



Wylfa Newydd Project

6.11 Environmental Statement

Non-Technical Summary

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1 Introduction

1.1 Horizon and the Wylfa Newydd Project

1.1.1 This document is the Non-Technical Summary (NTS) of the Environmental Statement, which reports the findings of the Environmental Impact Assessment (EIA) undertaken to support the following applications for the new nuclear power station, known as Wylfa Newydd:

- the application for development consent for the Wylfa Newydd Development Consent Order (DCO) Project; and
- the application for a Marine Licence for the Licensable Marine Activities.

1.1.2 In this NTS, the term ‘Wylfa Newydd Project’ refers to all the works and activities to be consented by the Development Consent Order (DCO) and Marine Licence described above. It includes the Site Preparation and Clearance Enabling Works which are already part of an application submitted to the IACC under the Town and Country Planning Act 1990. However, in order to maintain flexibility in the consenting process for the Wylfa Newydd Project, the SPC Proposals have been included in both applications. The A5025 On-line Highway Improvements, which include works to widen and resurface sections of the road were also part of the application to IACC, but are not part of the DCO application.

1.1.3 Horizon Nuclear Power Wylfa Limited (Horizon) is one of the Horizon Group of businesses that also includes Horizon Nuclear Power Ltd, a UK energy company seeking to develop a new generation of nuclear power stations to help meet the UK’s need for stable and sustainable low carbon energy.

1.1.4 Horizon is proposing to construct and operate a new nuclear power station, known as Wylfa Newydd, on land adjacent to the former Magnox nuclear power station, the Existing Power Station, on the north coast of Anglesey. The Power Station would deliver approximately 3,100 megawatts (MW) a year of electricity, which is enough power for around five and a half million homes. An illustrative layout of the Wylfa Newydd Project is shown in figure 1-1.

1.1.5 The Wylfa Newydd Project would create 850 permanent jobs, with a construction workforce of approximately 4,000 rising to approximately 8,500 workers at the peak of construction. It would also bring benefits to north Wales and local communities, not only through employment and training opportunities but also from the demand for local goods and services.

DCO consenting requirements

1.1.6 The Planning Act 2008 sets out the planning regime for Nationally Significant Infrastructure Projects (NSIPs), such as the Wylfa Newydd Project. Decisions under the Planning Act 2008 need to take account of relevant National Policy Statements. These would include the policies contained in the overarching NPS for Energy (NPS EN-1) and the NPS for Nuclear Power Generation (NPS EN-6). These documents establish that there is an urgent need for new

nuclear power. NPS EN-6 identifies the site at Wylfa as a potentially suitable location for new nuclear power.

Figure 1-1 Illustrative Layout of the Power Station



- 1.1.7 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (EIA Regulations 2009) set out the procedures to be followed so that applications for NSIPs fully consider impacts on the environment. The size and nature of the Wylfa Newydd Project is such that it requires an Environmental Impact Assessment (EIA) under the EIA Regulations 2009. Horizon has undertaken an EIA for the Wylfa Newydd Project and its findings are set out in the Environmental Statement.
- 1.1.8 New regulations (The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017) came into force on 16 May 2017 (EIA Regulations 2017). Under the EIA Regulations 2017, the EIA Regulations 2009 can still apply to applications which commenced before May 2017. Since Horizon submitted its most recent request for a Scoping Opinion to the Planning Inspectorate before 16 May 2017, the EIA Regulations 2009 continue to apply to the Wylfa Newydd Project. Nevertheless, the EIA has been undertaken with regard to the additional provisions of the EIA Regulations 2017.
- 1.1.9 Horizon would also require a Marine Licence, environmental permits and other licences, including a Nuclear Site Licence. The Environmental Statement, of which this is the NTS, also contains the EIA information required under the Marine Works (Environmental Impact Assessment) Regulations 2007 for the Marine Licence.

1.2 Environmental Impact Assessment

- 1.2.1 Horizon has undertaken an EIA to ensure that likely significant environmental effects of the Wylfa Newydd Project are fully understood and properly considered when the DCO and Marine Licence applications are determined.
- 1.2.2 EIA is a process that involves the identification, assessment and evaluation of the likely significant environmental effects of a project and how they might be reduced or avoided through mitigation.
- 1.2.3 The process of environmental assessment has involved the following stages and activities:
- definition of the geographical scope and timescales over which the assessment will be undertaken (spatial and temporal scope);
 - agreement of the environmental topics to be addressed in the assessment;
 - definition of the existing environmental conditions, through a combination of desk studies, site visits, detailed surveys and consultation;
 - assessment and prediction of impacts for different phases of the Wylfa Newydd Project;
 - identification of measures to avoid or reduce adverse environmental impacts, by considering design changes, or different management strategies (mitigation);
 - identification and assessment of effects that may still occur, even with the provision of measures to avoid or reduce effects; and
 - reporting the findings of the EIA process in the Environmental Statement.
- 1.2.4 Measures to reduce or avoid effects have been incorporated throughout the Wylfa Newydd Project. An overarching Wylfa Newydd Code of Construction Practice (CoCP) has been produced, as well as sub-CoCPs covering the Main Power Station Site, Marine Works, Off Site Power Station Facilities, Park and Ride, A5025 Off-line Highway Improvements and Logistics Centre respectively. The CoCP and sub-CoCPs outline the standards and measures of work required to comply with legislation and effectively plan, manage and control construction activities to reduce adverse effects. Similarly, the Wylfa Newydd Code of Operational Practice (CoOP) includes measures to reduce adverse effects during the operational stage of the Wylfa Newydd Project.
- 1.2.5 The environmental effects which remain once all mitigation has been included in the assessment are described as residual effects. These effects are considered during the DCO decision-making process by the Planning Inspectorate and the Secretary of State.
- 1.2.6 The EIA for the Wylfa Newydd Project has used what is known as a 'Rochdale Envelope' or parameter approach. This provides some flexibility around the design of a project, within clearly defined limits or parameters (such as zones within which buildings could be located, or their footprint or height). This

approach allows for limited changes after the grant of the DCO, as designs inevitably change and evolve, without the need to revisit the EIA.

Environmental Impact Assessment Scoping

- 1.2.7 Horizon has undertaken consultation with the Planning Inspectorate to establish the required scope of the EIA. In November 2009, Horizon submitted an EIA Scoping Report to the Planning Inspectorate. Following a period of consultation with stakeholders, a Scoping Opinion was received in April 2010. In March 2016, Horizon submitted an updated EIA Scoping Report, to ensure that changes made to the Wylfa Newydd Project were considered in the scoping process. A Scoping Opinion was received from the Planning Inspectorate in April 2016; this was supplemented by the Addendum to the Scoping Report, issued in May 2016, and a third Scoping Opinion received from the Planning Inspectorate in June 2017. These opinions have informed the approach to the EIA.
- 1.2.8 In the Scoping Opinion (received in June 2017), the Secretary of State noted that the main potential issues identified are:
- construction impacts (including noise, vibration, transport and air quality) on both the terrestrial and marine environment;
 - impacts to surface and groundwater;
 - impacts to terrestrial and marine ecology;
 - impacts from the on-site accommodation campus on Tre'r Gof SSSI (including from foul water discharge);
 - impacts on the setting of cultural heritage assets from associated development; and
 - impacts on the Anglesey Area of Outstanding Natural Beauty (AONB).

Consultation

Pre-Application Consultation

- 1.2.9 The Planning Act 2008 requires the developer of an NSIP, such as the Wylfa Newydd Project, to undertake pre-application consultation before making an application for a DCO. Horizon has undertaken extensive consultation with statutory and non-statutory bodies and the local community.
- 1.2.10 Stage One Pre-Application Consultation was undertaken in September 2014 with the aim of sharing information available at the time, asking questions, and promoting an open and ongoing dialogue with Horizon's consultees, stakeholders and the community. This was undertaken at an early stage in the development of the Wylfa Newydd Project where feedback could influence the proposals. The consultation included a Preliminary Environmental Information (PEI) Report to provide information to enable consultees to provide an informed response on the likely environmental effects of the Wylfa Newydd Project.

- 1.2.11 In September 2016, Horizon started Stage Two Pre-Application Consultation on updated proposals for the Wylfa Newydd Project. This presented information on how the Wylfa Newydd Project had developed since Stage One Pre-Application Consultation, and how feedback from stakeholders had been taken into account. The consultation documents included a further PEI Report to assist consultees in formulating their responses. The PEI Report presented preliminary details of the predicted likely environmental effects and mitigation measures for any adverse effects identified. Consultation feedback was used to inform the ongoing development of the designs.
- 1.2.12 In May 2017, Horizon began Stage Three Pre-Application Consultation, focussed on further updated proposals for the Wylfa Newydd Project. The consultation presented information on the proposed changes to the Wylfa Newydd Project since Stage Two, including updated environmental information, and any anticipated differences in the significance of effects.
- 1.2.13 In January and February 2018 following minor revisions to the Wylfa Newydd Project, and amendments to the extent of the Order Limits (the boundary) of the site, further consultation on additional land required to deliver the proposals was undertaken, known as the Consultation on Additional Land.

Other Environmental Stakeholder Consultation

- 1.2.14 In addition to the pre-application consultation summarised above, liaison with a range of environmental stakeholders has been ongoing throughout the development of the Wylfa Newydd Project.
- 1.2.15 In February and March 2016 (between Stage One Pre-Application Consultation and Stage Two Pre-Application Consultation), an EIA progress report was provided to the Isle of Anglesey County Council (IACC) and Natural Resources Wales (NRW) with updated information on the design development and associated environmental assessment. Subsequently, during September 2017, draft Environmental Statement chapters were provided to some statutory and key non-statutory stakeholders.
- 1.2.16 In addition to the project-wide consultation described above, for each of the individual topics included in the scope of the EIA, key stakeholders have been consulted on specific issues. Regular meetings have been held from the outset in relation to baseline data gathering, the assessment methods used and the agreement of mitigation measures.
- 1.2.17 Meetings have also been held with National Grid, to share information and discuss joint mitigation opportunities, with regard to their proposed application for a DCO for the North Wales Connection project.

Welsh Language and Culture

- 1.2.18 Horizon recognises the importance and strength of the Welsh language as a defining characteristic for the heritage and culture of many Anglesey communities. A Welsh Language Impact Assessment (WLIA) has been undertaken to identify the predicted effects, both beneficial and adverse, of the Wylfa Newydd Project on Welsh language and culture during construction,

operation and decommissioning phases. Mitigation identified through the EIA has had regard to Welsh language and culture, and the findings of the WLIA.

Content of the Environmental Statement

1.2.19 The Environmental Statement is set out according to the following structure:

- NTS (this document) – setting out a summary of the Wylfa Newydd Project, main alternatives, the environmental context, and the likely significant effects of the Wylfa Newydd Project on the environment;
- Volume A: Introduction to the Wylfa Newydd Project and to the Environmental Statement;
- Volume B: Introduction to the environmental assessments – setting out the approach to the EIA, the approach to proposed mitigation and how the significance of effects of the Wylfa Newydd Project have been determined;
- Volume C: Project-wide effects – which reports effects more appropriately considered at a project-wide level rather than for each component of the Wylfa Newydd Project in turn (e.g. effects relating to traffic and transport);
- Volume D: Wylfa Newydd Development Area (WNDA) Development – which reports the effects resulting from the activities on the Wylfa Newydd Development Area, including the Site Campus, Power Station, Marine Works and other on-site development;
- Volume E: Off Site Power Station Facilities - which reports the effects resulting from the co-located Alternative Emergency Control Centre (AECC), Environmental Survey Laboratory (ESL) and the Mobile Emergency Equipment Garage (MEEG);
- Volume F: Park and Ride – which reports the effects resulting from the Park and Ride to be provided off-site at Dalar Hir;
- Volume G: A5025 Off-line Highway Improvements – which reports the effects resulting from the A5025 Off-line Highway Improvements;
- Volume H: Logistics Centre – which reports the effects resulting from the Logistics Centre;
- Volume I: Cumulative effects – bringing together an assessment of effects of all the different components of the Wylfa Newydd Project described in volumes C - H, together with other developments that might reasonably expect to be delivered in the area and within a similar timeframe; and
- Volume J: Summary of environmental commitments and residual effects – which contains information on Horizon’s environmental commitments as well as the significant residual effects for the Wylfa Newydd Project.

2 The Wylfa Newydd Project

2.1 Project vision

- 2.1.1 The UK Government has a legally binding target under the Climate Change Act 2008 to cut greenhouse gas emissions by at least 80% by 2050, compared to 1990 levels. This will help to address the global threat of climate change. The UK Government has stated that nuclear power has an important role to play because it is a low carbon energy source and it can help to address the challenge of maintaining secure energy supplies for the UK.
- 2.1.2 To help meet the UK's need for stable and sustainable, low-carbon energy, Horizon is developing a new generation of nuclear power stations. Horizon recognises that there is a compelling requirement for new nuclear power in the UK to address the important and complex challenge of delivering a sustainable energy future. Its vision is to deliver secure, affordable, low-carbon energy for present and future generations.

2.2 Project location and land use

Geographical location

- 2.2.1 The Wylfa Newydd Project is located on the Isle of Anglesey, which is situated off the north-west coast of Wales, separated from Bangor on the mainland by the Menai Strait. Horizon proposes to construct and operate the Power Station on land adjacent to the Existing Power Station at Wylfa Head, west of Cemaes on the north coast of Anglesey. The Existing Power Station is owned by the Nuclear Decommissioning Authority and is maintained by Magnox Ltd, but stopped generating electricity in December 2015. It is currently undergoing a de-fuelling and decommissioning programme.

Land use and settlement

- 2.2.2 The Wylfa Newydd Development Area is located on the north coast of Anglesey, covering 409 hectares (ha) of land and extending into the Irish Sea at Porth-y-pistyll. It is bounded to the north by the Existing Power Station and to the east it is separated from Cemaes by a narrow corridor of agricultural land. The A5025 road and residential properties define part of the south-east boundary, with a small parcel of land spanning the road to the north-east of Treglele. To the south and west, the Wylfa Newydd Development Area abuts agricultural land. To the west it adjoins the coastal hinterland and includes part of Cestyll Garden, beyond which lies Cemlyn Bay. Cestyll Garden is recorded as Grade II on the Cadw/International Council of Monuments and Sites UK Register of Historic Parks and Gardens in Wales.
- 2.2.3 Land extending to the north-east of Cemaes and to the west of Cestyll Garden is within the Anglesey AONB. The coastline is designated as part of the North Anglesey Heritage Coast. Away from the coast, the land generally comprises rough grazing with exposed rock and gorse thickets. Further inland, the land is low lying and gently undulating with scattered farms, small settlements and isolated woodland.

- 2.2.4 Land within and surrounding the Wylfa Newydd Development Area is mostly used for grazing by sheep or cattle. Fields are contained by hedgerows and dry-stone walls ('cloddiau') and the area is crossed by a network of roads and rural lanes as well as watercourses and overhead electricity lines.
- 2.2.5 A number of public rights of way, including the Wales Coast Path (WCP) and the Copper Trail (part of the National Cycle Network), cross the Wylfa Newydd Development Area. The WCP is a long-distance trail that follows the coastline of Wales. Some sections of the route divert inland where access is restricted, as is the case where the path runs inland of the Existing Power Station.
- 2.2.6 Settlement patterns around the Wylfa Newydd Development Area are characterised by small clusters of residential properties and isolated farmsteads. Larger settlements in the area include the villages of Cemaes, 2km to the east and Tregele, 1km to the south-east and the towns of Amlwch (9km east), Holyhead (24km south-west) and Llangefni (37km south-east).

2.3 Project description

- 2.3.1 The following terms are used when describing the geographical areas related to the Wylfa Newydd DCO Project and the Licensable Marine Activities:
- Power Station Site – the area of land and sea within which the majority of the permanent Power Station buildings, plant and structures would be located, as shown in figure 2-1. This includes the two nuclear reactors, steam turbines, spent fuel storage facility, the Cooling Water System for the Power Station, the permanent Marine Works such as breakwaters and the Marine Off-loading Facility (MOLF). The MOLF would provide space for ships to dock and allow delivery of materials from the sea; and.
 - Wylfa Newydd Development Area – the area of land and sea including the Power Station Site, and surrounding land that would be used for construction and operation of the Power Station, Marine Works and other on-site development, as shown in figure 2-1. It would also include the Site Campus, which would provide temporary housing for construction workers. This is the maximum area that would be physically affected by construction activities related to the Power Station. Figure 2-1 also shows the boundary originally identified in the NPS for Nuclear Power Generation (NPS EN-6).
- 2.3.2 The Wylfa Newydd Project requires the development of infrastructure to connect the Power Station to the National Grid electricity transmission network. While the Wylfa Newydd Project includes works to connect to the on-site National Grid substation, the connection from the sub-station to the wider electricity transmission network would be applied for and undertaken by National Grid, and is known as the North Wales Connection. The North Wales Connection is not part of the Wylfa Newydd Project, but has been included in the assessment of how the Wylfa Newydd Project could interact with other developments (referred to as cumulative effects). The various elements of the Wylfa Newydd Project are described in more detail below with their locations shown in figure 2-2.

Enabling Works

- 2.3.3 The Enabling Works comprise what have been called the Site Preparation and Clearance Proposals (SPC Proposals) and the A5025 On-line Highway Improvements. These are works that are required in advance of the main construction phase and include activities such as vegetation clearance, removal of buildings, land remediation, creation of site compounds and installation of road crossings. Improvements such as widening and resurfacing would also be made to the A5025 between Valley and the Power Station Site.
- 2.3.4 Horizon has already submitted applications to the IACC for planning permission for the Enabling Works under the Town and Country Planning Act 1990. However, in order to maintain flexibility in the consenting process for the Wylfa Newydd Project, the SPC Proposals have also been included in the application for development consent. The A5025 On-line Highway Improvements, which include works to widen and resurface the road, are not part of the DCO application. The effects of this work in combination with the Wylfa Newydd Project have, however been considered.

Power Station

- 2.3.5 Permanent development at the Power Station Site includes the main operational plant and structures as set out below and shown in figure 2-3:
- **Main plant:** buildings and structures that are particularly important for the safe generation of electricity, including the two UK Advanced Boiling Water Reactors (UK ABWRs) and associated buildings;
 - **Common plant:** parts of the Power Station that support the process of power generation and are shared between the two UK ABWRs;
 - **Supporting facilities, buildings, structures and features:** parts of the Power Station necessary to support the operation and maintenance of the Power Station, including offices and security facilities; and
 - **Grid Connection** – installation of equipment to allow the transmission of electricity generated to the existing National Grid substation and associated buildings, structures, plant and apparatus.

Other on-site development

Other on-site development includes works such as shaping of the landscape and planting, drainage, temporary and permanent closures and diversions of public rights of way, a new Power Station Access Road and internal site roads, car parking, construction compounds, temporary parking areas and material storage areas, working areas, temporary construction viewing area, diversion of utilities and the installation of fencing.

