ‘slight’, ‘medium’, ‘large’ and ‘very large’ rather than ‘negligible’, ‘minor’, ‘moderate’ and ‘major’). A detailed explanation of

the specific criteria used for the assessment of each individual topic is set out in Section 4 of each of the topic chapters (**Documents 5.7 - 5.18**). As with this generic approach, most of the technical assessments consider effects of moderate and above to be significant, though again applying professional judgement.

4.10 TIMESCALES

4.10.1 Likely significant effects are assessed for all phases of the Proposed Development (construction, operation, maintenance and decommissioning). The duration of the affect may not always match the phase of the development however, for example an effect that starts during construction, such as the removal of a veteran tree, would endure for many years. An explanation of typical assessment timescales is provided below, though these are not always applicable to all topics, and may be overridden by topic specific guidelines:

- **Construction period effects:** These are effects that begin and end during the construction phase. This covers the likes of the potential effects of construction traffic, noise and vibration from construction, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, visual intrusion of machinery on-site for example. This includes aspects such as the OHL and tunnel construction work and the presence of construction compounds. Tunnelling work would be more consistent than the OHL construction work, with activity likely to occur every working day in the vicinity of the tunnel shafts, and activity occurring 24 hours a day during the tunnelling itself. The fact that works are not permanent does not necessarily mean they can always be considered short-term or temporary; longer construction periods may be considered a medium-term effect.

- **Operational and enduring effects:** these are the effects that, although they may start during construction, are either permanent or endure for a period beyond construction (for example the loss of mature trees) or represent an extended cumulative effect of construction activity. These effects include the actual operation of the Proposed Development as well. Indicative timescales are as follows:

    - Short-Term - endures for months after construction;
    - Medium-term – endures for 1-5 years;
    - Long-term – endures for 5-15 years; and
    - Permanent – longer than 15 years (operational noise effects fall into this category).

- **Maintenance effects**: These effects are very similar to construction effects in terms of timescales i.e. the effect begins and ends during the period through which a particular maintenance activity is undertaken. In general maintenance activity would be of a shorter overall duration than the initial construction period.

- **Decommissioning effects:** again these are similar to construction period effects – these largely relate to the effects which would occur during removal of the OHL, demolition of the THH/CSECs and capping or backfilling of tunnel shafts.

4.11 CUMULATIVE EFFECTS

4.11.1 When undertaking an assessment of the environmental effects of a project, it is necessary to consider how various effects may interact, and also how the effects of the Proposed Development could accumulate with the effects of other developments proposed within the same area of influence.

Intra-project effects

4.11.2 Intra-project cumulative effects (sometimes referred to as combined or interactive effects) occur where a single receptor is affected by more than one source of effect arising from different aspects of the Proposed Development. An example of an intra-project effect would be where a receptor is affected by dust, noise and traffic disruption during the construction of the Proposed Development, with the result being a greater level of nuisance than each individual effect alone.

4.11.3 Chapter 19 Intra-Project Effects (**Document 5.19**) provides both the methodology and findings of the assessment of intra-project effects.

Inter-project effects

4.11.4 Inter-project cumulative effects occur as a result of the construction or operation of the Proposed Development in addition to any other contemporaneous developments within the same study area, which individually might not be significant, but when considered together could create a significant cumulative effect. These include developments separate from and related to the Proposed Development, the key related example being the Wylfa Newydd Power Station Project.

4.11.5 The Planning Inspectorate Advice Note 17 provides guidance as to the type and scale of other developments that should be taken into account in the assessment of cumulative effects with other projects. The approach taken to identifying other projects and the detailed methodology for the assessment of cumulative effects, is provided in section 10 of each technical

chapter (**Documents 5.7 – 5.18**), as well as collectively in Chapter 20 Inter-Project Cumulative Effects (**Document 5.20**).

Topic interactions

4.11.6 There are a number of interactions between topics that are taken into account in each of the technical chapters; the related chapters are set out in the introduction to each chapter. However a summary of the interactions is provided here. These interactions are similar to intra-project effects, but without the shared receptors; the receptors in this instance are considered only by a single technical chapter, rather than being common to two or more chapters. The interaction occurs because a source of effect considered in one assessment may affect a receptor that is considered in another chapter; for example a noise sensitive species considered in ecology.

4.11.7 The following table highlights those chapters that include assessment of a source of effects that is then considered within another chapter.

Table 6.6 Topic Chapter interactions

		Topic as a Source											
		Landscape	Visual	Ecology	Historic	Geology	Water	Traffic	Air Quality	Const. Noise	Oper. Noise	Socio-econ	Agriculture
Topic as Receptor	Landscape												
	Visual												
	Ecology					T	T		T	T	T		
	Historic	T	T										
	Geology												
	Water					T							
	Traffic												
	Air Quality							T					
	Const. Noise							T					
	Oper. Noise												
	Socio-econ			T									

Table 6.6 Topic Chapter interactions

		Topic as a Source											
		Landscape	Visual	Ecology	Historic	Geology	Water	Traffic	Air Quality	Const. Noise	Oper. Noise	Socio-econ	Agriculture
	Agriculture												

Combined Effects

4.11.8 For the purposes of this EIA, the term 'combined effects' is used to describe effects on environmental receptors that may be affected by both the Proposed Development, and a series of other works being undertaken by National Grid on in Gwynedd. These other works are referred to as the 'wider works'. These works are not included in the application for a DCO being made under the Planning Act 2008, but will be consented separately either through the Town and Country Planning Act 1990 (as amended) or through permitted development rights. A description of the wider works, how combined effects have been assessed, and the findings of the assessment, are all included in Chapter 21 Statement of the Combined Effects with the Wider Works (**Document 5.21**).