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Figure 2-1 Wylfa Newydd Development Area and Power Station Site

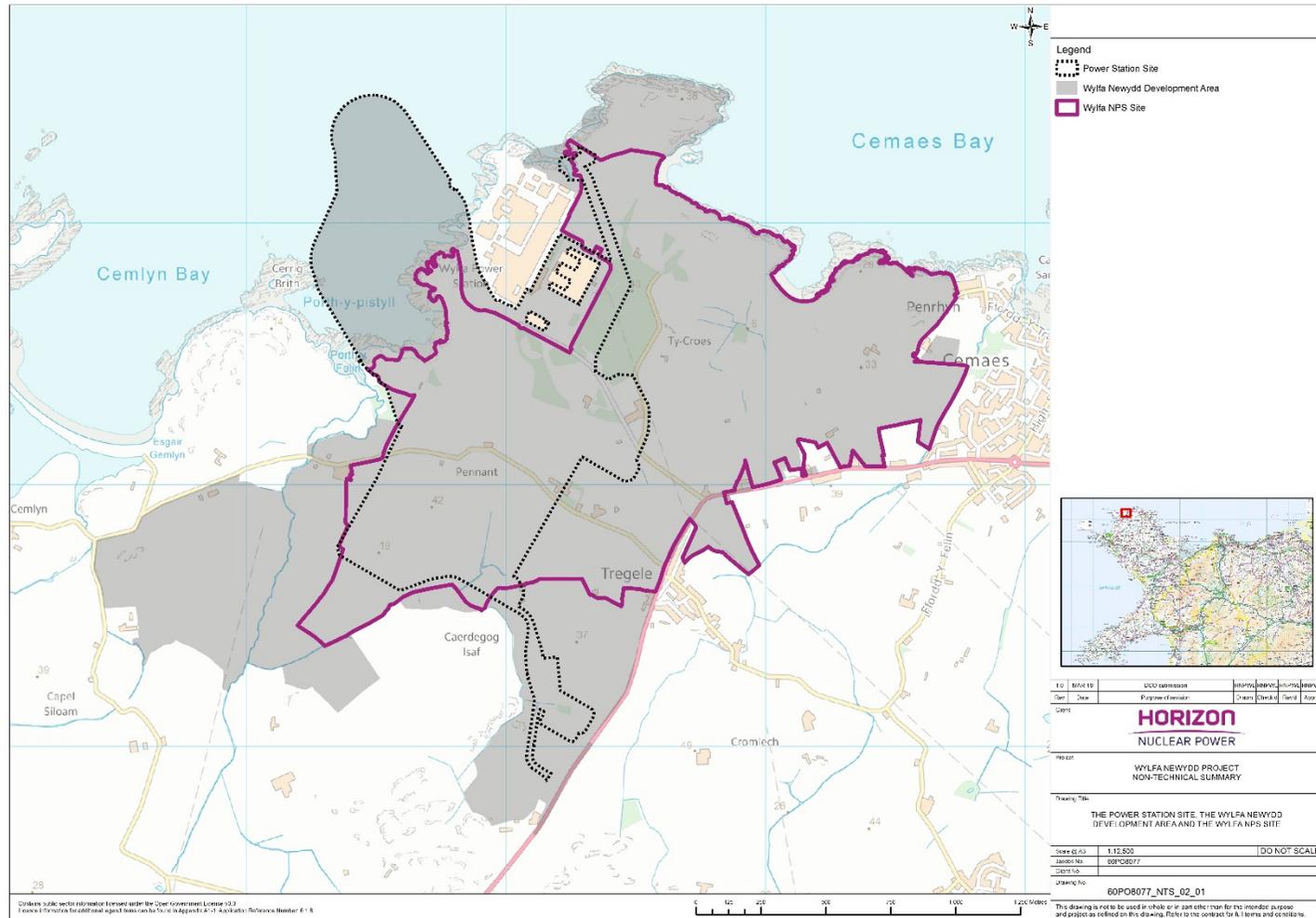


Figure 2-2 Location of WND and other sites

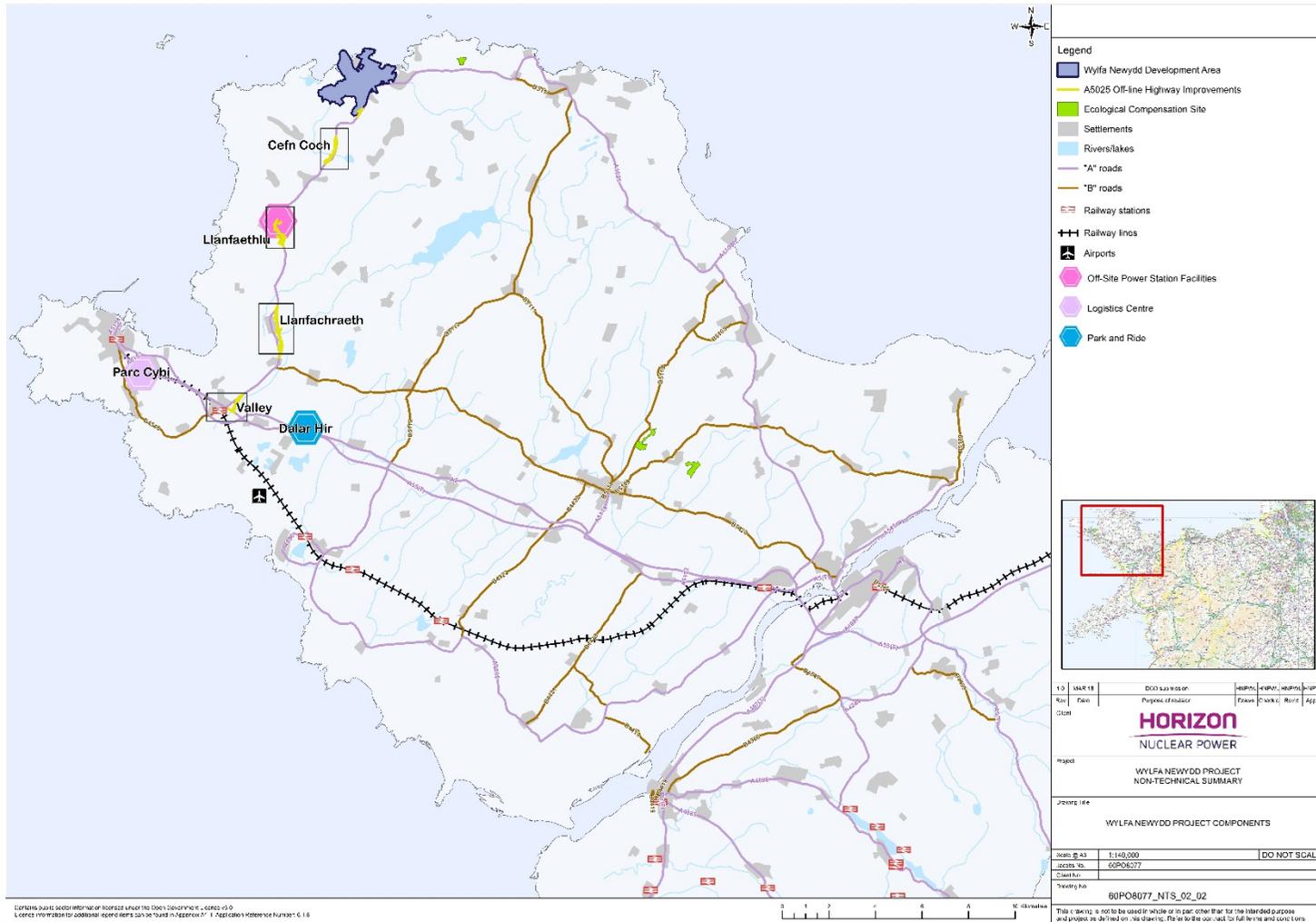
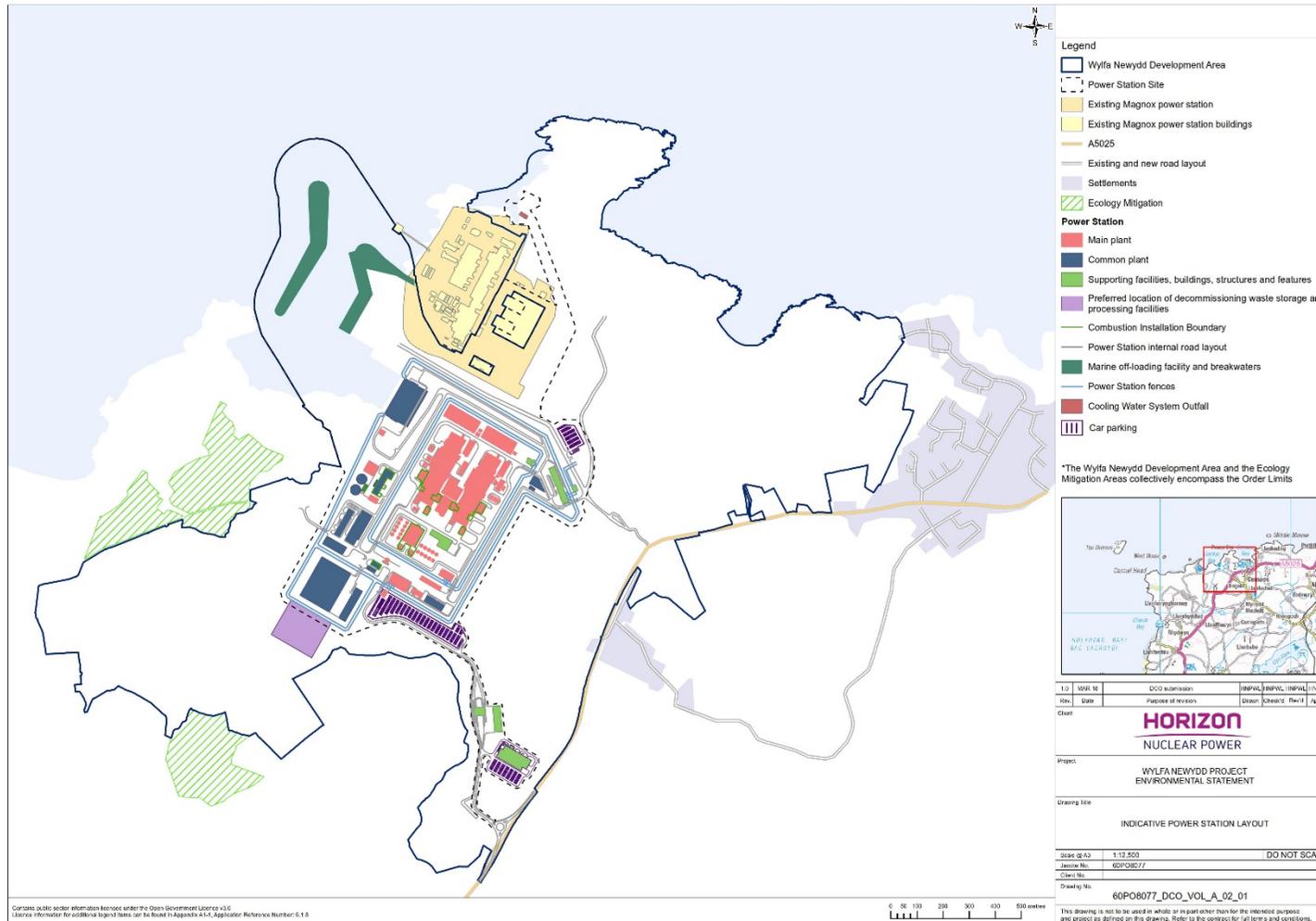


Figure 2-3 Wylfa Newydd Development Area Indicative Plan



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Marine Works

2.3.6 These works are required in the marine environment to support the construction and operation of the Power Station. They comprise:

- **Permanent Marine Works:** The Cooling Water System, the construction of the MOLF, to provide docking for vessels delivering materials to the Power Station Site by sea during construction, breakwater structures, shore protection works, surface water drainage outfalls, wastewater effluent outfall (and associated drainage of surface water and wastewater effluent to the sea), fish recovery and return system, fish deterrent system, navigation aids and Dredging; and
- **Temporary Marine Works:** temporary dams, a temporary access ramp, navigation aids, temporary outfalls and a temporary barge berth.

Off Site Power Station Facilities

2.3.7 The Off Site Power Station Facilities are located outside the Wylfa Newydd Development Area. Sited adjacent to the A5025 at Llanfaethlu, approximately 7.5km from the Wylfa Newydd Development Area; the site is currently used as a garage and vehicle parking. The proposed buildings would provide facilities to support emergency arrangements for the operation of the Power Station and are summarised below:

- **an Alternative Emergency Control Centre (AECC)** which would provide back-up command and communication facilities in the unlikely event that the primary facilities on the Power Station Site were unavailable, or if there were no access to the Power Station Site;
- **an Environmental Survey Laboratory (ESL)** where radiological monitoring and analysis would be undertaken on a daily basis; and
- **a Mobile Emergency Equipment Garage (MEEG)** which would provide storage and basic servicing of the vehicles and equipment that would be used to respond to an unlikely emergency event at the Power Station Site.

Associated Development

2.3.8 Associated Development is the term used for the works which help the delivery of the Wylfa Newydd Project, and mitigate the effects of the construction process. These works are summarised below:

- **A5025 Off-line Highway Improvements** comprising four new sections of road along the A5025 at Valley, Llanfachraeth, Llanfaethlu and Cefn Coch, as well as construction of the Power Station Access Road roundabout junction. Works would improve safety and access to the highway network. Associated works would include site clearance, land profiling, highway works, construction of a viaduct, bridges, drainage and attenuation ponds. These improvements would remain in place following completion of the Power Station;

- **Park and Ride** would be a temporary facility providing secure parking for up to 1,900 cars, with workers transferred to the Wylfa Newydd Development Area via shuttle bus. This would be located at Dalar Hir, immediately north-east of Junction 4 on the A55, approximately 18.5km to the south of the Wylfa Newydd Development Area. This facility would operate for the duration of the construction period and would reduce project-related traffic on local roads. Following construction of the Power Station, the Park and Ride facility would be removed and the land restored to its current use (agricultural land);
- **Logistics Centre at Parc Cybi** would manage lorry movements to the Wylfa Newydd Development Area, to prevent vehicles leaving in convoy and to avoid sensitive times of the day (such as peak work rush hour and school start and finish hours) in order to reduce the impact on local communities. The Logistics Centre would be located 2km south of Holyhead town centre, around 19km south-west of the Wylfa Newydd Development Area. This facility would operate for the duration of the construction period. Following completion of construction of the Power Station, the site would become available for an alternative use or development, subject to any required permissions being obtained by a future occupier;
- **Site Campus** would occupy a 15ha site and be located to the north-east of the Power Station Site, within the Wylfa Newydd Development Area. This facility would offer accommodation for up to 4,000 construction workers. The Site Campus would be temporary, operating for the duration of the construction period. The Site Campus would be constructed using modular buildings, prefabricated off-site, and implemented under a phased programme to meet demand for accommodation. When it is no longer required, the Site Campus would be decommissioned and the area would be developed in accordance with the proposals in the Landscape and Habitat Management Strategy, which outlines how the identified effects of the Wylfa Newydd DCO Project will be addressed and managed; and
- **Ecological Compensation Sites.** Three sites have been identified to create and enhance wetland habitat to off-set potential adverse effects on Tre'r Gof SSSI. The sites are known as Cae Canol-dydd, Cors Gwawr and Tŷ Du'. Cae Canol-dydd is located approximately 1.6km northeast of Llangefni, in central Anglesey. Cors Gwawr is located approximately 3km northeast of Llangefni in central Anglesey. Tŷ Du' is situated on the Llanbadrig headland to the east of Cemaes, north of the A5025.

2.4 Construction timeline

- 2.4.1 The Power Station construction programme is anticipated to commence following grant of development consent, with the main construction phase expected to take around seven years. The first UK ABWR would become operational at the end of that period, and the second UK ABWR would be operational approximately two years later. Construction of the spent fuel

storage facility would commence following Main Construction, to be available for use approximately 10 years into the operation phase. Figure 2-4 sets out the anticipated programme for construction.

- 2.4.2 The construction of the A5025 Off-line Highway Improvements, Site Campus, Park and Ride, and the Logistics Centre would commence in year one, so that the facilities would be available during the construction of the Power Station.

2.5 Main alternatives considered

Location of the Power Station

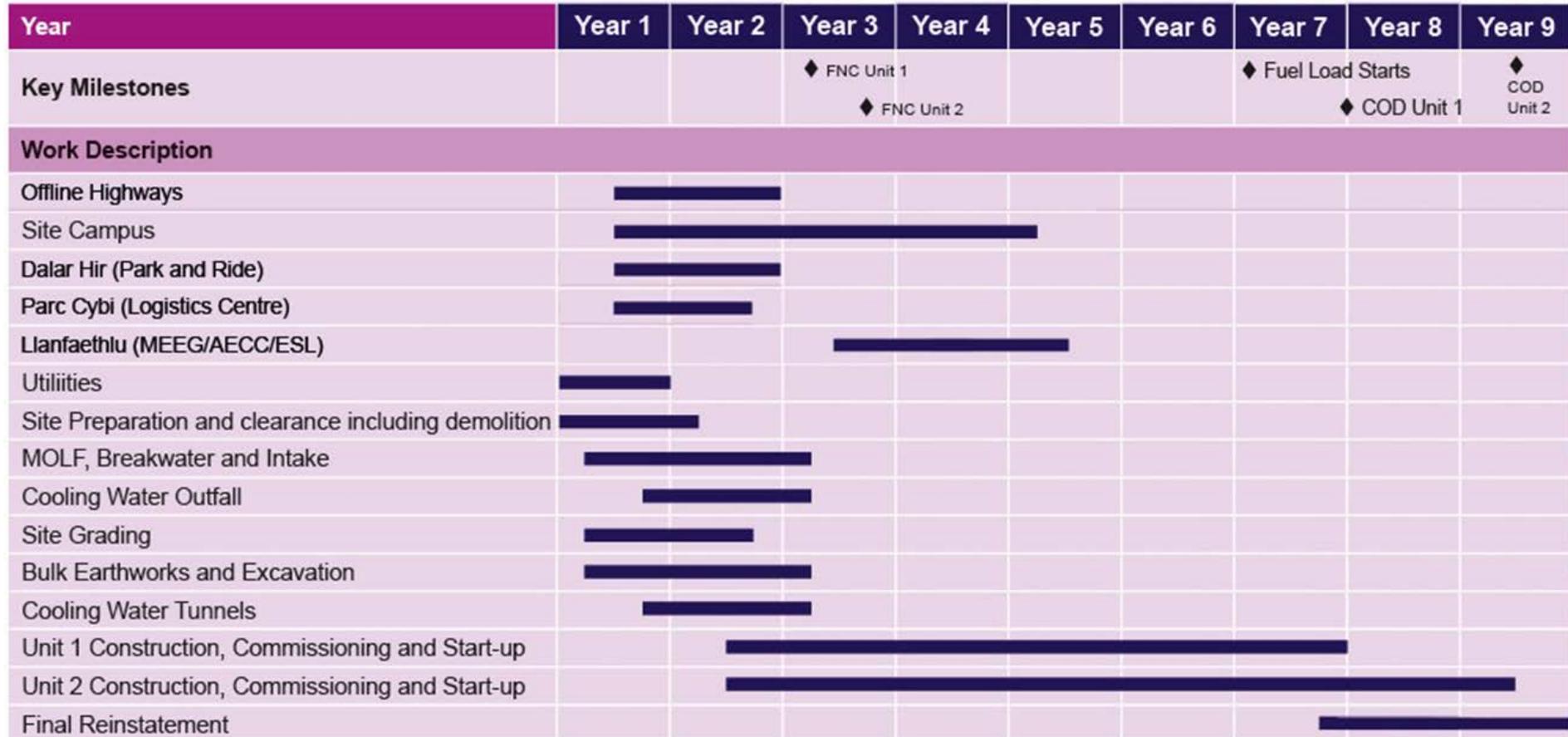
- 2.5.1 NPS EN-1 and EN-6 set out the “urgent need for new electricity generation plant, including new nuclear power”. The UK Government identified the area of land surrounding the Existing Power Station as potentially suitable for the deployment of a new nuclear power station in 2011 following a Strategic Siting Assessment and confirmed this support more recently in a Ministerial Statement on Energy Infrastructure issued in December 2017. Alternative energy generating technologies and alternative locations have therefore not been considered further as part of the assessment.

Wylfa Newydd Development Area site boundary and layout

- 2.5.2 The Wylfa Newydd Development Area boundary has developed from the NPS site but is larger (409ha compared to an original area of 236ha), as it includes areas to be used during construction and marine working. Following consultation, additional land was included to:
- reflect changes in land ownership;
 - allow changes to the design, siting and construction of the MOLF and breakwaters;
 - allow an electrical connection for the Power Station at the existing National Grid substation; and
 - create Ecological Compensation Sites
- 2.5.3 A number of alternative layouts were considered for the Wylfa Newydd Development Area. The preferred design focused on reducing costs, programme and worker numbers. The selected layout also resulted in an increase in the distance between the Power Station Site, the A5025 and local communities, when compared with previous arrangements. As a result, effects on views, noise and vibration and air quality for residents of Cemaes and Tregelw would be less than those arising from other configurations considered. The selected layout has also located the main development further away from Tre'r Gof SSSI.

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Figure 2-4 Construction Timeline



KEY: ■ based on reference construction schedules

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- 2.5.4 Alternative layouts and locations were also considered for a number of permanent and temporary components within the Wylfa Newydd Development Area, including access roads, construction compounds, the concrete batching plant and the spent fuel store. Environmental information was taken into account in selecting the final layout.

Marine Works

MOLF

- 2.5.5 Four potential sites were considered for the location of the MOLF. Porth-y-pistyll was considered the best location as it provided the right physical conditions (area, water depth and shelter from waves) and reduced the impact on natural terrestrial and marine environments.

Cooling Water System (CWS)

- 2.5.6 Different types of cooling system were considered for the Power Station. Cost and the amount of land required were key factors. A CWS using seawater abstracted from the Irish Sea was considered the best option.
- 2.5.7 Various locations for the cooling water intake and outfall were assessed, including options located at distances of up to 1.2km offshore to the east and west of Wylfa Head. It was decided to locate the cooling water intake on land within Porth-y-pistyll. Although this option requires a breakwater and is likely to increase the accumulation of seaweed, advantages include reduced damage to the marine environment (when compared with other options) and more economic and safer maintenance. The cooling water outfall would be located onshore to the west of Wylfa Head, as this location would limit offshore construction activities and development of the seabed, thus improving the survival rates for organisms through the CWS and reduce impacts on the marine environment in general.

Breakwaters

- 2.5.8 Options for the location of the breakwaters are limited as they must be positioned to provide protection from waves. Alternative materials were considered for the structure; rock structures were chosen as they would allow the reuse of material excavated from within the Wylfa Newydd Development Area, reducing the requirement to import construction materials and reducing the amount of waste material to be taken off the site. This in turn would result in less traffic, reduced emissions and reduced noise and vibration impacts.

Landscape design

- 2.5.9 Alterations to the landscape and landform design were made to account for changes to site layout and to respond to feedback from stakeholders and the public; these included the following:
- landscape mounding to protect views from Tregale, Cemaes, Cemlyn, the WCP, the Isle of Anglesey AONB and Cestyll Garden, amongst others;

- height and gradient changes of the landscape mounds, including the slopes facing Cemaes to tie in better with the existing landscape;
- completing construction of mound A near Cemaes early on in the construction programme, to provide early screening for the local community;
- seeding and planting to be carried out on mounding at the earliest practical opportunity in order to help mitigate on-going views of construction, stabilise newly created slopes, control surface water runoff and integrate the mounding into the surrounding landscape; and
- a more limited realignment of the Afon Cafnan tributary in the southern part of the Wylfa Newydd Development Area than was originally proposed, with no alteration to the course of the main Afon Cafnan.

Temporary Workers' Accommodation/Site Campus

2.5.10 Numerous locations were considered for the Temporary Workers' Accommodation and following an initial three-stage sifting process a short-list of 15 sites was identified for consideration. Environmental criteria were taken into consideration in the site selection process and consultation undertaken resulting in two sites becoming short-listed: the Site Campus and Rhosgoch. Constraints affecting the viability of the Rhosgoch site included the potential presence of ground contamination and the fact works would be required on the local road network to make the site feasible. Ultimately, it was concluded that the Site Campus would be the most suitable option for the provision of Temporary Worker Accommodation, with its location within the Wylfa Newydd Development Area being a significant factor. Amongst other things this location would deliver significant benefits in terms of reduced traffic movements and would reduce the impacts on local communities.

2.5.11 Two possible locations were then considered for the siting of the Site Campus within the Wylfa Newydd Development Area. The final location was chosen as it was further away from existing communities and the alternative site was required for landscaped mounding to screen the Power Station Site.

Off Site Power Station Facilities and Associated Development

2.5.12 Environmental criteria, such as whether the site had been previously developed, flood risk and the potential impacts on landscape, were taken into consideration in the site selection process for the Off Site Power Station Facilities and Associated Development alongside a range of other factors including cost, planning and legal compliance and programme. Consultation on these alternatives was undertaken and the most suitable solutions selected.

2.6 Project phases

2.6.1 The Wylfa Newydd Project is divided into four main stages, the first two of which cover construction:

- Stage one: Enabling Works;
- Stage two: Main Construction;
- Stage three: Commissioning and Operation; and
- Stage four: Decommissioning.

Stage one: Enabling Works

2.6.2 The Enabling Works are required in order to prepare the area for the Main Construction. The SPC Proposals include works to clear existing features such as buildings, walls and hedges. Several construction compounds and three new road crossings would be built. Part of an existing watercourse would be realigned and historic contamination identified at several locations across the site would be cleared away.

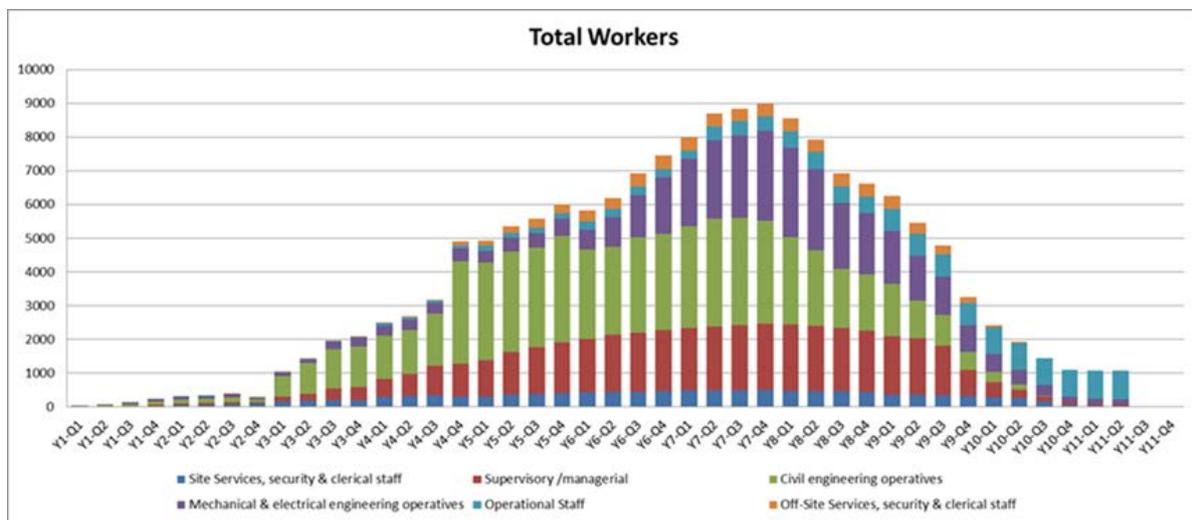
Stage two: Main Construction

2.6.3 Specific activities associated with the Main Construction works within the Wylfa Newydd Development Area would include:

- installation of machinery required to build the Power Station including two very heavy lift cranes up to 270m high, one mobile very heavy lift crane up to 220m high, approximately 40 tower cranes up to 192m high and a large number of smaller mobile cranes;
- soil stripping and storage, levelling of the site and deep excavations to form platforms to allow the construction of the main foundations of the Power Station;
- use of excavated material to create site landscaping and mounding to provide screening between plant and local residents during both construction and operation;
- dewatering of deep excavations;
- marine construction works including the breakwaters, the cooling water intake and outfall and the MOLF;
- main building construction activities (including reinforced concrete foundations and buildings, Power Station Site roads, mechanical and electrical installation) and construction and some testing of each UK ABWR;
- disposal of dredged material at sea or its re-use for construction; and
- final landscaping of the site.

2.6.4 A peak workforce of 8,500 would be required during the approximately seven-year construction programme (shown on figure 2-5), although a figure of up to 9,000 has been used for assessment purposes, to ensure that any unforeseen increases in worker numbers are mitigated. This number includes workers required to construct and service the Associated Development sites and Off Site Power Station Facilities. The construction workforce projections in figure 2-5 indicate that some of the workers required to operate the Power Station would join the wider construction workforce during the construction phase. In addition, the Main Construction would overlap with the construction period for some of the Associated Development and the Off Site Power Station Facilities.

Figure 2-5 Construction Workforce Projections



2.6.5 Activities at the worksites across the Wylfa Newydd Project would be varied and working hours and shift patterns would therefore also vary. It is anticipated that during Main Construction, workers would follow a fortnightly shift pattern: 11 days on, three days off. The three days off would be at the weekend with 50% of workers taking their leave each week.

2.6.6 Construction of the A5025 Off-line Highway Improvements would commence in the first year after the grant of the DCO. Construction of the Valley section and the Power Station Access Road Junction works would take approximately 12 months. The other sections would take approximately 18 months to construct. A maximum of 211 workers would work 07.00 to 18.00 during weekdays, and 07.00 to 13:00 on Saturdays. Permission would be sought from IACC if occasional evening work were to be required.

2.6.7 Construction of the Park and Ride at Dalar Hir would commence in year one and last approximately 18 months, with a maximum of 70 workers on site at any one time. Working hours would be limited to 08:00 to 18:00 hours weekdays and 08:00 to 13:00 hours Saturdays. No work would take place during evening and/or night-time periods or during Saturday afternoon, Sundays or Bank Holidays.

- 2.6.8 Construction of the Logistics Centre would commence in year one, and last for approximately 15 months, with a maximum of 50 workers, working in shift patterns 07:00–19:00 Monday to Friday and 07:00–13:00 on Saturdays.
- 2.6.9 The Site Campus facilities would be required throughout the construction works; the campus would be delivered in phases to create up to a maximum of 4,000 bed spaces.
- 2.6.10 Construction of the Off Site Power Station Facilities would start within three years of the granting of development consent. A maximum of 85 workers would be required on site at any one time, working in shift patterns of a minimum of six hours per day, six days per week. Typical working hours would be 08.00 to 18.00 Monday to Friday and 08.00 to 13.00 on Saturdays as necessary.

Stage three: Commissioning and Operation

- 2.6.11 Commissioning is defined as the progressive testing of the Power Station between construction and the start of normal operation. Its purpose is to demonstrate that the Power Station has been built and operates as designed.
- 2.6.12 The Power Station would have a design life of approximately 60 years. Once operational, the Power Station would create radioactive wastes which would need to be processed and stored before they were ready to be removed from the Power Station Site. Horizon is proposing a single combined spent fuel store and high level radioactive waste storage facility, rather than separate facilities. This would be constructed to be available ten years after the start of operation. It would provide safe and secure storage facilities at the Power Station Site until the radioactive wastes could be re-packaged. Prior to this time, radioactive wastes would be stored within the radioactive waste building. The spent fuel generated would be stored within the spent fuel cooling pools.
- 2.6.13 During the operational phase, it is anticipated that the workforce would comprise approximately 850 permanent staff on-site during normal operations. During planned routine maintenance periods, up to an additional 1,000 workers would be required.

Stage four: Decommissioning

- 2.6.14 At the end of the 60-year operating stage, the Power Station would be decommissioned. Before decommissioning starts, Horizon would need to obtain consent from the Office for Nuclear Regulation and a further EIA under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 would be required.
- 2.6.15 Horizon aims to complete the main decommissioning of the Power Station within 20 years of the end of power generation. Storage facilities for spent fuel and intermediate level waste would remain operational until the waste can be transferred to the UK Government's planned Geological Disposal Facility.

2.6.16 Activities during the decommissioning period would include the shutdown of reactors and removal of structures including the cooling water intake and outfall and the MOLF. The following elements would not be removed:

- the breakwaters;
- the landscaped mounds including pasture and planting; and
- the landscape drainage system.

2.6.17 It is likely that there would be a reduction in staff numbers before the start of decommissioning, as operations wind down prior to final reactor shutdown. It is estimated that there would be fewer than 850 staff employed at the Power Station Site at the start of decommissioning.

3 Environmental effects and mitigation

3.1 Introduction

3.1.1 A range of measures have been identified to prevent, reduce or offset environmental effects of the Wylfa Newydd Project. These include:

- measures incorporated into the design of the Wylfa Newydd Project and its individual elements (for example, the provision of a Park and Ride to reduce the number of potential vehicle movements along the A5025);
- measures that represent good site practice, established industry procedures and standards, or those required to achieve legal compliance. These would occur with or without input from the EIA process; and
- measures identified through the EIA process to further reduce environmental effects (for example, habitat compensation or translocation of fauna to a safe area).

3.1.2 Mitigation that would be delivered as a result of good practice is largely captured within the Wylfa Newydd CoCP, associated sub-CoCPs (together the 'CoCPs') and the Wylfa Newydd Code of Operational Practice (CoOP). These documents set out the standards and measures of work required to ensure compliance with legislation and the effective planning, management and control of construction and operational activities with the aim of controlling adverse effects on the local community and the environment.

3.1.3 Mitigation captured includes:

- measures to control air quality, dust, noise and vibration, such as switching off plant and equipment when it is not in use for longer periods; use of noise screens, dust suppression and regular maintenance;
- monitoring of water quality, air quality and noise and vibration;
- measures to control and manage waste;
- measures to prevent water pollution to manage drainage and sediment;
- preparation of emergency response plans to be followed should significant pollution of the water environment be identified;
- traffic management; and
- control of working hours and areas.

3.1.4 It is not possible to document all mitigation proposed within this NTS, so the following sections provide a summary of the key mitigation measures proposed.

3.1.5 Significant effects predicted to remain once all mitigation has been applied are then summarised. These are referred to as 'residual effects'. For the purpose of the ES and this NTS, residual effects which have been assessed

to be of "moderate" or "major" significance are significant for the purposes of the EIA Regulations. The assessment reports significant effects for both the construction and operational phases of the development, as well as considering effects that might arise during decommissioning.

- 3.1.6 There is the potential for different effects generated by the construction, operation and/or decommissioning of individual elements of the Wylfa Newydd Project to combine, resulting in increased magnitude or duration of effects, such as a resident experiencing increases in both noise and dust. These are known as combined effects and have also been reported.
- 3.1.7 The summary of the assessed effects is presented in the following sections:
- project-wide effects;
 - effects arising from the WND A Development;
 - effects arising from the Off Site Power Station Facilities at Llanfaethlu;
 - effects arising from Associated Development – Park and Ride;
 - effects arising from Associated Development – A5025 Off-Line Highway Improvements;
 - effects arising from Associated Development –Logistics Centre at Parc Cybi; and
 - cumulative effects.

3.2 Project-wide effects

- 3.2.1 A number of environmental effects are more appropriately considered at a project-wide level. This includes traffic-related effects which are assessed by means of a project-wide traffic model, and some aspects of socio-economics, and waste and materials management. Traffic in turn affects some aspects of public access and recreation, air quality and noise. Project-wide effects have been identified and assessed, as summarised below.

Socio-Economics

Context

- 3.2.2 Anglesey has a population of around 70,000 people, approximately 57% of whom can speak Welsh. The population is expected to grow by 9.5% between 2016 and 2035. There has been a recent decrease in the local employment rate, at least partly due to the decommissioning of the Existing Power Station. Just under a quarter of the Anglesey workforce have no formal qualifications, although the workforce contains a relatively high proportion of high-level skills compared to the rest of Wales.
- 3.2.3 The number of new homes being built on Anglesey decreased significantly between 2008-09 and 2015-16, and the number of empty houses rose over the same period. Anglesey is ranked as the ninth-highest local authority area in England and Wales in terms of the proportion of second homes.

- 3.2.4 There is no hospital with A&E facilities on Anglesey, the closest is Ysbyty Gwynedd in Bangor. The closest Minor Injuries Unit to the Wylfa Newydd Development Area is Ysbyty Penrhos Stanley at Holyhead and the closest health facilities are the GP surgery at Cemaes and The Old Lookout dental surgery. The closest ambulance stations are at Amlwch, Holyhead and Llangefni.
- 3.2.5 Anglesey has 47 primary schools, five secondary schools and one special educational needs school. Whilst there is an overall excess of places available, the IACC proposes a school modernisation programme to decrease surplus capacity by the year 2021.
- 3.2.6 There is a relatively low level of crime on Anglesey compared to surrounding areas. There are 10 police stations within north Wales. The fire service has day-crewed stations in Holyhead, Caernarfon and Bangor. Other stations in the area are mostly unmanned, with crews only attending the fire station when they receive an emergency callout.
- 3.2.7 There are nine libraries on Anglesey and four sport and leisure centres. Visits to both types of public facility are below the Welsh average.
- 3.2.8 Tourism is vital to the economy of Anglesey and tourist expenditure grew to £279 million in 2015. Approximately 4,000 jobs on Anglesey are tourism-related, and there are a large number of leisure and hospitality work-based learning programmes in the area.
- 3.2.9 Anglesey accounts for approximately 1.7% of the total value of goods and services generated by the Welsh economy. Compared with Wales as a whole, Anglesey has an above average output for agriculture, forestry and fishing; distribution, transport, accommodation and food; and construction.

Mitigation

- 3.2.10 In recognition of the potential of the Wylfa Newydd Project to have significant adverse socio-economic effects, mitigation has been embedded in the Project, through the provision of worker accommodation and associated facilities at the Site Campus, the provision of the A5025 Off-line Highway Improvements, landscaped mounding, the Park and Ride facility and Logistics Centre, all of which serve to reduce the potential effects on local communities, businesses and visitors.
- 3.2.11 Horizon is also delivering mitigation through the provision of a number of strategies and services, to seek to reduce the adverse effects of the Wylfa Newydd Project, for example on the housing market and public service facilities, and to maximise the benefits. These measures are summarised below.
- 3.2.12 A Jobs and Skills Strategy has been produced identifying how Horizon would work with a range of stakeholders including the IACC, the Welsh Government and North Wales Economic Ambition Board members to fund and help deliver additional training to meet the specific skills needs of the Wylfa Newydd Project. This would include the Employment and Skills Service, supporting the recruitment and training of workers for the construction

programme, and the Supply Chain Service, to enable local firms to access the opportunities available as a result of the Wylfa Newydd Project. The Employment and Skills Service would also help backfilling vacant posts to support businesses and services whose workers change employment to work on the Wylfa Newydd Project, including the Fire and Rescue Service which is significantly supported by volunteers on Anglesey. The Supply Chain Service would principally comprise a web-based portal which would allow interested suppliers to register for the opportunities available at the Wylfa Newydd Project. It will provide details of the various types of project activities open, together with minimum expectations that need to be satisfied by an interested supplier. Horizon will also have a Supply Chain Action Plan which will include supporting business readiness to access the opportunities available and monitoring supplier performance.

- 3.2.13 The Workforce Accommodation Strategy would seek to avoid or reduce potential adverse effects on the housing market, through a balanced approach towards the provision of worker accommodation. A key element of the Strategy is the Workforce Accommodation Management Service which would maintain a database for workers seeking accommodation. In addition, where possible the Workforce Accommodation Management Service would manage potential demands on schools in association with the IACC, through collecting information on workers and their dependants. A Housing Fund would be provided to help address effects arising from the accommodation of workers and amongst other things would be available to kick start stalled housing sites, deliver new homes and support bringing empty homes back into use.
- 3.2.14 A Tourism Fund would be provided to help address significant effects on tourism as a result of the Wylfa Newydd Project. This would continue for two years following the start of operation of the second reactor, to ensure that there is a mechanism to address any adverse effects should they arise. A temporary visitor viewing area would be provided during the construction phase, offering a potential draw to visitors to the north of the island.
- 3.2.15 A Community Impact Fund would be available, which may be used to deal with unforeseen significant effects of the Wylfa Newydd Project during its construction and operation. This could be used to support mitigation for receptors located in proximity to the Wylfa Newydd Development Area which experience effects during construction that cannot yet be predicted and mitigated. This would be a flexible fund which could also be used to address impacts on community facilities or if funding is required to deliver additional places for schools at capacity as a result of the Wylfa Newydd Project.
- 3.2.16 A fund would also be provided for the provision of emergency services for the construction workforce including an appropriate financial contribution to the emergency services, including ambulance, fire service and police, if a need for additional resourcing is identified.

Environmental effects

- 3.2.17 As a result of the proposed mitigation, no significant adverse residual socio-economic effects are anticipated as a result of the Wylfa Newydd Project. Significant beneficial effects identified are summarised below.
- 3.2.18 During construction and operation, an increase in the number of people employed within the construction sector on Anglesey and in the surrounding areas is anticipated. In addition, the significant investment in excess of £10 billion, and increased spending by the workforce as a result of the Wylfa Newydd Project, would benefit the north Wales economy by between £200 million and £400 million.
- 3.2.19 Approximately 850 new permanent jobs would be created during the operational phase of the Power Station, with continued increased levels of annual average income.
- 3.2.20 Employment levels during decommissioning are not anticipated to differ significantly from those identified for the operation of the Wylfa Newydd Project, so the beneficial effects on employment and income identified for the operational phase would continue through to the end of decommissioning. The end of decommissioning work would ultimately result in the loss of the majority of the 850 jobs sustained during operation of the Power Station.

Traffic and transport

Context

- 3.2.21 Key transport routes for the area include:
- A5025 from Valley Crossroads (A5/B4545/A5025) to the Wylfa Newydd Development Area;
 - A5025 from the Wylfa Newydd Development Area to A55 Junction 8, including Menai Bridge;
 - A55 Junction 1 to Junction 11 (Bangor/Bethesda/A5/A4244), including Britannia Bridge;
 - A5114 at Llangefni;
 - B5111 and B5112 that could be used as an alternative to the A5025; and
 - minor roads that could be used as an alternative to the A5025.
- 3.2.22 Users of the A5025 and the dual carriageway sections of the A55 currently experience no significant delays. The exception occurs at A55 Britannia Bridge, which suffers from congestion during peak periods.