4.12 MONITORING

4.12.1 Any monitoring needed to confirm that the mitigation measures put in place are working as intended is reported within the mitigation section of each of the technical chapters (**Documents 5.7 – 5.18**).

4.12.2 Monitoring may sometimes be required to confirm that no effect is taking place, particularly if there has been any uncertainty, or difficulties in assessing effects. Any such monitoring is also reported in the technical chapters.

5 Basis of Assessment

5.1 INTRODUCTION

5.1.1 There are some aspects of the Proposed Development for which spatial flexibility is included within the draft DCO (**Document 2.1**) whilst for other aspects there is little or no spatial flexibility. As a result, the various elements that make up the Proposed Development have sometimes required a different approach to their assessment. In this section, the various elements of the Proposed Development are discussed, with reference to the flexibility available. There is then a discussion regarding how each of the technical assessments has dealt with this flexibility, to ensure that a realistic and likely worst case assessment has been undertaken. The assumptions applied regarding flexibility are referred to in this ES as the 'basis of assessment' and each of the technical assessment chapters (7 - 18) (**Documents 5.7 - 5.18**) includes a section with this heading, under which the approach is discussed.

5.2 THE 'ROCHDALE ENVELOPE'

5.2.1 The design of the Proposed Development is shown on four sets of plans, as follows:

- Design Plans show the parameters for Braint and Tŷ Fodol THH/CSEC and Wylfa and Pentir Substation; they are **Document 4.13**;
- Works plans show the Order Limits, above and below ground LOD, site boundaries, pylon locations, centreline and construction compounds; they are **Document 4.4**;
- Construction Plans show everything that is on the works plans plus all of the working areas, bellmouths and access track locations. These are Figure 4.1 of Chapter 4 Construction, Operation, Maintenance and Decommissioning (i.e. **Document 5.4.1.1**); and
- Third Party Construction Plans are Figure 4.2 of Chapter 4 (i.e. **Document 5.4.1.2**).

5.2.2 These designs, for the most part, are not fixed, but are subject to an element of flexibility. It is common for major infrastructure projects to include such elements of flexibility to facilitate further design work, and modifications, post consent, in response to new information or different approaches to the design or construction identified by the contractor. The inclusion of such flexibility is essential to ensure that previously unidentified issues, such as the identification of unrecorded significant archaeological remains, or highly unsuitable ground conditions, do not result in a consented project being unbuildable.

5.2.3 Planning Inspectorate Advice Note 9 The Rochdale Envelope (version 2 dated April 2012[4]) provides guidance on how to deal with design flexibility within EIA. The flexibility inherent in the proposals is referred to as the 'Rochdale Envelope' after the legal cases which established its precedent[5]. Advice Note 9 states that '*The 'Rochdale Envelope' is an acknowledged way of dealing with an application comprising EIA development where details of a project have not been resolved at the time when the application is submitted.*' but moves on to say '*The challenge for the EIA will be to ensure that all the realistic and likely worst case variations of the project have been properly considered and clearly set out in the ES and as such that the likely significant impacts have been adequately assessed*' and that *'The project should be described in such a way that a robust EIA can be undertaken'*.

5.2.4 Both the Planning Inspectorate guidance and EIA case law supports the assessment of a 'realistic and likely worst case' in instances where flexibility is applied for.

5.3 FLEXIBILE ASEPECTS OF THE PROPOSED DEVELOPMENT

The Overhead Line

Construction Programme

5.3.1 As stated in Section 4.3.8, although the construction period identified is approximately 6.25 years in total, the OHL construction would be likely to

[4] https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf

[5] R. v Rochdale MBC ex parte Milne (No. 1) and R. v Rochdale MBC ex parte Tew [1999] and R. v Rochdale MBC ex parte Milne (No. 2) [2000].

take less than the construction period for the tunnel, however there would be little opportunity to compress the OHL construction period, due to the need to work to planned outages. There is therefore only a limited amount of flexibility in terms of the start date for OHL construction within the overall construction period. There is, however, flexibility in terms of the commencement year of the overarching construction period, as works must commence within five years of the grant of a DCO; the sensitivity of each topic to a change in commencement year is reported in section 5 of each technical chapter (**Documents 5.7 – 5.18**).

5.3.2 The likely duration of each of the individual elements of work that make up the overall construction programme has been identified, however it is possible that some elements, once under construction, could take a longer or shorter period to construct than the current estimate. Therefore, in section 5 of each of the technical chapters (**Document 5.7 – 5.18**), consideration is given to the sensitivity of the assessment to any potential changes in the duration of activities, and whether an increase in duration would be likely to increase the significance of any reported effects.

Vertical LOD for Pylon Height

5.3.3 The proposed vertical LOD for pylon height is designed to take account of two standard 3 m steel lattice pylon extensions; the vertical LOD for pylons is therefore +6 m. This height has been chosen as a vertical increase of 3 m allowing a 25 m increase of horizontal movement; given the design objective to maintain a 25 m clearance distance from hedges, fences and roads, a total of 50 m of horizontal movement is therefore required to move a pylon from one field to the next, which equates to a 6 m vertical increase albeit this is dependent on local topography. The pylon heights shown in the Indicative Pylon Schedules (Appendix 3.1 (**Document 5.3.2.1**)) may reduce in height if they are moved within the LOD, though minimum safety clearances for all OHLs are strictly prescribed and are legally binding.

5.3.4 There is no limit placed on the maximum depth of below ground works. This is because to place a limit may unnecessarily restrict below ground works where there is little or no chance of likely significant effects resulting. In particular, it may be necessary to undertake archaeological excavation, and to have placed a limit on the depth of such excavation works would be unnecessarily restrictive. However the difference in the effects caused by such depth differences, (largely dependent upon the type of foundation used) would be likely to be very small. A standard LOD below ground is not therefore proposed.

Horizontal Limits of Deviation - Overhead Line

5.3.5 Although the Works Plans (**Document 4.4**) show indicative pylon locations, the plans also show the horizontal LOD. The pylons could theoretically be located anywhere within these limits, and the conductors could also be relocated accordingly.

5.3.6 In most instances the LOD extends approximately 50 m from the centreline of the alignment shown in the Works Plans (**Document 4.4**), though they are narrower in places.

5.3.7 National Grid would typically retain pylon positions at the locations identified on the Works Plans (**Document 4.4**); for the Proposed Development this is particularly important as synchronising the pylon locations is an important design objective; however in theory the pylons could be located anywhere within the LOD.

5.3.8 Although this may appear to provide a substantial degree of flexibility regarding the location of pylons along the route, in reality such movement would be limited by a number of factors, which are set out in sections 5.3.9 to 5.3.30 below.

Basis of Assessment and constraints and limitations on the use of flexibility within the LOD

Engineering Constraints

5.3.9 The spans of conductor (accounting for conductor swing) and/or associated equipment would always be designed not to oversail areas beyond the LOD boundary. Pylon base locations can be varied, but due to the foregoing restrictions might not be able to be moved to the maximum extent of the LOD. The potential for pylon movement is reduced in long spans with large conductor sags as the swing of the conductor can be up to 20-30 m in plan on either side of the pylon. It is possible for individual spans to have smaller conductor swings, conversely allowing respective pylon bases to move further towards the edge of the LOD. For the purposes of assessment a 20 m movement of pylon bases towards the extent of the LOD has been used.

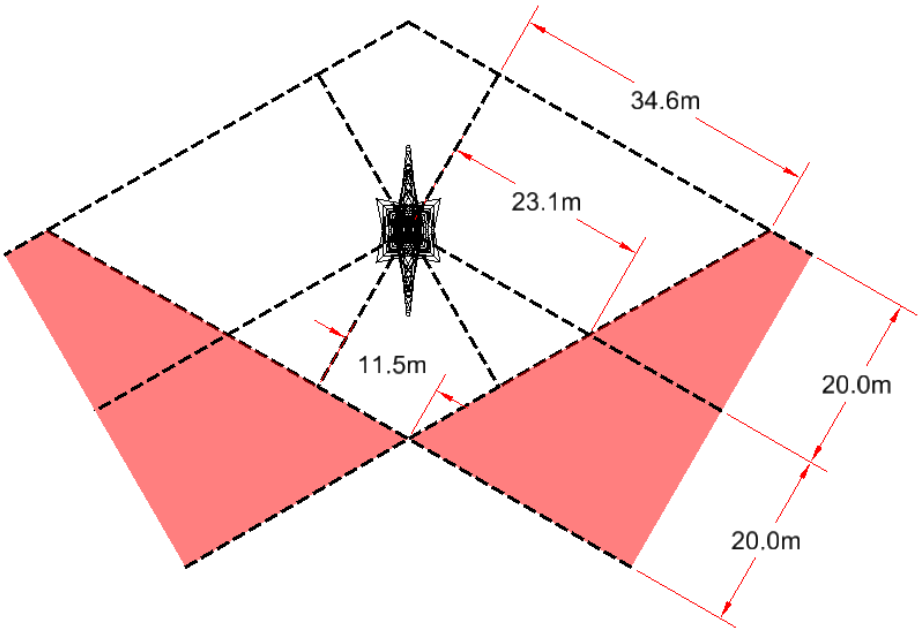
5.3.10 In some locations the standard 50 m extent of the LOD from the centreline has been restricted, typically to avoid the potential for a pylon and/or conductors to be located in close proximity to a receptor. Where the LOD has been restricted, the assessment has assumed the OHL is moved as far as practicable (and no more than the 20 m) whilst ensuring the conductor span (accounting for conductor swing) and/or associated equipment does not exceed the LOD boundary.

5.3.11 The ability to move pylon locations away from those identified on the Works Plans (**Document 4.4**) is also effectively restricted by the vertical LOD. Movement is restricted by the height of one or both pylons in a span. Moving a single pylon in isolation could result in that pylon needing to increase in height. This is due to the increase in span length of one of the adjacent spans and consequential lowering of the conductor (i.e. increased sag). Therefore to maintain the minimum statutory ground clearance the pylon height may need to be raised. The limit on moving a particular pylon is essentially how far a single pylon could move and still maintain the required conductor ground clearance while not exceeding the vertical LOD (+6 m). Many things can influence this, including the topography of the land and the type and location of obstacles in the span; typically, the maximum 6 m vertical increase would equate to approximately 50 m of horizontal pylon movement.

5.3.12 Should any pylon be repositioned along the length of the OHL, the subsequent effects on the position of the next pylons along the alignment (i.e. any subsequent repositioning of other pylons) would be relatively limited, as National Grid would typically seek to retain pylon positions at the locations shown on the Works Plans (**Document 4.4**).

5.3.13 Pylons are either suspension pylons, from which the conductor is simply suspended, or tension pylons, which are more robust structures that hold conductors in tension where there is a need for the route of the OHL to change direction, or to maintain tension in long straight sections. A tension pylon would, in practice, have limited ability to be moved from its proposed position. It could only follow one of the route directions before or after the pylon and as such the opposite section would need to deviate widthways for which the tolerance is more restricted, i.e. the conductors (and the space required for swing in adverse weather conditions) would soon exceed the horizontal LOD beyond which it is not permitted to extend. This is illustrated on the image below, where the white kite shape shows the maximum horizontal deviation possible for a typical tension pylon (NB the pylon could not be positioned in the area shaded in red; the kite shape and dimensions would vary with change in angle of deviation).

Image 1: Representative extent of generic horizontal LOD at 60° angle position based on an indicative 20 m movement.