Mitigation

- 3.2.23 Horizon's transport strategy for the Wylfa Newydd Project was developed to manage transport demand generated by the Wylfa Newydd Project. The assessment of traffic was undertaken based upon this strategy. Measures

which would be implemented to reduce potential effects on road users during construction include:

- the provision of the Marine Off-loading Facility (MOLF) to reduce freight movements by road, by allowing material large and bulk freight items to be imported by sea directly to the Power Station Site;
- the Site Campus would reduce daily traffic commuting to and from the Wylfa Newydd Development Area for up to 4,000 construction workers;
- the Logistics Centre, which would be used to control the volume of HGVs and other large load vehicles travelling to/from the Wylfa Newydd Development Area;
- the Park and Ride, and associated bus services, which would reduce the number of private vehicle movements to the Wylfa Newydd Development Area, and dedicated shuttle bus services for construction workers living in the north of Anglesey;
- the A5025 Off-line Highway Improvements would help avoid congestion that might otherwise result from construction traffic. Traffic flow monitoring would be undertaken to determine the volume of traffic that has transferred from the existing A5025 onto the A5025 Off-line Highway Improvements at each village in order to monitor the effects of construction traffic; and
- production of a Construction Traffic Management Strategy; construction workers would be bound to comply with the Strategy through the Code of Conduct and in line with the principles set out in the Workforce Management Strategy.

3.2.24 During the operation of the Power Station, an Operational Travel Strategy would reduce the environmental effects of traffic by promoting car sharing. Cycle parking would be provided and key walking routes identified. Measures to encourage sustainable travel would be promoted by a Travel Plan Coordinator for the Power Station.

3.2.25 By mitigating the effects of traffic and transport these measures would also reduce effects on air quality and noise and vibration and have therefore not been repeated in detail in the sections below.

Environmental effects

3.2.26 Significant effects remaining following the implementation of mitigation measures are summarised below.

3.2.27 For the opening year of the A5025 Off-line Highway Improvements, journey times northbound from A55 J6 to A5114 Llangefni would increase during the evening peak period. There would however be decreases in traffic flow on the existing A5025 at Llanfachraeth and Cefn Coch in both directions along the A5025 at Llanfachraeth.

3.2.28 At the peak of construction, with the A5025 Off-line Highway Improvements in place, there would be increases in traffic flow along the existing sections

of the A5025 between Valley and Tregle. As traffic would use the A5025 Off-line Highway Improvements instead of the existing A5025, traffic flows through Valley, Llanfachraeth, Llanfaethlu and Cefn Coch on the existing A5025 would decrease, along with decreases in driver stress along the A5025 at Llanfachraeth in the evening peak period. Motorised and public transport users would experience significant increases in journey time along the A5 during shift changeover periods.

3.2.29 At the peak of the operational phase, road users would experience:

- decreases in traffic flow on the existing A5025 at Llanfachraeth and Cefn Coch; and
- decreases in driver stress along the A5025 at Llanfachraeth in the evening peak period.

Public access and recreation effects of traffic and transport

Context

3.2.30 On Anglesey, the A55 from Bangor to Holyhead would be used for the road transportation of materials to the Wylfa Newydd Development Area. Once traffic leaves this strategic route it may have effects on public access and recreation.

3.2.31 The spine road of the Parc Cybi industrial estate would provide access to the Logistics Centre and has footway/cycleway facilities. The Lôn Trefignath runs between the B4545 and the A55 between the Logistics Centre and Junction 2 of the A55, before crossing beneath the A5153 east of Junction 2 of the A55. It is a local cycle route recognised by Sustrans, and used by walkers and cyclists both recreationally and for commuting.

3.2.32 An extensive network of public rights of way, many of which join the existing A5025, links local communities. Walkers also travel along the minor roads as they provide links between public rights of way as well as being recreational routes in their own right. Walkers and cyclists also travel along or cross the A5025 to link between public rights of way and minor roads.

3.2.33 There is currently no specific provision for walkers and cyclists on the A5025. Only short sections of footway are available, where the A5025 passes through the communities of Valley, Llanynghenedl, Llanfachraeth, Llanfaethlu, Llanrhuddlad and Tregle.

Mitigation

3.2.34 Associated Development, including the A5025 Off-line Highway Improvements, the Park and Ride facility at Dalar Hir and the Logistics Centre, provide mitigation directly built into the Wylfa Newydd Project, helping to reduce traffic congestion and moving vehicles away from some sensitive receptors.

3.2.35 During construction of the Power Station the Lôn Trefignath cycle-path and the cycleway/footway that cross the entrance to the Logistics Centre would be in the same place. A zebra crossing would be installed and bilingual

signage would be erected on the Lôn Trefignath as it approaches the entrance to the Logistics Centre, on the highway at the site entrance and exit to warn pedestrians, cyclists and drivers of the zebra crossing and potential conflicts as traffic moves in and out of the Logistics Centre. Furthermore, construction drivers would be briefed on the risk they pose to cyclists and pedestrians as they leave the Logistics Centre.

Environmental effects

- 3.2.36 A summary of significant effects remaining following the implementation of mitigation measures is provided below.
- 3.2.37 During the opening year of the A5025 Off-line Highway Improvements and the peak year of construction of the Power Station, walkers and cyclists travelling along the A5025 during weekdays are likely to experience a reduction in amenity, due to increased total HGV movements.
- 3.2.38 During the same period walkers and cyclists using the A5 between Junction 4 of the A55 and the Park and Ride would experience a reduction in amenity associated with cars travelling to and from the Park and Ride during the early morning and late-afternoon to early evening.
- 3.2.39 No significant effects are anticipated during the operation and decommissioning phases.

Air Quality effects of traffic and transport

Context

- 3.2.40 Air quality within the vicinity of the A5025, A55 (on Anglesey) and A5 and the A55 in mainland Wales is generally good, and measured concentrations of pollutants are well below the relevant Air Quality Objectives. IACC measurements have identified elevated concentrations of NO₂ at roadside locations close to the A55.
- 3.2.41 People and communities potentially affected by the air quality effects of traffic include:
- communities and residential properties along the A5025 on Anglesey including at Cemaes, Tregele, Cefn Coch, Llanrhuuddlad, Llanfaethlu, Llanfachraeth, Llanynghenedl, and Valley;
 - communities and residential properties along the A55 on Anglesey including at Valley, Caergeiliog, Llangristiolus and Llanfairpwllgwyngyll;
 - communities and residential properties along the A55 in mainland Wales, including at Llanfairfechan, Dwygyfylchi, Conwy, Colwyn Bay, Abergele and St Asaph.
- 3.2.42 In addition, a number of designated sites and sensitive habitats on Anglesey have been identified as potentially being affected by the air quality effects of traffic. These include four SSSIs (Beddmanarch-Cymyran SSSI, Malltraeth Marsh/Cors Ddyga SSSI, Llyn Dinam Special Area of Conservation (SAC)/Llynnau Y Fali SSSI and Llyn Traffwll SSSI), nine local Wildlife Sites

and 13 areas of ancient woodland. Six SSSIs and a SAC on mainland Wales have also been included within the list of sites potentially sensitive to the air quality effects of traffic.

Mitigation

- 3.2.43 The A5025 Off-line Highway Improvements would move sections of the A5025 away from certain villages, leading to reductions in concentrations of pollutants at locations which were previously in close proximity to the A5025. There would be a number of receptors close to the new routes which would experience adverse effects, but a far greater number of receptors would experience more beneficial effects.
- 3.2.44 Other mitigation is largely focused around good site practice and air quality monitoring during construction and is captured within the Wylfa Newydd CoCP.

Environmental Effects

- 3.2.45 Taking into account both the adverse and beneficial effects identified and the mitigation measures proposed, it is concluded that the overall effect on air quality due to project-wide road traffic emissions is not significant.

Noise and vibration effects of traffic and transport

Context

- 3.2.46 Numerous people potentially sensitive to the noise and vibration effects of traffic have been identified, largely in communities along the routes of the A55 and A5025; these include residential properties, schools, places of worship, village halls, leisure centres and buildings used for retail activities.

Mitigation

- 3.2.47 In addition to the measures integrated into the project design and described earlier in this section, the Local Noise Mitigation Strategy (LNMS) would offer noise insulation such as secondary glazing to qualifying residential properties that experience significant noise effects associated with the Wylfa Newydd Project, including those resulting from changes in traffic.

Environmental effects

- 3.2.48 Significant effects remaining following the implementation of mitigation measures are summarised below.
- 3.2.49 During the opening year of the A5025 Off-line Highway Improvements, 184 properties along the existing A5025 would experience significant noise and vibration effects mainly as a result of an increase in road traffic. Twenty properties would experience a beneficial effect mainly as a result of the A5025 Off-line Highway Improvements moving traffic further away.
- 3.2.50 During peak construction 213 properties along the existing A5025 would experience significant noise and vibration effects mainly as a result of an

increase in road traffic. Eighteen properties would experience a beneficial effect, for the reasons outlined above.

- 3.2.51 During the operation of the Power Station 184 properties along the existing A5025 would experience significant noise and vibration effects as a result of an increase in road traffic. Seventeen properties would experience a beneficial effect.

Conventional waste and materials

Context

- 3.2.52 NRW grants environmental permits to sites for the treatment and disposal of waste. The total annual permitted capacity in 2016 of waste management sites in north Wales is approximately 2,690,500 tonnes.
- 3.2.53 There are currently no hazardous waste landfills and limited non-hazardous landfill capacity in north Wales.
- 3.2.54 Any waste that is destined for landfill is likely to need to be disposed of outside of north Wales. The total landfill capacity within the northwest of England in 2016 was as follows:
- 39,335,000m³ of non-hazardous landfill capacity;
 - 6,680,000m³ of inert landfill capacity; and
 - 6,481,000m³ of hazardous merchant landfill capacity.

Mitigation

- 3.2.55 At all stages of the Wylfa Newydd Project, Horizon would manage waste in accordance with the principles of the waste hierarchy, which places the highest priority on waste prevention, followed by re-use and recycling, with disposal being the least preferred option. During construction waste would be managed in accordance with the Wylfa Newydd CoCPs.
- 3.2.56 During construction, wherever practicable, the use of modular temporary buildings, manufactured off-site would allow efficient control of materials, reduce waste generated within the Wylfa Newydd Development Area and allow greater ease in disassembling and relocating modules, thereby reducing decommissioning waste.
- 3.2.57 During operation the Wylfa Newydd CoOP would provide the approach to waste and materials management across the operational lifetime of the Power Station. All conventional waste generated at the Power Station Site would be handled at the dedicated waste and recycling facility located on the Power Station Site. Horizon would retain conventional waste on site until it is removed from site by a licensed waste management contractor.
- 3.2.58 All waste generated during the decommissioning of the Power Station, Off Site Power Station Facilities and relevant elements of Associated Development would be managed in accordance with similar principles to those set out above.

Environmental effects

3.2.59 Following the implementation of mitigation identified no significant effects during construction, operation or decommissioning are predicted to occur.

Combined effects

3.2.60 Combined effects occur when a single receptor is affected in more than one way by the same development.

3.2.61 People and communities potentially affected by individual project-wide effects could also experience combined effects as summarised below:

- environmental effects from a combination of two or more of the following effects: noise, air quality, route diversions or visual disturbance;
- social effects from a combination of changes in community identity, social networks or culture; and
- economic effects such as new investment, employment or training opportunities.

3.2.62 The ES has not identified any combined effects on a project-wide level. Combined effects relating to, for example, socio-economics, public access and recreation, air quality and noise and vibration caused by individual elements of the project are discussed in later sections.

3.3 WNDA Development

Socio-economics

Context

3.3.1 Cemaes and Tregele are communities located within 100m of the Wylfa Newydd Development Area boundary; they are predominantly residential with a limited range of commercial, community and amenity facilities. Llanfechell and Carreglefn, around 2km and 4km respectively to the south-east, are also largely residential in nature, with Llanfechell possessing a limited range of facilities. A concentration of residential properties is also located at Llanrhuddlad, 4.5km south-west of the Wylfa Newydd Development Area.

3.3.2 The closest schools to the Wylfa Newydd Development Area are both primary schools which offer education in Welsh. They are Ysgol Gynradd Cemaes, around half a kilometre to the east of the site, with a capacity of 89 pupils in 2015 and Ysgol Gymuned Llanfechell, around 1.8km to the south-east, with a capacity of 119.

3.3.3 There are approximately 90 businesses within 5km of the Wylfa Newydd Development Area, many of which are tourism related. There are a number of GP services as well as a pharmacy and Cemaes Bay Dental Practice, all in Cemaes less than 1km to the east.

- 3.3.4 The total area of the Wylfa Newydd Development Area is 409ha. Approximately 61% of this has a Grade 2 or Grade 3a/3b Agricultural Land Classification (ALC), indicating it ranges from moderate to very good quality for agriculture.
- 3.3.5 The socio-economic baseline is further described in the project-wide assessment above.

Mitigation

- 3.3.6 Measures put in place to reduce air quality, noise and vibration effects; visual aspects and increased traffic arising from construction activity would all also serve to reduce socio-economic effects.
- 3.3.7 Measures to avoid or reduce the potential environmental and socio-economic effects of the Wylfa Newydd Project during construction are incorporated into the design through the provision of the Site Campus, Park and Ride facility at Dalar Hir, the Logistics Centre and the A5025 Off-line Highway Improvements. These would all serve to reduce potential transport, noise, air quality and amenity effects. The Site Campus would also reduce adverse effects on the local housing market and public service facilities.
- 3.3.8 As previously discussed in the project wide assessment, a range of strategies and services, to seek to reduce the adverse effects of the Wylfa Newydd Project, and to maximise the benefits have been identified. Those which will provide a benefit or mitigate an impact include:
- a Community Impact Fund to provide additional resource to manage or offset effects during construction that cannot yet be predicted and therefore mitigated, including impacts on community facilities and education;
 - a Tourism Fund to provide monitoring and address adverse effects on the tourism sector, should they arise;
 - a Workforce Management Strategy reducing the potential effects associated with large numbers of temporary construction workers on the local community; in accordance with the Strategy, a Code of Conduct would be written and would apply to all personnel engaged in the construction of the Project; and
 - funding for emergency services for the construction workforce would be made available, including an appropriate financial contribution to the emergency services, including ambulance, fire service and police.
- 3.3.9 Extensive landscaping and planting is proposed within the design for the Wylfa Newydd Development Area. This planting would be maintained and enhanced during operation of the Power Station to mitigate the visual and noise impacts of the Power Station Site as well as enhancing the surrounding environment.
- 3.3.10 Mitigation during the decommissioning phase is anticipated to be similar to that adopted during the construction phase.

Environmental effects

- 3.3.11 Significant effects remaining following the implementation of mitigation measures are summarised below.
- 3.3.12 Cemaes and Tregele could experience adverse effects on community amenity as a consequence of effects on air quality; noise and vibration effects; visual aspects and traffic, arising from construction activity. Local businesses, are included in this adverse effect, however, these businesses are expected to experience small beneficial effects from an increase in customer base locally during the construction period. By contrast, tourism businesses are expected to be adversely affected initially; however, as the construction phase becomes more established, these businesses are expected to benefit from significant on-island expenditure by workers, like other local businesses.
- 3.3.13 No significant effects are expected during the operational or decommissioning phases.

Public access and recreation

Context

- 3.3.14 Some sections of the Wales Coast Path (WCP) divert inland where access along the coast is restricted, as is the case where the path runs inland of the Existing Power Station. The Isle of Anglesey Coastal Path (which is now incorporated into the WCP) is an important resource for the county, both for local residents and tourists. The WCP passes through the Wylfa Newydd Development Area.
- 3.3.15 There are 40 public rights of way within the Wylfa Newydd Development Area (inclusive of those which form part of the WCP), which cover a total distance of over 10km, and link to other recreational features, such as beaches and Wylfa Head. There are also permissive routes providing informal access to a viewing point with coastal views to Wylfa Head and the Irish Sea; to the former Wylfa Information Centre; to Porth yr Ogof down the cliff via metal steps; and to Porth Wylfa. The Copper Trail includes a link between Cemlyn Bay and Llanfechell, via Tregele using Cemlyn Road.
- 3.3.16 Wylfa Head is a rocky area of headland which forms the northern extent of the Wylfa Newydd Development Area. This rural area provides views of the Irish Sea and views across the headland towards Llanbadrig Point. While the area is highly attractive and has elements of tranquillity, it is influenced by the presence of the Existing Power Station, which is located to the south.
- 3.3.17 The Anglesey AONB covers most of Anglesey's coastline, part of which lies within the Wylfa Newydd Development Area. There is National Trust land to the east and west of the Wylfa Newydd Development Area, providing access to the coastline and including a permissive section of the WCP between Cemlyn Bay and Cestyll Garden. A small section of this land near Cemlyn Bay is also open access land. Further afield, to the west of Cemlyn Bay and at Llanbadrig Point, are two additional areas of National Trust land.

- 3.3.18 Cestyll Garden is a Registered Park and Garden and Felin Cafnan, the mill in the grounds, is a Grade II Listed Building. Cestyll Gardens is located in Porth y Felin and the WCP runs along its seaward boundary.
- 3.3.19 The Isle of Anglesey is a designated European Geopark (the GeoMôn Geopark) and a UNESCO Global Geopark due to its outstanding geodiversity and geological heritage. There are four RIGS (Regionally Important Geological Sites) present along the coastline in Porth Wnal and Cemaes Bay.
- 3.3.20 Beaches and coves used for recreational purposes in the Wylfa Newydd Development Area include Porth Wylfa and Porth yr Ogof. There are larger beaches beyond this area at Cemlyn Bay and Cemaes Bay along with numerous smaller coves.
- 3.3.21 There are two car parks within the Wylfa Newydd Development Area, one at the now closed Wylfa Information Centre and Fisherman's Car Park. There are a further six car parks in the area: two at Cemlyn Bay and four in the village of Cemaes. Offshore recreational activities include: sailing, wildlife watching, swimming, diving, sea fishing, kayaking, jet skiing, small craft boating and rowing.

Mitigation

- 3.3.22 Footpath and cycle route closures or diversions would be avoided where possible, and footpaths would be reinstated where feasible. The Copper Trail would be diverted along Nanner Road and then up the A5025. Effects on users would be reduced through the provision of new bilingual signage which would be in place prior to the permanent closure of Cemlyn Road and an information leaflet produced detailing the diversion.
- 3.3.23 Bilingual notices would be installed to inform users of public rights of way diversions and closures. The provision of landscape mounding would help to shield views and noise from some public rights of way and local communities. Access to Wylfa Head would be maintained throughout construction by retaining the public right of way along the north coast between Cemaes and Wylfa Head and access to Porth Wylfa and Porth yr Ogof would also be maintained throughout construction. The relevant CoCPs identify Horizon's commitments to control potential effects from noise, vibration and dust on the users of the public rights of way.
- 3.3.24 Potential impacts on the WCP would be reduced by creating a diversion route around the construction fence for the Power Station Site. Bilingual information boards would be erected during construction, at intervals along the route of the WCP explaining what was happening, as part of a wider trail to encourage continued use of the link.
- 3.3.25 As described in the Workforce Management Strategy Horizon would:
- seek to control construction workforce access to existing public facilities, footpaths and open spaces in proximity to the Site Campus;
 - ensure all personnel are aware of nearby sensitive ecological receptors (such as Wylfa Head, Tre'r Gof and Cemlyn SSSIs, Cemlyn Lagoon,

and nature reserves) and their legal protection, and ensure no damage or interference of any kind is caused to these areas; and

- require the construction workforce to behave in accordance with the Code of Conduct at all times, regardless of whether they are on-site or off-site within the community.
- 3.3.26 On completion of the works a new public right of way would be created linking the Wales Coast Path to the existing public right of way network and Cemaes, providing a link from Cemlyn Bay to Cemaes.
- 3.3.27 Once construction of the Power Station is complete a new route for the WCP would be established through the Wylfa Newydd Development Area; this would include a new nature trail with bilingual information boards and interest points suitable for all ages, with digital and paper-based maps of the trail made available in Welsh and English.
- 3.3.28 On completion of construction, a new car park would be provided in the vicinity of the existing Fisherman's car park, with a picnic area, interpretation boards and bilingual signage.
- 3.3.29 A new wildlife watching shelter and information boards would be provided at the location of the former coastguard lookout on Wylfa Head and the loss of part of the Porth Wnal Dolerite RIGS would, in part, be offset by the erection of explanatory interpretation boards which would reference the GeoMôn Geopark and the specific geology of this area in Welsh and English.
- 3.3.30 During the operational phase, users of new and reinstated footpaths would experience an improvement in recreational amenity with the provision of some routes suitable for wheelchair users, picnic areas, interpretation boards and a nature trail. Access to the Dame Sylvia Crowe designed woodland would be provided to the public, including a route to the existing viewpoint.
- 3.3.31 Mitigation during the decommissioning phase is anticipated to be similar to that adopted during the construction phase.