Efficiency

5.3.14 The design shown on the Works Plans (**Document 4.4**) has been developed as an efficient solution for the Proposed Development. It is likely that substantial changes to the design as presented would decrease the efficiency of the Proposed Development design. As such there is an expectation that the design shown as pylon working areas and an OHL centre line on the Works Plans (**Document 4.4**) would be constructed, unless there were good engineering, safety or environmental reasons not to do so.

Environmental Constraints

5.3.15 Throughout the EIA, limitations have been placed on the horizontal LOD where particular environmental sensitivities have been identified. Each request to constrain the horizontal LOD has been considered by the design team to ensure that the loss of flexibility does not present a risk to the constructability of the Proposed Development. These restrictions have been secured through the Schedule of Environmental Commitments, which is presented as **Document 7.4.2.1**, which is part of the CEMP (**Document 7.4**) which is secured under Requirement 5. These include the location of a number of pylons that have largely been fixed to limit the visual effects in more sensitive locations.

5.3.16 Once the restrictions included on the Schedule of Environmental Commitments (**Document 7.4.2.1**) are taken into account, moving a pylon

within the LOD would make little difference to the significance of effects as reported.

5.3.17 For the majority of technical assessments (Chapters 7 – 18 (**Documents 5.7 - 5.18**)), where receptors can be clearly identified spatially, the use of the Schedule of Environmental Commitments (**Document 7.4.2.1**) has proved to be an effective approach to mitigation and to ensure that assessments are sufficient to assess the potential effects of the use of flexibility. There are other spatial commitments made by restricting the type of works that can be undertaken in certain areas, for example where works are limited to drainage only. Details of topics that have used this approach are included in the following table. Note that this does not include all mitigation measures; for details of all measures please refer to the Schedule of Mitigation (**Document 5.28**) which identifies where all committed mitigation measures are secured.

Table 6.7 Use of the Schedule of Environmental Commitments and other spatial commitments

Topic	Approach to Schedule of Environmental Commitments
Landscape	Retention of some trees, including trees subject to Tree Preservation Orders and certain Category A and B trees. There is also a commitment to avoid the rocky outcrops which are a feature of the Special Landscape Area in Section A.
Visual	There are a number of pylons that have been fixed in their location, with little potential for their movement, as part of mitigation. Others are identified as low height pylons. Retention of sections of conifer hedge. Commitment to certain properties not being occupied
Ecology and Nature Conservation	Commitments have been made to: • avoid great crested newt (GCN) ponds and certain areas of GCN habitat; • avoid removal of some bat roost trees; • not to constrain the bat barn related to the Wylfa Newydd Power Station; • avoid certain areas of marshy grassland, rush pasture, acid grassland, dry acid heath grassland, semi-improved neutral grassland, reptile habitat and scattered scrub;

Table 6.7 Use of the Schedule of Environmental Commitments and other spatial commitments	
Topic	Approach to Schedule of Environmental Commitments
	• reduce the loss of important hedgerows; • construct in line with specific measures identified in the Biodiversity Mitigation Strategy (**Document 7.7**) for watercourses with water vole; • avoid work within a county wildlife site, where appropriate; • avoid ground disturbance in root protection areas for some areas of ancient woodland; • avoid some areas of rocky outcrop; • reduce works in some areas to limit disturbance of breeding birds; • reduce the loss of woodland; and • limit the types of works that can be undertaken in parts of the Order Limits, such as limiting works to drainage only.
Historic Environment	Commitments have been made to avoid certain features including some cloddiau and to reduce impacts on important hedgerows. Areas to avoid excavation wherever possible are identified for unrecorded archaeological remains.
Geology, Hydrogeology and Ground Conditions	Direct disturbance of areas of rocky outcrops would be avoided. Areas of potentially infilled land and probable shallow coal mine workings avoided.
Water Quality, Resources and Flood Risk	A number of watercourses have been identified for crossing with a clear span bridge rather than a culvert. Limits have also been placed on the types of works that can be undertaken in parts of the Order Limits, such as areas where works are limited to drainage.
Traffic and Transport	No commitments have been necessary.
Air Quality	Commitment to certain properties not being occupied
Construction Noise	Commitment to certain properties not being occupied
Operational Noise	Commitment to certain properties not being occupied
Socio-economics	No commitments have been necessary, other than those

Table 6.7 Use of the Schedule of Environmental Commitments and other spatial commitments	
Topic	Approach to Schedule of Environmental Commitments
	made in relation to effects contributing to the assessment of amenity effects.
Agriculture.	No commitments have been necessary.

Other factors limiting the use of flexibility.

5.3.18 As set out above, for a number of topics the Schedule of Environmental Commitments (**Document 7.4.2.1)** has been used to address what could otherwise have been effects of greater significance than those identified in the assessment of the design as shown on the Works Plans (**Document 4.4**). The section above has also set out some of the engineering limitations on use of the LOD. However for some aspects of the assessment, in particular for landscape effects, it is more difficult to identify site specific restrictions on the LOD, as the receptors of such effects are not as spatially distinct. However, it is also not possible to identify and assess all conceivable design permutations within the LOD. It is therefore important to provide evidence that the assessment that has been undertaken has been successful in identifying all the effects that are likely and significant. As such, for these topics it is important to understand what other likely limitations there are on the use of flexibility, in order to provide confidence that the assessment of the design as shown on the Works Plans (and associated LOD) (**Document 4.4**) is robust without the need to identify additional worst case permutations. These additional factors are:

- the limited range of circumstances when a change to the design as shown on the Works Plans (**Document 4.4**) would be needed; and
- the objective of maintaining synchronicity with the pylons of the existing OHL to minimise visual effects.

Under what circumstances would the LOD be used?

5.3.19 The factors that could potentially lead to the need to move a pylon from the location shown on the Works Plans are limited. Beyond these factors, there would be little reason to consider moving a pylon, in particular given the consultation with stakeholders and landowners undertaken during development of the design as shown on the Works Plans (**Document 4.4**), and the potential reduced efficiency. It is not impossible that other reasons may be identified, such as to respond to planning permissions or buildings

constructed prior to a DCO being granted; however it is considered to be unlikely. The potential factors that could require a pylon to be relocated are listed in the following table.

Table 6.8 Potential reasons for moving a pylon location.

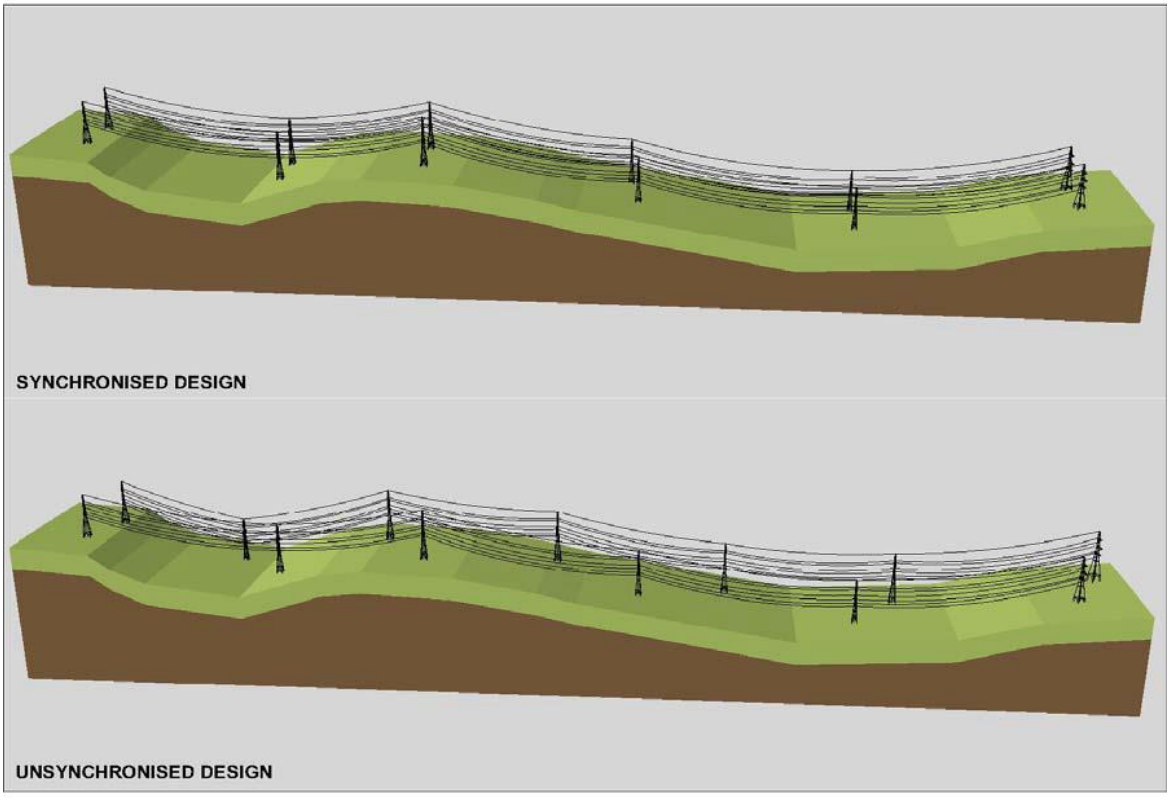
Reason for pylon move	Actions taken to reduce the likelihood of moving a pylon	Residual risk
Unrecorded significant archaeology. If archaeology were identified through Watching Brief and 'strip and map' and it was of sufficient interest to preserve in situ, or too costly to excavate, consideration would be given to relocating a pylon/pylons.	Geophysical surveys have been undertaken at each of the pylon locations considered to have the most potential for buried archaeology. Potential for preservation by record for simple finds.	**Low**
New or increased Ecological Constraints. If there are new or different protected species present, for example a new badger sett, or great crested newt presence in a pond where they were previously absent.	Extensive ecological survey work has been undertaken over a two year period to develop a detailed baseline. Habitats likely to attract protected species have been largely avoided. Options for translocation would be considered first before considering design changes.	**Low**
Unforeseen Ground Conditions. Should poor ground conditions be encountered it may be necessary to move a pylon to a new location where ground conditions are more suitable. For example, if a large solid mass such as a large concrete foundation or void such as a well or shaft (in the ground) can be avoided by moving the position of the pylon up to 10 m, then it may be that the LOD are used. This would remove the need for intensive site works to rectify the	Ground investigations have been undertaken at some indicative pylon locations to try to identify if there are any areas of poor ground conditions. The presence of the existing 400 kV OHL close to the Proposed Development provides a good indication of existing ground conditions. There may be potential to change foundation design to avoid relocating a pylon, and if disused mine shafts were identified these could be grouted up rather than moving a pylon, depending on their location, size and depth.	**Low**

issue found.		
Landowner Requests. Although landowner engagement has already been undertaken as part of the development of the design shown on the Works Plans (**Document 4.4**) requests to move pylons within the LOD may still be accommodated.	Engagement has been undertaken with landowners throughout the design of the Proposed Development and the design as shown on the Work Plans (**Document 4.4**) has responded to requests as appropriate. Liaison with landowners would continue prior to construction.	**Low**

Why is synchronicity important, and how will it be maintained?

5.3.20 Where sections of the existing and new OHLs would run in close proximity or parallel to each other, the siting of the new pylons relative to the existing pylons becomes particularly important in visual terms. If the pylons and sag of the conductor in each span were substantially out of step, then the visual 'flow' of the two lines would be discordant, potentially resulting in greater visual effects than a synchronised design. This effect is illustrated in the sketch in Image 6.1 below.