Environmental effects

- 3.3.32 Significant effects remaining once mitigation has been taken into account are summarised below.
- 3.3.33 During construction, the permanent diversion of the WCP, where it passes through the Wylfa Newydd Development Area would result in changes to views and temporary loss of amenity for walkers. There would also be permanent closure or temporary diversion of a further 32 public rights of way and permissive paths within the Wylfa Newydd Development Area, with a reduction in amenity for users of the local public rights of way associated with increased journey length, and noise and visual intrusion from construction works.
- 3.3.34 A portion of the Porth Wnal Dolerite RIGS would be permanently lost as a result of the construction of the cooling water outfall.
- 3.3.35 Ty Croes (Fisherman's car park) would be closed for the duration of the construction period resulting in loss of car parking for visitors to Wylfa Head,

the beaches at Porth Wylfa and Porth yr Ogof, and reduced access to the local public rights of way network. There would also be a reduction in recreational amenity due to the construction of the breakwaters and wider construction activities at the Power Station Site. It is anticipated that this would result in an increase in usage of Cemlyn Bay Beach, as an alternative with easier access and without the noise and visual intrusion of construction work.

- 3.3.36 During the operational phase, users of the WCP would experience a reduction in amenity due to increased journey length and duration, and loss of sea views.
- 3.3.37 No significant adverse effects on recreation or public access were identified during decommissioning.

Air quality

Context

- 3.3.38 Air quality in the vicinity of the Wylfa Newydd Development Area is generally good and concentrations of pollutants are well below the relevant Air Quality Objectives or critical levels. Dust deposition levels are relatively low and representative of a rural setting.
- 3.3.39 Human receptors sensitive to changes in air quality include people living in Cemaes, Tregelle, and along the A5025, as well as users of the public rights of way network.
- 3.3.40 There are several nationally or internationally important ecological sites within or close to the Wylfa Newydd Development Area, which are sensitive to changes in air quality, including:
- Tre'r Gof SSSI which lies within the Wylfa Newydd Development Area;
 - Cae Gwyn SSSI which lies adjacent to the Wylfa Newydd Development Area southern boundary;
 - Cemlyn Bay SSSI, SAC and Anglesey Terns Special Protection Area (SPA), which lie 110m west of the Wylfa Newydd Development Area boundary; and
 - Llyn Llygeirian SSSI which lies approximately 1.5km to the south.
- 3.3.41 Other sensitive sites include SSSIs, which are protected by national legislation, local Wildlife Sites and designated ancient woodlands. The existing nitrogen deposition rates at ecological receptors are generally elevated and above the relevant critical loads. Existing acid deposition rates are generally within the critical loads.

Mitigation

- 3.3.42 Measures to reduce effects would include the following:
- a wide range of measures have been identified in the relevant CoCPs to manage air quality, dust and odour during construction;

- regular liaison with the local community, IACC and NRW during the construction phase, and the establishment of a formal complaints and response process, staffed by Welsh and English-speaking personnel;
 - establishment of a formal monitoring process to include monitoring of particles in the air and deposited dust; continuous monitoring would be undertaken, in order to check compliance with agreed limits. These thresholds for dust and other air quality indicators would be adopted with an agreed action plan should they be exceeded; and
 - an electricity supply to the site would be established within 9 months of granting of the DCO which would reduce reliance on diesel generators.
- 3.3.43 During commissioning, only one generator would ever be tested at any one time and no more than one generator would be tested in any one day. During operation all combustion plant would operate on ultra-low sulphur diesel.
- 3.3.44 During decommissioning, it is expected that mitigation measures similar to those employed during construction would reduce air quality effects.

Environmental effects

- 3.3.45 With the mitigation identified no significant air quality effects are anticipated during operation, construction or decommissioning.

Noise and vibration

Context

- 3.3.46 Sensitive receptors for noise and vibration include people living in Cemaes, Tregel, and other properties close to the Wylfa Newydd Development Area, and along the A5025 between Cemaes and Tregel, as well as users of the public rights of way network.

Mitigation

- 3.3.47 Noise reducing measures including revisions to site layout, for example locating noise sources further from receptors, and the inclusion of screening structures between noise sources and receptors have been incorporated into the design. In addition, construction of earth mounds within the Wylfa Newydd Development Area would be implemented at an early stage of the construction programme and these would act as a noise barrier. Other measures include:
- a wide range of measures to reduce and control noise and vibration are identified within the relevant CoCPs (such as noise limits on plant and machinery, restricting hours for particularly noisy activities such as blasting, establishment of a complaints procedure with contact details (24 hours, seven days a week) for personnel responsible for noise and vibration management, and establishment of a Community Liaison Group); the system for dealing with complaints will be staffed by bilingual Welsh-and English-speaking personnel

- the LNMS, within the Wylfa Newydd CoCP makes provision for the installation of noise insulation for qualifying properties;
 - Horizon would install a web-based continuous noise monitoring scheme for the duration of the construction programme, with monitoring points located in and around the Wylfa Newydd Development Area; IACC would have shared access to the monitoring data; vibration monitoring would also be undertaken; escalation actions would be undertaken should measurements exceed agreed threshold levels;
 - Horizon is committed to working with individual community receptors potentially affected (such as Cemaes Primary School and Eglwys St. Padrig's Church in Cemaes) to identify practical mitigation measures to reduce or manage noise effects. These could include the installation of noise insulation measures. Funding would be made available through the Community Impact Fund to implement agreed mitigation; and
 - the local community would be informed about particularly noisy activities, such as blasting in advance and a Community Involvement Officer would be appointed to provide support to those experiencing elevated nuisance levels.
- 3.3.48 During operation, noise and vibration effects are not expected to be significant, primarily due to mitigation included in the design of the Power Station, such as the location of the majority of noise sources within buildings and the adoption of noise limits for plant.
- 3.3.49 It is likely that mitigation measures during the decommissioning phase would be similar to those identified for the construction phase.

Environmental effects

- 3.3.50 Measures to mitigate the effects of construction noise effects as far as practicable include good practice, noise screening and implementation of measures set out within the Local Noise Mitigation Strategy. However, given the size of the project and its proximity to receptors some significant effects remain as summarised below.
- 3.3.51 During construction, significant adverse noise effects would still be experienced by a number of receptors, including:
- approximately 320 residential properties, mainly in Cemaes, Treglele, and individual properties which are close to the Wylfa Newydd Development Area and close to the A55 and A5025;
 - approximately 850 additional residential properties would still experience significant effects, although the magnitude of change from current to predicted levels would be less than those properties identified above;
 - Cemaes Primary School; five hotels; and Eglwys St Padrig's Church; and
 - one commercial property and five offices.

- 3.3.52 During construction, vibration effects would be experienced by residential properties close to the Wylfa Newydd Development Area.
- 3.3.53 During operation, noise and vibration effects are not expected to be significant, primarily due to mitigation included in the design of the Power Station, such as constructing purpose-built thick concrete or steel enclosures for equipment, and use of the quietest suitable model of generator transformer available.
- 3.3.54 Decommissioning effects are likely to be similar to those identified for the construction phase.

Soils and geology

Context

- 3.3.55 The Isle of Anglesey is designated as a UNESCO Global Geopark, named GeoMôn Geopark, due to its outstanding geodiversity and geological heritage. There are several RIGS near the Power Station Site. These are non-statutory listed sites of local, regional, or national importance that are conserved and protected by local authorities and are designated for their scientific, research, educational, historical or aesthetic importance.
- 3.3.56 Solis across the Wylfa Newydd Development Area are primarily loamy (comprising a roughly equal mixture of sand, silt and clay). High stone contents result in relatively permeable soils in the south-west and north-east of the Wylfa Newydd Development Area, whilst seasonal waterlogging is present across much of the rest of the site. Some areas of peaty soils are present, for example within the Tre'r Gof SSSI.
- 3.3.57 Most of the soils within the Wylfa Newydd Development Area are classified as moderate quality, from an agricultural perspective, with some large areas of very poor quality, and smaller areas of good and very good quality.
- 3.3.58 The majority of the study area has either remained undeveloped since the earliest available historical mapping, or has been used for grazing or cultivation. However, the areas immediately surrounding the Existing Power Station, were used as construction laydown areas during the development of that site and Ground Investigations have encountered areas of soil contamination in some locations.

Mitigation

- 3.3.59 The cooling water outfall and associated temporary construction works have been designed to avoid the dolerite dyke intrusion which forms the key feature of the Porth Wnal Dolerite RIGS. Works would still however, affect part of the site. In order to partially mitigate the effects, bilingual geological information boards would be erected on Wylfa Head prior to construction, to provide an educational resource.
- 3.3.60 As part of the site clearance process, any areas where contaminated soils were identified would be cleared. This would mitigate the potential for any contamination to affect human health or the environment. Monitoring for

contamination during excavation would ensure that any unexpected contamination would be identified as soon as practicable, and appropriately and swiftly dealt with as set out within the Main Power Station Site sub-CoCP.

- 3.3.61 Other mitigation measures would include the careful stripping, storage and reuse of soils, the implementation of pollution prevention measures and the sustainable management of excavated materials as set out within the Wylfa Newydd CoCP and Main Power Station Site sub-CoCP.
- 3.3.62 On completion of the works the permanently reduced accessibility to the Porth Wnal Dolerite RIGS as an educational resource would be mitigated in part, through the retaining the information boards on Wylfa Head. In addition, access to the RIGS could be arranged for students and geologists when appropriate.
- 3.3.63 Mitigation measures to be implemented during decommissioning are anticipated to be similar to those for construction.

Environmental effects

- 3.3.64 Significant effects likely to remain following the implementation of the mitigation identified are summarised below.
- 3.3.65 During construction, there would be permanent damage to an area of the Porth Wnal Dolerite RIGS due to the construction of the cooling water outfall, along with reduced accessibility to the site.
- 3.3.66 There would be potential to uncover unexpected contaminated land during construction, which could affect construction workers. Clearance of any areas of contamination during construction would result in permanent benefits for human health, soil, surface water and groundwater.
- 3.3.67 No significant adverse effects on soil and geology are anticipated during the operation or decommissioning of the Power Station.

Surface water and groundwater

Context

- 3.3.68 There are five surface water catchments within the area: Tre'r Gof Catchment (including Tre'r Gof SSSI); Afon Cafnan Catchment (including Cae Gwyn SSSI); Cemaes Catchment; Power Station Catchment; and Cemlyn Catchment (including part of Cemlyn Bay SSSI, SPA and SAC). Only the Power Station Catchment is considered to be of low value.
- 3.3.69 The Afon Cafnan, Power Station and Cemaes Catchments are considered to be at low risk of flooding from rivers and the sea. Cemlyn Catchment is predominantly at low risk from flooding, with only the lower reaches of Nant Cemlyn which outfalls into Cemlyn Lagoon being at higher risk. The area between the Cemlyn Catchment and Cemlyn Bay, which is outside these catchments has been identified as being at high risk from coastal flooding. The Existing Power Station is at low risk of flooding from both rivers and the sea.

- 3.3.70 Fluvial geomorphology looks at rivers and streams, their processes and how they interact with the landscape. The study area contains one watercourse with fluvial geomorphological features of interest in this regard: the Afon Cafnan, which includes a gravel-bed and riffle-pool sequence. These are valuable river features.
- 3.3.71 The ground beneath the Wylfa Newydd Development Area forms a secondary aquifer, and groundwater close to the surface is known to be important in maintaining the wetland conditions of the Tre'r Gof and Cae Gwyn SSSIs, and supporting flows in surface watercourses. Groundwater also supplies three properties near to the Wylfa Newydd Development Area. Buildings in the study area could potentially be affected by any potential settlement associated with removal of groundwater by dewatering.
- 3.3.72 The Ynys Môn secondary groundwater body which underlies much of Anglesey, including the Wylfa Newydd Development Area is designated under the Water Framework Directive and protected as a Groundwater Drinking Water Protected Area. There are also coastal Water Framework Directive water bodies at The Skerries, Anglesey North and Cemlyn Lagoon.

Mitigation

- 3.3.73 Measures that would be used to reduce potential adverse effects during construction are outlined below.
- 3.3.74 Measures in the Wylfa Newydd CoCP and the Main Power Station Site sub-CoCP include:
- a documented flood mitigation action plan to ensure appropriate measures are in place to manage flood risk during construction;
 - installation of appropriate drainage to manage runoff and the associated use of sustainable drainage systems such as of permeable surfaces wherever practicable to reduce flood risk and allow ongoing infiltration into the soil; and
 - sediment settlement ponds would be used during construction in conjunction with other measures including silt traps, silt curtains, silt fences and vegetated channels to allow flows to be captured and discharged to the drainage system.
- 3.3.75 A buffer zone would be put in place around the Tre'r Gof SSSI with work inside this area limited to the installation of drainage associated with the Site Campus; this would help manage runoff from the landscape mounds and support other measures incorporated into the design to avoid or reduce potential impacts on the SSSI.
- 3.3.76 Landscape mounding would be designed to avoid changes in catchment boundaries as far as practicable.
- 3.3.77 Pre-construction building surveys and monitoring during construction would be carried out in order to detect any risk of subsidence of the Existing Power Station support buildings and services. The surveys and monitoring would identify any further mitigation required.

- 3.3.78 Pre-construction water environment monitoring would be undertaken and if required, the drainage design would be modified to account for new information in order to reduce potential sediment entering sensitive surface water features, avoid worsening any existing flood risk or any other adverse effects identified.
- 3.3.79 In advance of the operational phase, a monitoring regime would be developed for the surface water and groundwater environment at and around the Power Station and Offsite Power Station Facilities as appropriate, and agreed with NRW. This would include monitoring of water quality and quantity (groundwater levels and surface water flows) at and around Tre'r Gof SSSI and Cae Gwyn SSSI.
- 3.3.80 As stated in the Wylfa Newydd CoOP foul water discharge would be to the existing Dwr Cymru Welsh Water (DCWW) Sewage Treatment Works and to on-site package treatment plants. Foul water would not be discharged to surface water or groundwater.
- 3.3.81 The operational drainage system would be designed, as far as is practicable, to match the flow and water quality currently found in watercourses in the area.
- 3.3.82 All fuel and chemical storage at the Power Station and Off Site Power Station Facilities would be within engineered containment facilities, including (where appropriate) suitably bunded tanks, and would comply with the requirements of the Project's Environmental Permit. Spent Fuel Store and radioactive waste storage and processing facilities at the Power Station would be designed and sited so as to prevent the release of any contaminants into the environment.
- 3.3.83 Mitigation during decommissioning would be similar to that deployed during the construction phase. The risk of groundwater flooding could be mitigated by retaining the operational drainage systems and/or using land drains to drain groundwater.

Environmental effects

- 3.3.84 Potential significant effects remaining once mitigation is in place are summarised below.
- 3.3.85 During construction changes in the natural catchment area due to landscape mounding and managed drainage could alter runoff rates, surface water flows, or groundwater flows, leading to changes to water availability, for Tre'r Gof Catchment and water within the Tre'r Gof SSSI.
- 3.3.86 During operation changes in the natural catchment area through landscape mounding and drainage, could alter flow rates, for Tre'r Gof Catchment, Afon Cafnan Catchment, Cemlyn Catchment and Cemaes Catchment.
- 3.3.87 No significant effects on surface water would be expected during decommissioning.
- 3.3.88 No significant effects on groundwater or fluvial geomorphology are anticipated during the construction, operation or decommissioning phases.

Terrestrial and freshwater ecology

Context

- 3.3.89 There are six nationally and internationally designated sites within 2km of the Wylfa Newydd Development Area, the closest being Bae Cemlyn/Cemlyn Bay SSSI and SAC; Tre'r Gof SSSI, Cae Gwyn SSSI, and Morwenoliaid Ynys Môn /Anglesey Terns SPA. Tre'r Gof SSSI is particularly important as it is situated within the Wylfa Newydd Development Area.
- 3.3.90 Other designated sites of interest within 2km include nine local Wildlife Sites and further afield Ramsar, SPA and SAC sites. Within the Wylfa Newydd Development Area there are two areas of ancient semi-natural woodland and one restored ancient woodland site.
- 3.3.91 Sensitive habitats and protected species found in the area include:
- terrestrial habitats
 - fungi and lichen;
 - terrestrial invertebrates and freshwater macroinvertebrates;
 - amphibians including common toad and great crested newt;
 - reptiles including adder and common lizard;
 - breeding birds (notably chough) and over-wintering and migrating birds;
 - bats, otter, water vole, red squirrel;
 - other notable mammal species including brown hare, hedgehog and polecat, and
 - freshwater fish.

Mitigation

- 3.3.92 Extensive mitigation has been developed in order to ensure that the effects on habitats and species are as limited as practicable.
- 3.3.93 An Environmental Clerk of Works would supervise the construction on site and ensure measures are in place to reduce effects and manage environmental incidents. Pre-construction ecology surveys would be carried out to check whether species are present, that may need to be moved or have existing habitat enhanced.
- 3.3.94 To protect sensitive environmental features during construction, no works would take place within the boundary of either Tre'r Gof or Cae Gwyn SSSIs. Further protection around sensitive sites would be provided through the establishment of buffer zones, where no construction works would take place. In addition, three Ecological Compensation Sites have been identified where rich-fen habitat would be created and enhanced to offset any potential effects on Tre'r Gof SSSI.
- 3.3.95 To reduce the potential effects of air quality changes, habitat management at Tre'r Gof SSSI would include annual cutting of vegetation to reduce the

increased biomass which is predicted to occur as a result of increased nitrogen deposition.

- 3.3.96 During construction, there would be a number of protected species whose habitats would be lost or affected by clearance works. Two receptor sites would be provided by Horizon to accommodate species translocated or displaced from the Wylfa Newydd Development Area. A reptile receptor site has been established on 5ha of land at Mynydd-Ithel Farm, to the south-west of the Wylfa Newydd Development Area. In addition, an enhancement area of around 15ha to the west of the Wylfa Newydd Development Area, would be created to provide high quality habitats to support a range of species, and offer links into the surrounding landscape.
- 3.3.97 To avoid impacts during construction some species would be moved by trapping and relocating them and by clearing refuges and foraging habitat in a systematic manner, towards those areas secured as receptor sites.
- 3.3.98 Further specific measures to address potential effects have been included in the design of the Power Station and the Main Power Station Site sub-CoCP including:
- monitoring before and during construction to feed back into the design and management of drainage, particularly in relation to Tre'r Gof SSSI;
 - seeding of material stockpiles, landscape mounds and temporary mitigation mounds as early as possible to reduce sediment run off and allow early establishment of habitat;
 - biosecurity measures would be put in place to avoid the introduction and spread of invasive non-native species;
 - air quality monitoring in order to avoid any exceedance of Air Quality Objectives, particularly at Tre'r Gof SSSI;
 - a management plan would be put in place to improve the habitat at Wylfa Head Wildlife Site (Arfordir Mynydd y Wylfa - Trwyn Penrhyn Wildlife Site) particularly for breeding chough and fungi, along with awareness raising amongst the local population and the construction workforce of the sensitivity and legal protection of Wylfa Head, particularly in relation to the nesting birds;
 - to mitigate for loss of ancient woodland, translocation of topsoil and coppice stools from the two areas of ancient woodland to be lost and translocation of timber from felled trees supporting rare lichen will be undertaken, with material placed on a receptor site, near Cestyll Garden;
 - enhancement of existing habitat for red squirrel on Dame Sylvia Crowe's Mound by installing artificial dreys and providing additional food sources during the construction period;
 - provision of bat boxes and barn owl boxes roosts;
 - provision of two new bat barns, which will match the two existing bat barns on site

- species relocation, including mud snail which would be moved to an existing wetland area within the enhancement area; and
 - construction lighting would be designed to reduce sky glow, glare and light spill where practicable.
- 3.3.99 Long-term monitoring of species translocations, habitat creation and work undertaken as part of a protected species licence would be undertaken to assess the success of mitigation provided.
- 3.3.100 Measures to support the mitigation of potential operational effects on wildlife and habitats are set out in the Wylfa Newydd CoOP. The design of the landscape and planting within the Wylfa Newydd Development Area would provide strong links both across the site and into the wider landscape to enable the movement of species back into the Wylfa Newydd Development Area.
- 3.3.101 Specific additional measures which would be implemented to mitigate potential adverse effects from operation would principally be based on ongoing management and monitoring including at Tre'r Gof SSSI, which would identify the need for any adaptive management. The management of the Ecological Compensation Sites would off-set any potential adverse effects on the SSSI. Operational monitoring of air quality would also be undertaken at the Tre'r Gof SSSI to identify any changes to baseline conditions during the commissioning of generators, and inform the need for additional mitigation.
- 3.3.102 It is anticipated that mitigation for the decommissioning phase of the Power Station would be similar to that implemented during construction, particularly with respect to the protection of designated wildlife sites and surface water and groundwater quality.
- 3.3.103 On completion of decommissioning areas of the Wylfa Newydd Development Area affected by decommissioning of the Power Station would be landscaped and restored primarily to sympathetically managed agricultural land, with opportunities for habitat enhancement maximised.