Image 2 Representation of synchronised and unsynchronised OHL designs.



5.3.21 This visual effect could be reduced or avoided if new pylons are located adjacent to the existing pylons and are of a similar height, synchronising the rise and fall of the two lines across the landscape. This has been considered in detail during development of the design as shown on the Works Plans (**Document 4.4**).

5.3.22 There are no known policies or guidance documents that specifically refer to the synchronising or pairing of pylons when routeing parallel OHL. However, when considering routeing of transmission lines, National Grid employs the Holford Rules[6] as the basis for the approach to routeing. These rules mainly consider the visual effects from OHLs. Rule 6 relates to multiple OHLs and states:

'In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration or 'wirescape'.'

5.3.23 In addition to this rule, the following note on Rule 6 states:

'In all locations minimise confusing appearance. Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance; where routes need to diverge, allow where practicable sufficient separation to limit the effects on properties and features between the lines.'

5.3.24 National Grid considers that achieving a coherent appearance includes the pairing or synchronising of pylon locations where practicable.

5.3.25 For the purposes of the assessment of landscape/visual effects desk top and site based appraisals were undertaken of existing parallel 400 kV OHLs and looked at the appearance and benefits of synchronising parallel lines. A 3D model was also developed to explore the benefits of synchronising pylon locations and to help determine what longitudinal difference between 'opposite/paired' pylons would make them appear unsynchronised.

[6] Ref 7.3 National Grid; Holford Rules (https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf)

5.3.26 After considering existing 400 kV OHLs and the 3D modelling the following has been observed:

- Views that are from locations perpendicular to a route or long distance views from more elevated locations looking along two parallel lines benefit more from pylons being paired or synchronised;
- Synchronised pylons reduce the appearance of a 'wirescape' in views perpendicular to two parallel lines;
- Synchronised pylons do not appear to be paired in many views due to varying viewing angles and perspectives;
- Previous projects which have used synchronised pylons give a sense of coherency and of a route being planned and logical;
- Topography and routeing play a part in how well synchronisation works - flatter more open landscapes with straighter alignments benefit more from paired pylons, particularly in more distant views;
- The relationship between the height of the pylons and the horizontal deviation appears to determine when pylons could be termed as synchronised, e.g. when the distance between the pylons is greater than the height of the pylons, the overall effect is one of being unsynchronised.

5.3.27 The following conclusions are made on the definition of synchronisation when referring to two parallel 400 kV OHLs using approximately 50 m high pylons.

- **Synchronised** - Pylons are considered to be synchronised when they are located directly perpendicular to each other or are almost perpendicular within a maximum deviation of 20 m from the centre of the two pylons.
- **Broadly Synchronised** - Pylons are considered to be broadly synchronised when they sit almost perpendicular to each other within a maximum horizontal deviation (up and down the alignment) of between 20 m and 50 m from the centre of the pylons up or down the line. Being broadly synchronised still gives a level of coherency between the two lines as in some views the pylons would still give an impression of being paired, but less so in views perpendicular from the line.

5.3.28 Anything beyond 50 m is not considered to be synchronised or broadly synchronised.

5.3.29 Achieving synchronicity wherever practicable has been an important objective in preparing the design as shown on the Works Plans (**Document 4.4**).

5.3.30 As identified in Paragraph 5.3.12 above relating to engineering constraints, if it were necessary to move a pylon, and if this move resulted in a local change from the OHL being 'synchronised' or 'broadly synchronised' to not synchronised, National Grid would seek to regain pylon positions at the locations shown on the Works Plans (**Document 4.4**) as soon as practicable. As such there are two important factors when considering the potential for a currently synchronised section of the design, as shown on the Works Plans (**Document 4.4**) to become not synchronised, and therefore to potentially change the findings of the assessment of the design as shown on the Works Plans (**Document 4.4**). Firstly, as identified above there are tolerances that would allow small movements to pylon locations without a resulting loss of synchronicity. Secondly, even if there were a need to move a pylon, and this resulted in a loss of synchronicity, any effects would be limited to a small section of the OHL, and therefore unlikely to be of greater significance than the design as shown on the Works Plans (**Document 4.4**).

5.3.31 In summary, when considering how to assess the design as shown on the Works Plans (**Document 4.4**), noting the various possible permutations within the horizontal LOD, it is important to consider the following factors:

- The inherent engineering design constraints of the OHL that limit the potential for changes to the design as shown on the Works Plans (**Document 4.4**) within the LOD;
- The commitments made in the Schedule of Environmental Commitments (**Document 7.4.2.1**), and other limitations on work in certain locations, which have been used to protect certain areas and environmental features within the LOD, including fixing the location of a number of pylons to mitigate visual effects;
- The limited range of circumstances under which a movement away from the design as shown on the Works Plans (**Document 4.4**) would be necessary, and therefore the low risk of substantial changes to the design as shown on the Works Plans (**Document 4.4**);
- The design objective to achieve synchronicity wherever practicable, which has been central to the development of the design as shown

on the Works Plans (**Document 4.4**), and the tolerance for small changes without losing synchronicity; and

- The commitment to regain the design as shown on the Works Plans (**Document 4.4**) as soon as practicable.

5.3.32 Taking account of the above factors it is been concluded that the basis of assessment described in section 5 of each of the technical chapters (**Documents 5.7 - 5.18**) is appropriate for the assessment of likely significant effects.

Penmynydd Road and Pentir OHL Construction Compound

5.3.33 The full extent of the construction compound at Penmynydd Road and Pentir are shown on the Construction Plans, Figure 4.1(**Document 5.4.1.1**). For the purposes of this assessment it is assumed that all land identified as a construction compound on the Construction Plans (**Document 5.4.1.1**) is used for construction compound purposes, although in reality the area may not be used in its entirety. The compounds would be in use on a daily basis for the duration of the OHL construction programme.

Access Tracks

5.3.34 Temporary access tracks would be used for the transportation of plant and materials from the highway network to working areas; they would either be stone laid on a geotextile membrane, or formed of interlocking panels, depending on ground conditions and the duration and type of use. The access track locations are not fixed, however the bellmouths that connect access tracks to the highway network are fixed. Proposed access track locations are shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**). These indicate a maximum width of 12 m for the majority of access tracks; however this takes account of the requirement to have passing places and possibly turning circles; in practice the majority of the access track would be approximately 4-5 m in width. Access tracks for the tunnel have a higher maximum width of 25 m as shown on Design Plan DCO_DE/PS/11_02 Sheet 2 of 6 (**Document 4.13**).

5.3.35 Where the access tracks are a potential source of effects for a particular topic the assessment has been undertaken of the design as shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**); however consideration has also been given to any areas within the Order Limits where the construction or presence of access tracks would lead to effects of greater significance. Where appropriate the use of access tracks in these areas has been restricted as identified on the Schedule of Environmental

Commitments (**Document 7.4.2.1**), or else the potentially greater significance of effects of alternative access track locations is reported.

5.3.36 Access tracks would be established during the initial phase of the OHL construction work. They would be unlikely to be in constant use. For noise and air quality assessment purposes the peak year of traffic on these access tracks is considered.

Visibility Splays

5.3.37 The visibility splays and other works to highway boundaries have been assessed as being required for the full extent of the area demarcated on the Construction Plans (**Document 5.4.1.1**). For example it is assumed that if a hedgerow was present within the area demarcated the full extent of the hedgerow would be removed.

Pylon Working Areas

5.3.38 The pylon working area would be approximately 50 m x 50 m and would be required in the area immediately surrounding any proposed new or temporary pylons or surrounding pylons proposed for removal.

5.3.39 The pylon working area locations and sizes have been assessed as shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**); however consideration has also been given to any areas within the Order Limits where the sensitivity of receptors would be greater and therefore effects of pylon working areas could be more significant. Where appropriate the establishment of working areas in these areas has been restricted through the Schedule of Environmental Commitments (**Document 7.4.2.1**), or else the potentially greater significance of effects of alternative working areas is reported. Although pylon working areas would remain in place until completion of commissioning, construction work is more likely to be intermittent.

Scaffolding and Associated Working Area

5.3.40 Temporary scaffolding would be installed during the works as a safety measure to protect roads, railways, public rights of way and third party OHLs that would be crossed by the 400 kV OHL. The temporary scaffolds would use concrete blocks, or stays.

5.3.41 For assessment topics where the presence of scaffolding is a potential source of effects, the scaffold areas have been assessed where they are shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**), and it has been assumed, for the purposes of assessment, that they could be present

for any duration within the OHL construction programme, although in reality they will only be installed as and when required. .

Pulling Positions

5.3.42 The pulling positions are required for the installation of conductors. A typical pulling position is shown on DCO_DE/PS/10_02 Sheet 2 of 3 (**Document 4.13**).

5.3.43 The pulling positions working areas are relatively inflexible, in that they only have an equivalent amount of horizontal flexibility to the associated tension pylon, which themselves have little potential to be substantially relocated. Within the pulling positions there is more flexibility in terms of where equipment is located. As such pulling positions have been assessed where they are shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**). Use of the pulling positions would be during the stringing stage of the OHL programme.

Temporary Alignments

5.3.44 Due to the need for transposition points (see explanation in Chapter 3, Description of the Proposed Development (**Document 5.3**) temporary alignments would be required in some locations. These have been assessed in the same way as the permanent alignment, including the potential flexibility available, though it should be noted that the potential for noise generation as a result of the operation of temporary alignments is considered in Chapter 16 Operational Noise (**Document 5.16**) rather than Chapter 15 Construction Noise and Vibration (**Document 5.15**).

Changes to Current and Future Property Uses

5.3.45 There would be two properties that are currently in residential use that would no longer be occupied as a residence during construction or operation of the Proposed Development. In addition there is one derelict property that would be prevented from being brought back into residential use. Section 5.4.1 identifies that there are two options considered for the OHL; Options A and B. Under Option A there would be an additional property that is currently in residential use that would no longer be occupied as a residence, giving a total of three such properties under this option. Where relevant, these properties are not considered as receptors of effects in the technical chapters.

Substations, including associated construction compounds

5.3.46 The potential extension size to the existing Wylfa substation is approximately 127 m x 4 m. Items of existing equipment would need to be removed and new equipment installed within the site boundary. The parameter plan within which the modified equipment would be located is shown on Design Plan DCO_DE/PS/01_01 Sheet 1 of 10 and the proposed layout is shown on Design Plan DCO_DE/PS/02 Sheet 2 of 10 (**Document 4.13**). The proposed elevations are shown on Design Plan DCO_DE/PS/01_03 Sheet 3 of 10 (**Document 4.13**).

5.3.47 There is little flexibility in the area available for the extensions to Pentir Substation, and as such the full area has been assumed to be affected by any of the associated works. The maximum parameters as shown on the Pentir Substation Parameter Plan DCO_DE/PS/01_04 Sheet 4 of 10 (**Document 4.13**) are assessed for all topics for which this is an assessment criteria. The full extent of the Pentir Substation construction compounds as shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**), has been assumed to be used.