Environmental effects

- 3.3.104 Potential significant effects predicted to remain following implementation of the above mitigation are summarised below.
- 3.3.105 Key effects expected during construction include permanent hydrological changes for Tre'r Gof SSSI and loss of ancient woodland habitat; the Ecological Compensation Sites would compensate for any adverse effects on Tre'r Gof SSSI.
- 3.3.106 Hydrological changes occurring during construction may persist into the operational phase and could lead to long-term deterioration of Tre'r Gof SSSI.
- 3.3.107 It is anticipated that habitat creation and enhancement works at the Ecological Compensation Sites would help also protect existing designated sites including Caeau Talwrn SSSI, Cors Bodeilio SSSI and the Corsydd

Môn/Anglesey Fens SAC. This could lead to significant positive benefits for biodiversity.

3.3.108 No significant adverse effects on terrestrial and freshwater ecology have been identified for the decommissioning phase.

Coastal processes and coastal geomorphology

Context

3.3.109 The Anglesey coastline is predominantly composed of exposed hard rock and therefore resistant to erosion. However, locally it is extremely varied as a result of the different rates of erosion of the many rock types that occur. The local coastal landscape is made up mainly of relatively low, hard rock cliffs with pocket sandy bays. Esgair Gemlyn is a notable ridge in Cemlyn Bay composed of gravels.

Mitigation

3.3.110 The design and construction of the breakwaters, MOLF, cooling water intake and outfall structures and dredging activities would include measures to reduce changes to coastal and marine processes and effects on coastal geomorphology. These primarily include keeping the size of structures such as the breakwaters and the temporary causeway, as small as practicable. In addition, the drainage system has been designed to reduce the disturbance and transport of fine sediment.

3.3.111 Concrete armour on the seaward side of the western breakwater would increase roughness and reduce the energy of incoming waves.

3.3.112 Mitigation during decommissioning would be based upon standard construction best practice applicable at that time.

Environmental effects

3.3.113 No significant effects on coastal processes and geomorphology have been identified for the construction, operational or decommissioning phases.

Marine environment

Context

3.3.114 The coast around the Wylfa Newydd Development Area comprises diverse habitats characteristic of a moderately exposed, western UK rocky coastline, dominated by seaweeds. Offshore, the seabed comprises a mix of solid rock, boulders, cobbles and sediments. The open coast of north Anglesey is characterised by strong tidal flows.

3.3.115 The main features of the marine environment that could be affected include water quality, phytoplankton and zooplankton; marine benthic (sea bed) habitats and species; marine fish; marine mammals and seabirds.

3.3.116 There are three nationally or internationally designated marine-based nature conservation sites either within the Wylfa Newydd Development Area itself or within 100m of the Wylfa Newydd Development Area as set out below.

- Bae Cemlyn / Cemlyn Bay SAC and SSSI, primarily designated for its saline lagoon;
- North Anglesey Marine/ Gogledd Môn Forol candidate SAC, designated for the protection of harbour porpoise. Candidate SAC means it passed through public consultation as a possible SAC, and was submitted to the European Commission (January 2017); and
- Anglesey Terns SPA, primarily designated for four species of tern.

3.3.117 Three water bodies protected under the Water Framework Directive have been identified: The Skerries, Anglesey North and Cemlyn Lagoon. These water bodies support designated features of nature conservation importance.

Mitigation

3.3.118 During construction, specific measures proposed to reduce effects on the marine environment include:

- drainage design to include sediment settlement ponds and treatment to manage flows and meet agreed water quality standards;
- to prevent increases in sediment load in the watercourse (which drains to Cemlyn Lagoon) flows from the Nant Cemlyn will be diverted into the Afon Cafnan until vegetation on adjacent mounding becomes established;
- use of excavated rock in the construction of marine structures to reduce the amount of material imported and the amount requiring marine disposal;
- the western breakwater would be designed to allow mixing of water within Porth-y-pistyll and prevent long-term disturbance to habitats to the west of the breakwater structures around Cerrig Brith;
- the footprint of the breakwaters, cooling water intake and outfall, temporary causeway, and Dredging activities would be designed to ensure fish are not prevented from entering and leaving freshwater habitat in the Afon Cafnan;
- design of the breakwaters to function as an artificial rocky reef and inclusion of features such as pre-cast 'bio-blocks' to provide new habitat to partially offset the loss of subtidal and intertidal habitats under the footprint of the Marine Works;
- a monitoring programme developed in consultation with NRW to determine the success of habitat enhancement. Data would inform the implementation of further mitigation if necessary. An environmental liaison officer would be appointed to ensure the works proceed in accordance with measures identified;

- monitoring to prevent the introduction and spread of non-native species;
- fish-friendly' pumps would be used for dewatering to reduce the risk of marine fish being drawn into the dewatering pumps and killed;
- to ensure disturbance to nesting terns is reduced, monitoring would be undertaken throughout the nesting period. If the colony shows signs of disturbance as a result of the works, alternative methods of working or additional constraints would be applied. Additional controls on construction would be applied during the tern arrival and establishment period at the start of the nesting season; and
- best practice to be followed to reduce the risk of injury to marine mammals from piling noise.

3.3.119 During operation, the cooling water outfall would be designed to promote mixing and dispersal of discharges. In addition, an acoustic fish deterrent would be installed in front of the intake structure to discourage fish; an entrapment monitoring programme would be adopted to monitor and report on the effectiveness of fish protection measures.

Environmental effects

3.3.120 With the identified mitigation taken into account, no significant effects on the marine environment during construction, operation or decommissioning have been identified.

Landscape and visual

Context

3.3.121 The Wylfa Newydd Development Area mainly comprises agricultural pasture with sparse tree cover. Landscape elements subject to change within this area include the drumlin landform, rock outcrops, shoreline features, watercourses, trees, field boundaries, hedgerows, dry-stone walls and cloddiau (stone-faced earth banks). The Existing Power Station has become a dominant feature of the landscape in some views.

3.3.122 Key landscape designations and features that could be affected by the development of the Power Station Site include:

- the Anglesey AONB, concentrated on the coast and extending into the western part of the Wylfa Newydd Development Area, including the Porth-y-pistyll shoreline;
- North Anglesey Heritage Coast, which closely relates to the Anglesey AONB in the vicinity of the Wylfa Newydd Development Area;
- Cestyll Garden (a Grade II Registered Park and Garden) which lies adjacent to the western boundary, with the associated kitchen garden lying within the Wylfa Newydd Development Area; and
- landscaped mounding and woodland designed by Dame Sylvia Crowe located near to the Existing Power Station.

3.3.123 The following people and communities could potentially experience disrupted views as a result of the construction and operation of the Power Station:

- people living in Cemaes, Treglele, and other properties close to the Wylfa Newydd Development Area;
- communities along the A5025 between Cemaes and Treglele;
- communities of Llanfairynghornwy and Llanfechell;
- users of the public rights of way network including the WCP and the Copper Trail;
- visitors to Cestyll Garden;
- offshore viewers; and
- Users of the A5025 and the local road network.

3.3.124 Much of Anglesey outside the main settlements is a predominantly dark environment at night; the Isle of Anglesey AONB Management Board is working with partners from the AONB Joint Advisory Committee towards achieving Dark Sky Reserve status for Anglesey as a whole.

Mitigation

3.3.125 Measures to mitigate construction effects on the landscape include:

- where soils would be stored for longer than 60 days, stockpiles and temporary landscape mounding would be seeded with an appropriate low-maintenance seed mix;
- survey of field boundary features before they are removed, to ensure authenticity and continuity in the proposed future landscape restoration;
- appropriate phasing of clearance, and early introduction of mitigation measures, including carefully designed mounding, woodland and hedgerow planting, and the enhancement of the Wylfa Newydd Development Area outside the perimeter fence where practicable;
- management and enhancement of retained landscape features, trees, scrub and hedgerows including the retained Dame Sylvia Crowe wooded mounds and new areas of planting on completed areas of landscape mounding;
- the MOLF and breakwaters, would seek to integrate into the existing seascape character to the greatest extent possible, through the selection of appropriate materials and surface treatments;
- use of natural based colour schemes to break down the scale and massing of the Power Station buildings and help integrate them into the landscape, using a similar approach to that used for the Existing Power Station;
- prepare and implement a landscape restoration plan for the Site Campus following its clearance at the end of Main Construction;

- commitment to further landscape design development to take account of landscape architecture, ecology and cultural heritage, including consideration of restoration of agricultural field patterns using traditional boundaries such as hedgerows, cloddiau and dry-stone walls; and
- design construction lighting to reduce light spill to below thresholds where significant effects are predicted where practicable, with regular inspections on site.

3.3.126 Mitigation measures for the operational phase would include:

- landscape mounding and associated landscaping to soften views of the Power Station and help integrate it into the landscape, including returning much of the land not required for operational purposes to agriculture, creation of a new field pattern, using new field boundary types typical of the area, and new woodland and scrub planting;
- reinstatement of land used temporarily for construction to a landscape mounding or a condition similar to that which existed prior to construction and maintenance of planting for a minimum five-year period; this would be supported by a commitment to further landscape design development to take account of landscape architecture, ecology and cultural heritage, including consideration of restoration of agricultural field patterns using traditional boundaries such as hedgerows, cloddiau and dry-stone walls;
- restoration of the intertidal zone in conjunction with removal of the temporary causeway to restore as natural an appearance as possible;
- landscape management and enhancement of the retained area of Dame Sylvia Crowe designed woodland;
- further landscape design development of the sedimentation ponds to achieve a more natural appearance and reduce their visual prominence;
- temporary seeding of the area reserved for the Spent Fuel Storage Facility and Intermediate Level Waste Storage Facility, until needed;
- implementation of the long-term Landscape and Habitat Management Strategy to ensure successful establishment of the proposed landscaping and long-term viability of planting; and
- lighting designs for operation developed to reduce light spill and to limit visibility of new lighting at distant receptors.

3.3.127 Lighting for decommissioning would be designed to reduce light spill onto sensitive receptors. Landscaped areas outside of the Power Station Site, including landscaped mounding and associated pasture and planting would be retained, with no removal of topsoil, or major earthworks.

3.3.128 Woodland, hedgerow and scrub planting would be under taken to restore characteristic field patterns to re-integrate the Power Station Site into the surrounding landscape; this would include returning the land to pasture for

grazing sheep or cattle, in conjunction with proposed ecological enhancement measures.

Environmental effects

- 3.3.129 Significant effects remaining once the identified mitigation is implemented are summarised below.
- 3.3.130 During construction changes to the rural landscape would arise from removal of existing rural features and the introduction of fencing, compounds and other construction activities, together with views to other associated construction works nearby, creating a change for the landscape character of the AONB and the North Anglesey Heritage Coast, the non-designated wider landscape and local landscape and seascape character. Landscape mounding and other works would alter the drumlin landform of the directly affected part of AONB and the Marine Works would substantially change the shore of Porth-y-pistyll bay. Then presence of the construction works in the landscape would further erode landscape character.
- 3.3.131 Local communities would experience visual effects arising from site clearance, the introduction of permanent and temporary structures, plant and construction activities. In particular, Cemaes and Tregele would experience effects arising from the proximity of these activities. Views from communities of Llanfairynghornwy and Llanfechell would also be affected.
- 3.3.132 Construction works would be visible to users of the Copper Trail, the WCP, and other public rights of way. Visitors to Cemlyn Bay and Cestyll Garden, William Thomas Monument at Mynydd y Garn, the standing stones of Llanfechell and offshore viewers would also experience changes in their views. The level of these effects would depend on the nature and distance of the view. Users of the A5025 and the local road network would also experience significant changes in views due to site clearance and construction activities.
- 3.3.133 Changes to landscape character and ground cover would result from works undertaken at the Ecological Compensation Sites at Cae Canol-dydd, Cors Gwawr and Tŷ Du', with vegetation removal and mounding of spoil affecting views and local landscape character.
- 3.3.134 There would be night-time effects caused by proposed lighting on visitors to Cemlyn Bay, users of the A5025, the local road network, and local communities.
- 3.3.135 Many of the effects during the operational phase would reduce over time as landscaping becomes established. During summer time, fifteen years after opening, the landscape character of the Anglesey AONB, the wider landscape context and some local landscape character areas would continue to be affected by the Power Station. The natural characteristic features of Porth-y-pistyll bay would have been largely replaced by built structures such as the Cooling Water System intake structure, MOLF, and breakwaters which along with the large-scale Power Station would continue to affect the landscape character and setting of AONB in this location. Maturing vegetation including the proposed landscape restoration of those parts of the

Wylfa Newydd Development Area not required for operational purposes would help integrate the landscape mounding and Power Station.

- 3.3.136 The seascape character of the North Anglesey Heritage coast and some local seascape character areas would continue to be affected by the MOLF, the adjacent breakwaters and the Power Station.
- 3.3.137 The community of Cemaes would experience reduced visual effects compared to the construction phase effects, because the maturing vegetation and landscape mounding would provide screening of the Power Station buildings with only glimpses of the top of one main stack remaining. For the community of Tregel, the softening effects of the maturing vegetation would not completely mitigate the visual effects. For the community of Llanfairynghornwy, most largescale buildings would remain visible, but set within areas of landscape mounding.
- 3.3.138 Fifteen years into the operation of the Power Station, there would still be significant effects on views for users of the Copper Trail, the WCP, and other public rights of way and roads. Visitors to Cemlyn Bay, Cestyll Garden, the William Thomas Monument at Mynydd y Garn, and the standing stones of Llanfechell would also continue to have disrupted views. Offshore viewers would also still experience significant adverse effects.
- 3.3.139 During operation, landscape mounding would screen or partially screen lighting on the site; site lighting would not substantially alter the character of the night-time viewed at a distance, and would not substantially alter the character of the night-time views
- 3.3.140 During decommissioning, the gradual dismantling of buildings and structures would result in similar adverse effects on some or all of the landscape and visual receptors discussed above during construction.

Cultural heritage

Context

- 3.3.141 Within the Wylfa Newydd Development Area study area boundary, a total of 514 terrestrial archaeological remains has been identified, 99 marine archaeological remains, 302 historic buildings, and 17 Historic Landscape Types (HLTs) within the study area. Sixty three of these have been assessed to be of high value, including 23 scheduled monuments, two known wrecks, 22 historic buildings and six HLTs including the Cestyll Garden, a Grade II Registered Historic Park and Garden.

Mitigation

- 3.3.142 During construction, mitigation would include archaeological earthwork surveys, archaeological excavation, mapping, sampling and assessment, photographic surveys and historic building recording, or the development of an overarching archaeological mitigation strategy, prior to the start of works.
- 3.3.143 Peats and other deposits at Tre'r Gof SSSI with the potential for the presence of archaeological remains or environmental evidence from the geological

past, would be preserved in situ through the avoidance of works within the within the SSSI boundary and buffer zones, and through the minimisation of any new drainage within this area.

- 3.3.144 There would be a phased implementation of landscape mounding and woodland planting to soften views of the Power Station, to include early creation of the outer slopes and top of the linear landscaped mound adjacent to Tregel, and landscape mounding on the edge of Cemaes.
- 3.3.145 Potential effects of vibration on Felin Gafnan Corn Mill would be mitigated through undertaking a vibration risk assessment to establish safe working distances. Where works are required within the safe working distances, alternative equipment or working methods would be used to reduce vibration levels on sensitive receptors. Vibration monitoring would be carried out during construction.
- 3.3.146 To offset the effects on Cestyll Garden during the construction of the Power Station, a photographic survey of the garden and its current setting and historic building recording of surviving structures within the kitchen garden would be undertaken. Horizon would work with the landowners and other interested parties to identify appropriate measures such as interpretation boards, enhanced public access and maintenance or restoration works. Landscape measures to restore and/or enhance the former location of the kitchen garden would be agreed with National Trust, Cadw and GAPS. In addition, a programme of soil pH monitoring and a visual inspection of the condition of plants during the bulk earthworks of the construction period would be agreed.
- 3.3.147 On completion of construction, effects on archaeological remains and historic buildings would be offset through provision of interpretation boards at a number of locations.
- 3.3.148 During the operational phase, land no longer required would be restored to the characteristic field pattern of the area, with traditional boundary types including hedgerows, cloddiau and dry-stone walls would integrate the Power Station into the landscape. Land would be returned to pasture for grazing sheep or cattle, to help to integrate the Power Station into the landscape.

Environmental effects

- 3.3.149 Potentially significant effects remaining once the identified mitigation has been implemented are summarised below.
- 3.3.150 During construction, the following effects on heritage assets would be expected:
- effects on the settings of Eglwys St. Padrig's Church at Llanbadrig, Felin Cafnan Corn Mill at Porth y Felin, the mill house at Felin Gafnan Cylch-y-Garn and the corn-drying house at Felin Gafnan and Cafnan House and outbuildings, resulting from noise and visual intrusion of construction works;

- there would be the potential for physical damage to Felin Gafnan Corn Mill at Porth y Felin, resulting from the use of vibratory piling machinery in close proximity to this feature; and
- removal of historic landscape elements of Cestyll Garden including the kitchen garden, along with noise and visual intrusion of construction works affecting the setting of the Registered Historic Park and Garden resulting in adverse effects on views from the valley garden. There would also be the potential for effects on plants resulting from changes in air quality.

3.3.151 The operational phase would result in the following effects on heritage assets:

- adverse effects on the setting of Felin Cafnan Corn Mill at Porth y Felin, and the mill house at Felin Gafnan, due to the presence of the Power Station and breakwater, altering the coastal rural setting and intruding on views;
- effects on the setting of Cafnan House and Outbuildings due to the presence of the Power Station, landscape mounds and planting;
- visual intrusion into the setting and views from Cestyll Garden, a Registered Historic Park and Garden; and
- effects on key views of the landscape designed by Dame Sylvia Crowe.

3.3.152 During decommissioning, the following effects on heritage assets would be expected:

- noise and visual intrusion on the setting of Felin Gafnan Corn Mill at Porth y Felin, Mill house at Felin Gafnan, Cylch-y-Garn, the corn-drying house at Felin Gafnan, and on Cafnan House and Outbuildings, due to the operation of demolition plant, the removal of Power Station structures and remediation of the site; and
- visual intrusion due to the continued presence of the breakwater in significant views from Cestyll Garden.

Radiological effects

Context

3.3.153 Detailed surveys of radioactivity in soil samples from the Power Station Site have shown no evidence of elevation above background levels. Similarly, radioactivity concentrations are low in marine sediments near to the coast where the marine construction works would take place.

Mitigation

3.3.154 During construction Horizon would adopt a precautionary approach to radiation and environmental protection with additional sampling and monitoring of ground conditions carried out if required, and radiation protection experts and monitoring equipment available to provide

reassurance monitoring should it be required. In the unlikely event that radioactive material be discovered, arrangements would be in place to make the area safe, protect the workforce, prevent the spread of radioactive contamination and manage the radioactive material in consultation with the regulators.

3.3.155 Control of radioactive sources would be achieved through a combination of stringent management and supervision of the use of the sources to ensure all legal requirements are met.

3.3.156 Mitigation of potential risks during operation would include the high specification design of the nuclear plant, safety procedures in the day to day operation of the nuclear plant, management of potentially radioactive discharges and appropriate planning for the transport and disposal of radioactive waste.

3.3.157 During decommissioning, measures similar to those implemented during construction and operation would be undertaken to reduce effects.

Environmental effects

3.3.158 Radiological effects during construction, operation and decommissioning have been assessed as negligible and are therefore not significant.

Shipping and navigation

Context

3.3.159 Porth-y-pistyll Bay is not currently used by large commercial vessels, which typically pass at least four nautical miles from the coastline. Holyhead is the largest port in the area. Harbours at Cemaes Bay and Amlwch are mainly used by smaller recreational and fishing vessels. Holyhead Marina has approximately 350 berths. The bays and inlets of the local coast, including the Wylfa Newydd Development Area, provide sheltered anchorages, which are used by kayakers and other small craft. Vessels operating out of Cemaes and Amlwch harbour regularly fish in Cemlyn Bay, including within the Wylfa Newydd Development Area.