5.3.48 The construction period for the Wylfa Substation works is approximately two and a half years, and Pentir Substation approximately three and a half years. These have been assessed commencing in early 2023, as shown on the high level construction programme provided in Chapter 4 Construction, Operation, Maintenance and Decommissioning (**Document 5.4**). Where there would be any potential for effects of greater significance, should works commence at a different stage of the programme, or endure for longer than indicated, this is highlighted in the relevant topic chapter.

Tunnel Head Houses/Cable Sealing End and Tunnel Construction Compounds

5.3.49 There is limited flexibility in the location of THH/CSEC, as they must be located within the locations shown on the Works Plans (**Document 4.4**) and within the maximum design parameters shown on the Design Plans (**Document 4.13**); all topics have assessed these maximum parameters. The full extent of the tunnel construction compounds, as shown on Figure 4.1, Construction Plans (**Document 5.4.1.1**) has been assumed to be used.

5.3.50 Activity at the tunnel construction compounds would endure for approximately six and a half years.

Tunnel

Tunnel Shafts

5.3.51 The tunnel shaft at Braint would be approximately 75 m deep and Tŷ Fodol 95 m deep. Although no maximum depth or width parameter is identified, it is considered highly unlikely that shafts of a substantially greater depth would be used, as deeper shafts than necessary would add engineering operational complexity and cost. Both shafts would have an internal diameter of up to 15 m. These dimensions have therefore been used within the assessment.

Horizontal LOD - Tunnel

5.3.52 There is a below-ground Horizontal LOD for the tunnel, which is shown on the Works Plans (**Document 4.4**). The Design Plans (**Document 4.13**) show an example tunnel alignment within the LOD, which is the longest direct tunnel alignment within the below-ground Horizontal LOD. It therefore represents the maximum amount of tunnel arisings that would be generated, and the longest construction period. For topics where the quantity of tunnel arisings is relevant for the assessment, the material generated by the example alignment shown on Design Plan DCO_DE/PS/07_01 Sheet 1 of 2 (**Document 4.13**) has been assessed, as it represents a realistic worst case. For other topics, such as construction noise and vibration, the maximum extents of the LOD are assumed to be used

Vertical LOD Tunnel

5.3.53 There is a minimum LOD set for the tunnel depth below ground, which is a minimum of 10 m below bedrock. The minimum depth parameter is assessed in all chapters for which the tunnel depth is an assessment criterion. For topics such as noise and vibration in the marine environment, this minimum depth represents the reasonable worst case.

5.3.54 There is no maximum depth parameter set for the tunnel. Small changes to the depth below ground level would not substantially increase the amount of tunnel arisings, or the duration of tunnelling work and, as such, although there are topics for which the minimum parameter is not necessarily the theoretical worst case, it is considered that effects could never be of greater significance than those identified when assessing the minimum parameter. A substantial increase in tunnel depth below ground level, sufficient to increase the overall length of the tunnel and substantially increase material arisings and extend the construction programme, is considered highly unlikely due to the nature of the geology, and the inefficiency of tunnelling deeper than necessary. It is therefore considered reasonable not to assess

substantially increased tunnel depths as this would not represent a realistic scenario.

Third Party Assets

5.3.55 In order to construct the Proposed Development, sections of existing overhead or underground third party services, would require modifying. The majority of these services are OHLs operated by the Distribution Network Operator (DNO), which in this instance is SP Manweb. These low voltage OHLs would be either undergrounded, relocated, or potentially protected via other means. These areas, and their associated accesses, are included within the Order Limits and form part of the Proposed Development. Each technical chapter has given consideration to which of the options would pose a 'worst case' for the topic and the assumptions made are reported in section 5 of each technical chapter (**Documents 5.7 - 5.18**).

Maintenance and Refurbishment

5.3.56 The potential maintenance requirements, ranging from simple more frequent activities, such as painting pylons, through to more infrequent extensive refurbishment works, are described in Chapter 4 Construction, Operation, Maintenance and Decommissioning of the Proposed Development (**Document 5.4**). All types of maintenance have been considered in each technical chapter; in many instances the construction effects have been used as a proxy for maintenance activities, albeit the effects would be likely to be smaller in scale and shorter in duration.

5.3.57 Effects as a result of the maintenance work could coincide with operational effects of the Proposed Development, for example visual effects as a result of the presence of the OHL could coincide with noise and visual effects as a result of maintenance work during an outage (although in this scenario there would be no operational noise effects). If this could lead to an overall effect of greater significance this is identified within the associated technical chapter.

Decommissioning

5.3.58 There are no detailed plans for the potential decommissioning of the Proposed Development; however for the purposes of assessment the works are assumed to take place within the same areas as construction activity, and for the most part the effects of construction have been taken as a proxy for the effects of decommissioning.

5.3.59 In some instances decommissioning would reverse permanent adverse effects, for example for landscape and visual effects as a result of the OHL.

5.4 CONSIDERATION OF SCENARIOS

5.4.1 Three sets of alternative scenarios have been considered within each of the technical assessment chapters. These are:

- Options A and B, which relate to two route alternatives on a section of the OHL, as explained in Chapter 3 (**Document 5.3**).
- Scenarios 1, 2 and 3 which relate to the method and the direction of tunnelling, as explained in Chapter 4 (**Document 5.4**)
- Construction traffic associated with the Proposed Development using the existing A5025 alignment or using the new alignment as proposed by Horizon Nuclear Power, as explained in Chapter 4 (**Document 5.4**)

5.4.2 Section 5 of each technical chapter (**Document 5.7 – 5.18**) details whether these scenarios are relevant to the technical assessment, and if so, how they have been assessed.

5.5 SENSITIVITY TEST

5.5.1 Under the terms of the draft DCO, construction could commence in any year up to five years following the grant of the DCO. In each of the technical chapters consideration has been given to whether the effects reported would be any different if works were to commence in any year up to year five. The approach taken is described in Section 5 of each of the chapters (**Documents 5.7- 5.18**).