3.3.160 There is currently no Statutory Harbour Authority covering the area within which marine works are proposed. Recreational vessels report to the coastguard station situated at Holyhead, and vessels navigating to or from Holyhead contact Holyhead Port Control. The Royal Yachting Association accredited Holyhead Sailing Club organises yacht racing between April and October, with several of the races following the north coast of Anglesey. HM Coastguard and Royal National Lifeboat Institution have services located at Holyhead and Moelfre.

Mitigation

3.3.161 A number of mitigation measures representing established industry practice or guidance aimed at reducing navigational risks are set out in the Marine Works Sub-CoCP.

- 3.3.162 Horizon is seeking Harbour Authority powers, which would be required for the delivery of mitigation measures associated with marine management and safety, including a set of instructions and general rules that all users of the harbour area must follow. Horizon would also develop a Marine Safety Management System to provide guidance and procedures to allow safe operations within the harbour.
- 3.3.163 No mitigation measures have been proposed for the operation of the Power Station phase, as it is unlikely that the MOLF would be used during this period.
- 3.3.164 During decommissioning, it is expected that mitigation measures similar to those employed during construction would reduce effects.

Environmental effects

- 3.3.165 With mitigation in place, no significant adverse effects on shipping have been identified.

Combined effects

People and Residential Properties

- 3.3.166 Residential properties and communities could be affected by combined effects during construction and decommissioning. These effects could arise from a combination of noise, vibration, changes to landscape and visual amenity and the potential for dust effects. Effects would be most likely to occur for properties at the western edges of Cemaes and Tregale, and properties close to the Wylfa Newydd Development Area in Cemlyn Bay.
- 3.3.167 A slight increase in the risk of subsidence could occur during construction and operation for properties to the west of Tregale, in combination with air quality noise and vibration effects during construction, and landscape, visual and cultural effects during both construction and operation.

Other receptors

- 3.3.168 There is the potential for combined effects on the Existing Power Station and its associated buildings resulting from ground settlement due to lowering of groundwater levels combined with vibration during construction.
- 3.3.169 Various construction activities including topsoil stripping, landscape mounding, installation of surface water drainage and dewatering could result in combined effects on water quality and flow rates for a number of receptors including: Tre'r Gof SSSI, Cae Gwyn SSSI Afon Cafnan and Afon Cafnan Catchment, Nant Cemaes and Nant Cemaes Catchment, Nant Cemlyn, Nant Cemlyn Catchment and the Cemlyn Bay SSSI groundwater aquifers.
- 3.3.170 During operation, combined effects could arise from the presence of the WNDA Development potentially changing the way the catchment responds to rainfall, and altering groundwater quality, levels, flows and recharge rates. Potential effects could combine to have a greater effect on surface waters

within the Tre'r Gof drains and SSSI (in terms of both water quality and flow) than they would do individually

- 3.3.171 Construction activities within the Wylfa Newydd Development Area could result in combined effects on the groundwater aquifer including changes to recharge rates, levels and flow direction; infiltration of seawater or contaminated groundwater from dewatering; and an increased risk of pollution.
- 3.3.172 During construction and decommissioning, increases in noise from several sources could result in an increased perception of adverse changes to landscape character.
- 3.3.173 There could also be combined effects on the special qualities of the Anglesey AONB during the construction, operation and decommissioning phases of the Power Station Site, arising from changes to views, effects on recreational amenity, loss of woodland, removal of archaeological remains and effects on the settings of Felin Gafnan Corn Mill and Cestyll Garden.

3.4 Off Site Power Station Facilities at Llanfaethlu

Socio-Economics

Context

- 3.4.1 The proposed site for these facilities is located on the A5025, approximately 385m north of the village of Llanfaethlu. Llanfaethlu is a small village, with a population of approximately 550, and located approximately 1.5km south of Llanrhuuddlad. In addition to residential properties in the village of Llanfaethlu, there are a number of farm steadings next to and near the A5025. Local services within 1km include three places of worship and an area of open space situated in Llanfaethlu approximately 400m south-west of the Off Site Power Station Facilities. Ysgol Rhyd y Llan Primary School is located approximately 120m from the Off Site Power Station Facilities site. There are seven local businesses with 1km of the site, mainly situated within the settlement of Llanfachraeth.
- 3.4.2 The site is bounded by the A5025 to the west, residential and storage buildings to the north and south and farmland to the south and east. The site is currently occupied by a vehicle repair garage, vehicle storage and parking, with the majority of the area covered by hardstanding.

Mitigation

- 3.4.3 During operation site security and a secure fenced boundary have been incorporated into the site design to ensure safe and secure operation of the facility as well as acting to deter crime.
- 3.4.4 It is expected that good practice mitigation measures similar to those outlined for the construction phase would be reinstated for the decommissioning phase.

Environmental effects

- 3.4.5 With mitigation in place no significant socio-economic effects are anticipated for the construction, operation or decommissioning phases of the Off Site Power Station Facilities.

Public Access and Recreation

Context

- 3.4.6 There are six footpaths within 250m of the Off Site Power Station Facilities. In addition, walkers would use the A5025 within Llanfaethlu to link into the public rights of way. The A5025 also provides a link within the village, for example, to access the local primary school.

Mitigation

- 3.4.7 The public right of way adjacent to the southern boundary of the site would be landscaped to reduce the adverse effects on amenity for users of the footpath, during the operation phase of the site.

Environmental effects

- 3.4.8 With the mitigation identified no significant adverse effects on public recreation and amenity have been identified.

Air Quality

Context

- 3.4.9 There are a number of residential properties within 50m to the north, northeast and southwest of the site, including Tyn Rardd, number one and two Pen y Graig and Hen-shop. The nearest property within the village of Llanfaethlu is located approximately 300m to the southwest. There are four footpaths within 250m of the Off Site Power Station Facilities and Ysgol Rhyd y Llan Primary School, is located approximately 120m to the southwest of the Off Site Power Station Facilities, on the opposite side of the A5025.
- 3.4.10 Air quality in the vicinity of the Off Site Power Station Facilities and surrounding area is generally good and concentrations of pollutants are well below the relevant Air Quality Objectives.

Mitigation

- 3.4.11 Mitigation to manage adverse effects on air quality during construction is largely focused around good site practice and air quality monitoring during construction and is captured within the Wylfa Newydd CoCP and the Off Site Power Station Facilities sub-CoCP. Mitigation similar to that detailed for the construction phase would also be employed during the decommissioning stage.
- 3.4.12 The stack height for the standby diesel generator would extend approximately 3m above the roof of the standby generator enclosure to help

dispersion of emissions during operation; in addition, use of ultra-low sulphur diesel would reduce emissions of sulphur dioxide.

- 3.4.13 Mitigation similar to that detailed for the construction phase would also be employed during the decommissioning stage.

Environmental effects

- 3.4.14 Taking into account the mitigation identified, there are no significant effects considered likely to arise during construction, operation and decommissioning of the Off Site Power Station Facilities.

Noise and Vibration

Context

- 3.4.15 A number of residential properties potentially affected by noise and vibration are located within 600m of the site, along with a number of community facilities in Llanfaethlu including: Ysgol Rhyd y Llan Primary School; St Maethlu's Church; the village hall; the playing field; public rights of way; and buildings used for retail and other commercial premises. The Telephone Exchange building and communications mast in Llanfaethlu have been identified as potentially being sensitive to vibration.

Mitigation

- 3.4.16 Measures to reduce potential noise and vibration effects during construction include:
- use of solid hoarding around the site boundary, with acoustically reflective materials;
 - a vibration risk assessment would be undertaken to establish safe working distances receptors in relation to construction vibration;
 - locating the contractors compound and other plant to meet specified noise levels at nearest properties; and
 - the LNMS would offer secondary glazing to qualifying residential properties that experience significant noise effects associated with the Wylfa Newydd Project.
- 3.4.17 Measures to mitigate effects during operation of the Off Site Power Station Facilities would include:
- fixed plant designed to reduce noise and meet specified noise level at nearest receptors;
 - stone walls to the north and east of the site would be retained to provide some noise screening by reducing the likelihood of direct lines of sight between noise sources;
 - locating plant and buildings to help screen nearby noise-sensitive residential properties; properties to the south of the boundary of the site

would be screened from the fixed plant area and sub-station by the MEEG/AECC building; and

- testing of the emergency mobile plant generators stored in the MEEG/AECC building would take place at the maintenance facilities located at the main Power Station Site.

Environmental effects

- 3.4.18 During construction, with mitigation in place significant effects would still remain for 8 residential properties within 150m of the site boundary, as a result of construction works. No significant noise and vibration effects are considered likely to arise during operation or decommissioning the Off Site Power Station Facilities.

Soils and Geology

Context

- 3.4.19 The northern half of the site is developed and covered by hardstanding. The southern half of the site is undeveloped grassland, with slowly permeable, seasonally waterlogged soils with low natural fertility. Soils in this area are of moderate agricultural quality. Potential sources of contamination include the use of the site as a garage/repair depot and a sewage treatment works and historical inert landfill nearby.

Mitigation

- 3.4.20 During construction, measures to reduce effects would include the careful stripping, storage and reuse of soils, the implementation of pollution prevention measures and the sustainable management of excavated materials as set out within the Wylfa Newydd CoCP and Off Site Power Station Facilities sub-COCP.
- 3.4.21 To address risks from ground contamination a ground investigation and risk assessment would be completed prior to construction works commencing. If necessary, this would be followed by remediation to reduce the potential for effects to occur to human health and the environment. Excavation works would be monitored and procedures put in place so that any areas of unexpected contamination that could pose a risk to construction workers would be identified and managed as soon as practicable.
- 3.4.22 Pollution prevention strategies would be implemented in accordance with the Wylfa Newydd Code of Operational Practice (CoOP) to reduce the risk of accidental leaks and spills occurring during the operation of the Off Site Power Station Facilities and any effects on human health or the environment should they occur.
- 3.4.23 No mitigation measures have been proposed for the decommissioning stage of the Off Site Power Station Facilities.

Environmental effects

3.4.24 With mitigation in place, no significant adverse effects were identified for soils and geology for the construction, operation or decommissioning phases.

Surface Water and Groundwater

Context

3.4.25 A small unnamed tributary of the Afon Llanrhuddlad runs across the south-east corner of the site, which is assessed as having little or no risk of fluvial or tidal flooding. Limited surface water flooding is predicted to occur on some parts of the site. The bedrock is a secondary aquifer, that can store and yield limited amounts of groundwater. The low permeability soils and the existing hardstanding are likely to restrict local recharge rates to the aquifer.

Mitigation

3.4.26 Mitigation as outlined in the CoCPs, would include the following.

- soil storage mounds would have slopes of one in two or less where practicable and where soils would be stored for longer than 60 days, stockpiles would be seeded to reduced runoff;
- all refuelling, oiling and greasing would take place above drip trays or on impermeable surfaces and vehicles would not be left unattended during refuelling. Appropriate spill kits would be easily accessible during these activities;
- pollution prevention measures (such as temporary settlement ponds and silt fences) would be put in place to prevent the deposition of silt or other material arising from construction works in watercourses;
- use of secondary containment for any permanent oil storage tanks and temporary storage of over 200 litres of oil; and
- culverts and outfalls would be designed to ensure they were at an appropriate elevation relative to stream level, scour protection is used and outfalls were angled to prevent erosion.

3.4.27 Drainage has been designed to ensure surface water runoff from the site during operation would not increase above current rates so that there is no increase in the risk of surface water flooding; this includes use of permeable paving in the overspill car parking and the use of grassed swales.

3.4.28 Foul drainage from the operational phase would discharge to the existing foul sewer; no discharge to surface or groundwater is proposed.

3.4.29 Upon closure of the Wylfa Newydd Power Station, the proposed Off Site Power Station Facilities site would either be cleared of all buildings or the buildings would be retained for re-use. Should demolition take place, mitigation measures would be undertaken in accordance with relevant legislation and guidance in place at the time. The drainage system would be

retained and Horizon would remain responsible for its maintenance, for as long as Horizon owns the site.

Environmental effects

- 3.4.30 No significant adverse effects were identified for surface water or groundwater during construction, operation or decommissioning. However, significant beneficial effects were identified during operation in that the proposed swale and associated drainage infrastructure would markedly reduce flood risk at the site, and also to off-site receptors.

Terrestrial and Freshwater Ecology

Context

- 3.4.31 Potentially sensitive sites, habitats and species in or around the Off Site Power Station Facilities site include:
- Llyn Garreg-lwyd SSSI located approximately 700m to the north-west;
 - designated ancient woodland located approximately 700m to the north-west;
 - Coed Carreglwyd County Wildlife Site also located approximately 700m north-west; and
 - protected and notable species including breeding birds, bats, otter, and water vole.

Mitigation

- 3.4.32 Prior to the start of construction, habitat with the potential to support bird nests, would be removed outside the breeding bird season and surveys undertaken to confirm the presence or absence of protected or notable species.
- 3.4.33 A Biosecurity Risk Assessment and Method Statement would be prepared to prevent the introduction or spread of invasive non-native species.
- 3.4.34 Drainage would be designed to avoid damage to habitats suitable for otter and water vole.
- 3.4.35 Should buildings require demolition as part of the decommissioning of the Off Site Power Station Facilities, mitigation is likely to be similar to that employed during the construction phase.

Environmental effects

- 3.4.36 With the identified mitigation applied, there would be no significant effects during the construction, operation or decommissioning phases.

Landscape and Visual

Context

- 3.4.37 The Off Site Power Station Facilities site is located on the east side of the A5025 and is outside the AONB. The site is bound by the A5025 to the west, residential and storage buildings to the north, and farmland to the south and east. The A5025 forms the eastern boundary of the Isle of Anglesey AONB.
- 3.4.38 People and communities potentially affected by changes to views include:
- users of the six nearby public rights of way as well as walkers using more distant public rights of way and access land at Mynydd y Garn;
 - the community off the A5025, in Llanfaethlu to the south-west, Ysgol Rhyd y Llan Primary School to the south-west, and Llanrhuddlad to the north-east;
 - commercial: users of the nearby commercial development; and
 - travellers on the A5025 and wider local road network.

Mitigation

- 3.4.39 During construction the stone walls to the north and east of the site, existing boundary hedges and trees would be retained where possible to screen views.
- 3.4.40 Buildings would be designed and located to reduce their effect on the landscape and views, and measures to reduce light spill from construction and operational lighting would be incorporated into the design. Further mitigation of potential effects would be achieved through the architectural treatment of proposed buildings and structures, and through coordination of landscape and architectural strategies.
- 3.4.41 Planting would provide visual screening of the operational Off Site Power Station Facilities. Regular inspections would be undertaken for up to 10 years to ensure planting has established appropriately, and to maintain its effectiveness in reducing the adverse visual effect of the MEEG/AECC and ESL buildings.
- 3.4.42 For decommissioning, mitigation is likely to be similar to that employed during the construction phase. Planting undertaken for screening of the proposed development would be retained to soften views of decommissioning activities.

Environmental effects

- 3.4.43 The significant effects remaining following implementation of identified mitigation are outlined below.
- 3.4.44 During construction there would be adverse effects on views and visual amenity for users of public rights of way and the community off the A5025.
- 3.4.45 During decommissioning, users of some public rights of way and the community off the A5025 would experience views of the dismantling of the Off Site Power Station Facilities. Once the initial decommissioning period is completed, buildings and structures would be removed and mature on-site vegetation retained, with no further effects anticipated.

Cultural Heritage

Context

3.4.46 Within the study area for the Off Site Power Station Facilities, a total of 14 archaeological remains, 11 historic buildings and two Historic Landscape Types (HLTs) have been identified. Two of these features: Carreglwyd Grade II* Registered Park and Garden and Eglwys St Maethlu's Church Grade II* listed building, are considered to be of high value. None of these is located within the Off Site Power Station site.

Mitigation

3.4.47 Prior to the start of construction, a photographic survey would be undertaken to record the current fieldscape of North-west Môn, one of the HLTs within the study area.

3.4.48 An archaeological mitigation strategy would be developed in consultation with relevant stakeholders, to make record of any unknown archaeological remains that might be discovered on the site prior to their removal.

3.4.49 Mitigation to offset or reduce effects during the operational phase would include:

- landscaping around the perimeter of the site, including hedgerow, shrub and tree planting, to help reduce the visual intrusion into the setting of heritage assets outside the site and integrate the Off Site Power Station Facilities into the surrounding landscape;
- retention of boundary features of the site to help retain some of the existing landscape character; and
- appropriate architectural design, including scale, height, building massing and choice of building finishes to ensure that the Off Site Power Station Facilities are in keeping with the character of their surroundings as far as is practicable.

Environmental effects

3.4.50 With the identified mitigation applied, there would be no significant effects on cultural heritage during the construction, operation or decommissioning phases.

Combined effects

3.4.51 During the construction phase there are likely to be combined effects on Llanrhuuddlad and the community of Llanfaethlu off the A5025, due to effects on views in combination with effects such as dust deposition and increases in noise levels. It is possible that, at Ysgol Rhyd y Llan Primary School, effects arising from changes in views combined with noise levels and dust deposition may be considered, by the people affected, to be significant during construction.

- 3.4.52 During the operational phase, there are likely to be combined effects on Llanrhuddlad and the community of Llanfaethlu off the A5025, due to effects on views in combination with other non-significant effects such as increases in noise levels.
- 3.4.53 There are likely to be combined topic effects on Llanrhuddlad and the community off the A5025, and on the local landscape character, due to effects on views in combination with other effects such as dust deposition and increases in noise levels.

3.5 Associated Development – Park and Ride

Socio-Economics

Context

- 3.5.1 The Park and Ride site is located on the A5 Holyhead Road on greenfield land at Dalar Hir, immediately to the north-east of Junction 4 on the A55 and approximately 700 m north of the residential community of Llanfihangel-yn-Nhywyn. The Park and Ride site and surrounding area are characterised by open countryside with isolated farm properties. A restaurant and Eglwys St. Mihangel's Church (both located 1.1km south of the Park and Ride) are the only services provided within this community. The village of Caergeiliog is located over 1km to the west of the site, Bodedern village is located approximately 1.7km to the north of the site and Holyhead, is approximately 10km away. Gwyddfwr Residential Home, a privately-owned care home with 19 residents, is located to the north-east of the Park and Ride site. Seven businesses are found within 1km of the Park and Ride site.

Mitigation

- 3.5.2 During operation, site security and a secure fenced boundary have been incorporated into the site design to ensure safe and secure operation of the facility as well as acting to deter crime.

Environmental effects

- 3.5.3 With mitigation in place no significant socio-economic effects are anticipated for the construction operation or decommissioning phases of the works.

Public Access and Recreation

Context

- 3.5.4 The closest public rights of way are approximately 320m north of the proposed site at Dalar Bach and 340m south of the proposed site near Alltwen Goch. These lie outside of the 250m boundary which forms the study area of the public access effects for the Park and Ride.

Mitigation

- 3.5.5 Footway improvements, as well as a continuation of footways along the A5, would provide pedestrian access into the Park and Ride during the operational phase.

Environmental effects

- 3.5.6 Given the absence of public access features within 250m of the Park and Ride and with the mitigation identified, no significant adverse effects on public recreation and amenity have been identified.

Air Quality

Context

- 3.5.7 Residential properties potentially affected by changes in air quality include Bryngoleu farmhouse located approximately 200m to the east of the Park and Ride, and the Gwyddfor Residential Home approximately 250m northeast of the site. The nearest residential properties are approximately 300m or more to the north and south of the site boundary. The Cartio Môn Go-Karting centre is located about 50m to the east of the site boundary, with a Driver and Vehicle Standards Agency weighbridge and lorry checkpoint approximately 100m from the western site boundary.
- 3.5.8 At locations in the vicinity of the Park and Ride where sensitive human receptors are present, air quality is generally good and concentrations of pollutants are well below the relevant Air Quality Objectives.

Mitigation

- 3.5.9 Mitigation to manage adverse effects on air quality during construction is largely focused around good site practice and is captured within the Wylfa Newydd CoCP and Park and Ride sub-CoCP. Mitigation similar to that detailed for the construction phase would also be employed during the decommissioning stage.

Environmental effects

- 3.5.10 Taking into account the mitigation identified, there are no significant effects considered likely to arise during construction, operation and decommissioning of the Park and Ride.

Noise and Vibration

Context

- 3.5.11 A number of residential properties potentially affected by noise and vibration are located around the Park and Ride Site, along with a number of commercial premises at Cartio Môn, east of the Park and Ride, Refail Newydd, Waste Transfer Station, south-east of the Park and Ride; a public right of way, north of the Park and Ride; and commercial premises at Llanfihangel-yn-Nhywyn.

Mitigation

- 3.5.12 The location of Park and Ride site in an area which is of relatively low sensitivity to noise and vibration and away from residential communities, was a key consideration of the site selection.
- 3.5.13 The Local Noise Mitigation Strategy (LNMS) would offer secondary glazing to qualifying residential properties that experience significant noise effects associated with the Park and Ride.
- 3.5.14 During operation, the bus transfer building and waiting area would be centrally located within the site to maximise the distance between noise sources (such as buses) and nearby sensitive receptors; in addition, bus routes within the site would be designed as a one-way system in order to avoid the need for reversing buses.
- 3.5.15 Mitigation during the decommissioning phase would be similar to that employed for the construction phase.

Environmental effects

- 3.5.16 Taking into account the mitigation identified, no significant noise and vibration effects are considered likely to arise during construction, operation or decommissioning the Park and Ride.

Soils and Geology

Context

- 3.5.17 The site is covered by slowly permeable, fine loamy soils, which are typically prone to seasonal waterlogging, with a minor risk of flooding. Soils are of moderate agricultural quality. Potential historical sources of contamination on the site include roads, infilled ponds and farm activities.

Mitigation

- 3.5.18 During construction measures to reduce effects would include the careful stripping, storage and reuse of soils, the implementation of pollution prevention measures and the sustainable management of excavated materials as set out within the Wylfa Newydd CoCP and the Park and Ride sub-CoCP.
- 3.5.19 A ground investigation and risk assessment would be completed prior to construction works commencing. If necessary this would be followed by remediation to reduce risks to human health and the environment. Procedures for the management of any unexpected contamination would be prepared prior to construction works commencing.

Environmental effects

- 3.5.20 With mitigation in place, no significant adverse effects were identified for soils and geology for the construction, operation or decommissioning phases.

Surface Water and Groundwater

Context

- 3.5.21 The Park and Ride site is crossed by streams, ditches and wetted field boundaries, including the Nant Dalar Hir which flows across the site from the north-eastern corner in a south-westerly direction prior to being culverted beneath both Holyhead Road and the A55. It flows into Llyn Traffwll SSSI, located around 900m to the south. Modelling showed that there is a high risk of flooding associated with the Nant Dalar Hir, influenced in part by the culvert under the A55 which constricts flows out of the site. The soils on the site are prone to surface water ponding, high rates of surface water runoff generation and low groundwater recharge rates. The bedrock beneath the site comprises a secondary aquifer, that can store and yield limited amounts of groundwater.

Mitigation

- 3.5.22 Layout of car park areas has been designed to reduce watercourse crossings, which could increase flood risk if they became blocked and permeable parking areas would also be used. The site would be profiled to prevent any increase in flood risk and to ensure flow paths manage the flood waters from both rivers and rainfall without increasing flood risk elsewhere.
- 3.5.23 Vegetated buffer zones would be maintained along the Nant Dalar Hir and the drainage ditches on the site, to reduce the potential for fine sediment and pollutants to enter the watercourses and mitigate construction and operational effects on water quality and fluvial geomorphology.
- 3.5.24 The Wylfa Newydd CoCP and Park and Ride sub-CoCP include measures around site management, and vehicle operation and maintenance, to manage pollution risks during construction.
- 3.5.25 During operation measures to manage pollution risk would include: attenuation and treatment of surface water runoff, regular inspection and maintenance of oil interceptors and the drainage system, and guidance on spill response and clean-up procedures.

Environmental effects

- 3.5.26 With the mitigation implemented no significant adverse effects were identified for surface water or groundwater during construction, operation or decommissioning.

Terrestrial and Freshwater Ecology

Context

- 3.5.27 Potentially sensitive sites, habitats and species in or around the Park and Ride site include:
- Llyn Traffwll SSSI located around 900m to the south;
 - Llyn Dinam SAC located 1.2km to the south-west, and

- Llynau y Fali – Valley Lakes SSSI 1.2km to the south-west.
- badgers, bats, water voles, great crested newts and European eel.

Mitigation

- 3.5.28 Prior to the start of construction, habitats with the potential to support bird nests, would be removed outside the breeding bird season and surveys undertaken to confirm the presence or absence of protected or notable species including nesting birds, bats and water voles.
- 3.5.29 To avoid disturbance to water vole, the crossing installed over the Nant Dalar Hir would consist of a clear span (single span) bridge rather than a culvert. In addition, ensuring no increase in surface water runoff would prevent damage to freshwater habitats during the operation of the Park and Ride. It would also avoid damage to Llyn Traffwl SSSI.
- 3.5.30 A Biosecurity Risk Assessment and Method Statement would be prepared to prevent the introduction or spread of invasive non-native species.
- 3.5.31 Lighting during the operational stage would be designed to ensure that light-spill onto hedges and watercourses is avoided, to reduce disturbance to fish, breeding birds and badger.
- 3.5.32 Mitigation during decommissioning would be similar to that applied during the construction phase, with measures in place to protect habitat features to be retained. Habitats such as grassland, hedges and walls would be reinstated.

Environmental effects

- 3.5.33 With the identified mitigation applied, there would be no significant effects during the construction, operation or decommissioning phases.

Landscape and Visual

Context

- 3.5.34 The Anglesey AONB is located approximately 2.5km to the west of the site and would not be affected by the proposals.
- 3.5.35 People and communities potentially affected by changes to views include:
- recreational users including walkers on public rights of way and visitors to the Cartio Môn Go-Karting Centre;
 - the communities of Llanfihangel-yn-Nhywyn, Bodedern and Gwyddfwr Residential Home; and
 - people travelling on the A5 and A55 and the local road network, including limited numbers of cyclists and pedestrians.

Mitigation

- 3.5.36 Advance planting would be undertaken parallel to the southern site boundary and the A5, along with work to reinforce existing hedgerows to help reduce the landscape and visual effects of the construction of the Park and Ride site

in the short term. This would be supported by early grass seeding as areas are completed to improve integration with surrounding rural area.

- 3.5.37 New tree, hedgerow and shrub screen planting during construction would soften the appearance of the site and screen views from the A55 as it matured. Regular inspections would be undertaken for up to 10 years to ensure planting has established appropriately, and to maintain its effectiveness reducing adverse visual effect of the Park and Ride.
- 3.5.38 The bus facilities building would have a stone-clad and timber effect finishes consistent with surrounding farm buildings to integrate them with surrounding landscape. In addition, the colour and structure of the bus canopies would be chosen to reduce visual intrusion and light spill. This would mitigate effects on landscape and views during both construction and operation.
- 3.5.39 Following decommissioning of the site, boundary hedgerows and stone walls, removed to provide the Park and Ride entrance and exit, would be restored to the original boundary alignment, and gaps in hedgerows would be replanted. All areas would be seeded with grassland species in advance of returning the land to agricultural use and in order to help integrate it into the surrounding landscape.

Environmental effects

- 3.5.40 During construction, site activities would have a significant adverse effect on the local landscape character. This effect would continue into the operational phase with bus facilities buildings, large surfaced areas and lighting again serving to detract from the local landscape character.
- 3.5.41 Staff and visitors at the Cartio Môn go-karting centre would have direct views of the construction activities and would experience a significant adverse effect. During operation views of the carpark, and security fencing would again result in significant adverse effects.
- 3.5.42 Decommissioning works would also have a significant adverse effect on landscape character and users of the Cartio Môn go-karting centre.

Cultural Heritage

Context

- 3.5.43 Forty heritage assets have been identified within 1km of the Park and Ride, site. Of these 33 are archaeological remains, four are historic buildings, and three Historic Landscape Types (HLTs). The three HLTs are considered to be of high value.

Mitigation

- 3.5.44 Historic field boundaries would be retained and enhanced, where practicable, to maintain the landscape character and a stone wall along the southern boundary of the site would be retained. In addition, an environmental buffer zone would prevent damage to the Dalar Hir burnt mound and ditches feature.

- 3.5.45 Archaeological excavation of known archaeological sites would be undertaken. In addition, photographic surveys of a former clawdd (a stone-faced earth bank) and the fieldscape of Central Eastern Môn (a HLT) are proposed, and a historic building record of Dalar Hir Farmstead and a boundary wall associated with Thomas Telford's London to Holyhead Road would be made.

Environmental effects

- 3.5.46 With the identified mitigation applied, there would be no significant cultural heritage effects during the construction, operation or decommissioning phases.

Combined effects

- 3.5.47 It is likely Gwyddfôr Residential Home would experience adverse effects on visual amenity combined with minor noise and dust effects during the construction, operational and decommissioning stages of the Park and Ride.
- 3.5.48 Residential receptors in the Bodedern and Llanfihangel area (including Gwyddfôr Residential Home), would experience adverse effects due to increased noise and dust levels. This could result in an increased perception of adverse changes to the local landscape character, when combined with the removal of, or change to, existing landscape features. These effects are likely to extend to the operation and decommissioning phases.

3.6 Associated Development – A5025 Off-line Highway Improvements

Overview

- 3.6.1 The A5025 from Valley to the Wylfa Newydd Development Area follows a winding course with a number of sharp bends. In some places, the route passes through communities and is closely flanked on one or both sides by residential properties.
- 3.6.2 The 16.5km stretch of the A5025 identified for improvement has been divided into sections. Sections 1, 3, 5 and 7 of the improvement works and the Power Station Access Road Junction form part of the A5025 Off-line Highway Improvements, with other improvements being delivered by the A5025 On-line Improvement Works. Sections included within the A5025 Off-Line improvements include:
- **Section 1 - Valley:** 1.06km of road extending from the A5 east of Valley Junction to north of Valley Junction;
 - **Section 3 - Llanfachraeth:** 2.28km of road extending from north of Llanynghenedl to north of Llanfachraeth;
 - **Section 5 - Llanfaethlu:** 1.43km of road extending from south of Llanfaethlu to north of Llanfaethlu; and

- **Section 7 - Cefn Coch:** 1.3km of road extending from north of Llanrhuuddlad to north of Cefn Coch.
- Section 9 - the Power Station Access Road Junction north of Cefn Coch.

Socio-Economics

Context

- 3.6.3 The main communities in the area are Valley with a population of just over 2,000, Llanfachraeth with a population of just under 600, Llanrhuuddlad with a population of just under 800 and Treglele with a population of approximately 170. In addition to residential properties within these settlements, smallholdings and farms are located along the A5, A55 and A5025. The settlements support a range of community services including places of worship, a train station (Valley), a police station (Valley), two primary schools and a pharmacy. In addition, a range of local business are based within and around the villages.
- 3.6.4 The predominant land use across the area potentially affected by the works is agriculture with cattle and sheep production the main farming type.

Mitigation

- 3.6.5 Access to and from residential properties, local businesses/services and agricultural interests would be maintained throughout the construction period by means of signed diversions, where necessary.
- 3.6.6 Stone walls or other boundary features such as fences and hedges removed as part of construction, would be re-built to provide a secure boundary.
- 3.6.7 Road alignments were developed to reduce field severance and new access routes, underpasses, bridges and private means of access were incorporated into the design to maintain access for residents, business and agricultural use once the road is operational

Environmental effects

- 3.6.8 Significant adverse effects remaining following implementation of identified mitigation include loss and severance of agricultural land within up to eleven land holdings, in some cases affecting their commercial viability.
- 3.6.9 There would be beneficial effects to the community within Llanfachraeth, as the A5025 Off-line Improvements would move traffic further away from the community, reducing traffic levels by more than 60%.

Public Access and Recreation

Context

- 3.6.10 A network of public rights of way exists across the area which includes designated footpaths, many of which interface or cross with the existing A5025. Rural roads on Anglesey are used as a recreational resource for

cyclists and recreational cyclists also use sections of the A5025. The Tour de Môn cycle race makes use of the A5025 within section 1 of the improvement works.

Mitigation

- 3.6.11 Public rights of way would be kept open or temporarily diverted wherever practicable during construction. Where closures or diversions are required, they would be for the shortest duration practicable; bilingual signage would be erected in advance of temporary diversions outlining the diversion route to be followed.
- 3.6.12 Horizon would work with the race organisers to ensure that the construction of the A5025 Off-line Highway Improvements would be managed at Llanfachraeth and Valley to enable the Tour de Môn cycle race to proceed.
- 3.6.13 During operation, planting along the new off-line sections of the road around attenuation ponds and other appropriate locations would be undertaken to reduce the visual intrusion of the A5025 Off-line Highway Improvements.

Environmental effects

- 3.6.14 Significant effects for the construction phase remaining once mitigation has been implemented include the permanent closure of a public right of way in section 1 of the A5025 Off-line Highway Improvements.
- 3.6.15 Following opening of the new sections of road, there would be a reduction in amenity for users of a public right of way within section 3, where a crossing of the new section of road would be introduced.
- 3.6.16 Recreational walkers and cyclists travelling along the A5025 within section 5 would experience a significant beneficial effect resulting from the provision of a new shared use footway/cycleway along the A5025.

Air Quality

Context

- 3.6.17 Sensitive receptors close to the new road alignment include 19 residential properties three commercial properties, a school in Llanfaethlu, (within 350m) and an area of ancient woodland located adjacent to the site boundary. Air quality in the vicinity of the A5025 Off-line Highway Improvements is generally good and concentrations of pollutants are well below the relevant Air Quality Objectives.

Mitigation

- 3.6.18 Mitigation to reduce the adverse effects of construction works on air quality is largely focused around good practice and is captured within the Wylfa Newydd CoCP and the A5025 Off-Line Highway Improvements sub-CoCP.

Environmental effects

- 3.6.19 Taking into account the mitigation identified, there are no significant effects on air quality considered likely to arise during construction of the A5025 Off-Line Highway Improvements.
- 3.6.20 Traffic-related air quality effects for the operational A5025 Off-line Highway Improvements are assessed as part of the earlier project wide assessment; no other potentially significant air quality effects are associated with the operation of the A5025 Off-line Highway Improvements.

Noise and Vibration

Context

- 3.6.21 There are a number of noise sensitive receptors, including houses, schools and businesses located close to the existing A5025 road corridor and the route of the A5025 Off-Line Highway Improvements.

Mitigation

- 3.6.22 The Local Noise Mitigation Strategy (LNMS) would offer secondary glazing to qualifying residential properties that experience significant noise effects associated with the operation of the A5025 Off-line Highway Improvements.
- 3.6.23 The use of a hydraulic breaker would be required for some construction activities. The use of temporary noise barriers, the selection of quieter plant or if necessary alternative techniques would be used to ensure that noise from the hydraulic breaker at the nearest noise sensitive receptors is within agreed limits.
- 3.6.24 A vibration risk assessment would be undertaken to establish safe working distances for receptors in relation to construction vibration. Where works are required within the safe working distances, alternative equipment or working methods would be sought.
- 3.6.25 Noise barriers would be installed along the eastern and western side of the section 3 of the A5025 Off-line Highway Improvements, during construction, and noise and vibration monitoring would be undertaken along the length of the works to ensure noise remains within permitted levels.
- 3.6.26 A Community Liaison Group would be established and construction issues regularly discussed. Mutually convenient times for particularly noisy works would be agreed and respite periods arranged if necessary.

Environmental effects

- 3.6.27 Significant effects remaining once mitigation has been deployed are related to elevated levels of noise during the construction phase and would affect occupants of sixteen residential properties within Llanfachraeth area, ten residential properties within the Llanfaethlu area and 12 residential properties within the Cefn Coch area; these properties would be affected by construction noise over a period of between one and 11 months.

Soils and Geology

Context

- 3.6.28 A range of soil types exists within the area and the soil quality primarily ranges between very good and moderate quality from an agricultural perspective.
- 3.6.29 A number of historical or current potentially contaminating land uses were identified within the study area including former mills, quarries, sewage works and lime kilns. Ground Investigations completed within the study area did not find any contamination that could pose a risk to human health or the environment.

Mitigation

- 3.6.30 During construction measures to reduce effects would include the careful stripping, storage and reuse of soils, the implementation of pollution prevention measures and the sustainable management of excavated materials as set out within the Wylfa Newydd CoCP and A5025 Off-line Highway Improvements sub-CoCP. Procedures for the management of any unexpected contamination would be prepared prior to construction works commencing.

Environmental effects

- 3.6.31 With mitigation in place, no significant adverse effects were identified for soils and geology for either the construction or operational phases.

Surface Water and Groundwater

Context

- 3.6.32 Between Valley and the Power Station Site, the road crosses a number of important watercourses some of which flow to ecologically sensitive sites.
- 3.6.33 Within section 1 of the improvement works, the Afon Cleifiog presents a flood risk to the A5025, the A5 and several properties. In addition, Valley has been identified as being at risk from surface water flooding.
- 3.6.34 Watercourses within section 3 of the improvement works ultimately drain to the Alaw estuary, including the Beddmanarch-Cymyran SSSI. Land adjacent to the Afon Alaw, the Afon Llywenan and the Tan R'Allt, is identified as being at high risk of fluvial and tidal flooding. The Afon Alaw and Tan R'Allt support some features of geomorphological interest including sections with naturally deposited gravels and cobbles. There are two private water supplies (Mushroom Cottage and Erw Fawr) and 13 known wells within the study area.
- 3.6.35 The main watercourses within section 5 of the improvement works are the Afon Garreglwyd, the Afon Llanrhuddlad and Tan-y-bryn. The Afon Garreglwyd feeds directly into the Llyn Garreglwyd SSSI. Section 5 is considered to be at low risk of fluvial and tidal flooding. The Afon

Llanrhyddlad supports diverse geomorphological features. There is one private water supply within 500m of section 5 (Ty'n-y-Buarth) and ten wells.

- 3.6.36 Within section 7 of the improvement works, the Afon Cafnan ultimately outfalls into Porth-y-pistyll on the northern coastline. Lower land to the west of the Afon Cafnan is at high risk of flooding. The Afon Cafnan includes a natural bedrock cascade which is of high sensitivity as it provides geomorphological diversity and is a unique feature within the watercourse. There is one private water supply within 500m of section 7 of the improvement works (Cefn Coch) and six wells.
- 3.6.37 Nant Caerdegog Isaf issues from the Cae Gwyn SSSI approximately 300m to the south-west of the Power Station Access Road Junction. The Power Station Access Road Junction is considered to be at low risk of fluvial and tidal flooding. Small pockets of agricultural land close to the Cae Gwyn SSSI and a very small area of the Cae Gwyn SSSI are shown to be at high risk of surface water flooding. There is one private water supply identified (Foel Fawr) and two wells.

Mitigation

- 3.6.38 A number of design measures have been included to avoid or offset adverse effects of the water environment:
- the road alignment has been designed to avoid wetland habitats which may be dependent on groundwater;
 - floodplain storage has been incorporated into the design in section 1 of the improvement works (Valley);
 - drainage would be designed to match runoff rates that would be expected from an undeveloped site using grass swales and attenuation ponds. Furthermore, additional design of flood flow paths from the A5025 within section 3 of the A5025 Off-line Highway Improvements would be undertaken with minor ground re-profiling used to manage the flood waters without increasing flood risk elsewhere.
- 3.6.39 Construction of a culvert which would require removal of a section of the cascade on the Afon Cafnan, could result in further damage to sections of the feature that do not require removal. In addition to measures outlined in the relevant CoCPs, Horizon would undertake a risk assessment prior to construction and establish an appropriate buffer area to reduce damage to the feature.
- 3.6.40 In order to avoid adverse effects on Erw Goch private water supply which is less than 50m from the study area, Horizon would undertake a pre-construction survey and continue to monitor on a monthly basis throughout the duration of construction. If a change in the availability or quality of the water supply is identified, Horizon would put in place measures to reinstate the private water supply to the quality and availability of pre-construction levels.

Environmental effects

- 3.6.41 With mitigation in place, no significant adverse effects were identified for surface water and groundwater for either the construction or operation of the new sections of road.

Terrestrial and Freshwater Ecology

Context

- 3.6.42 Potentially sensitive sites, habitats and species in or around the proposed A5025 Off-line Highway Improvements sites include:
- four European Designated Sites within 2km of the A5025 (Cemlyn Bay/Bae Cemlyn SAC, the North Anglesey Marine/Gogledd Môn Forol cSAC: Llyn Dinam SAC and Anglesey Terns/Morwenoliaid Ynys Môn Special SPA) and seven nationally designated sites close to the A5025;
 - a number of sites of local Wildlife Sites; and
 - protected and notable species including: fish, bats, otters, water vole and great crested-newts.

Mitigation

- 3.6.43 Prior to the start of construction, habitat with the potential to support bird nests, would be removed outside the breeding bird season and surveys undertaken to confirm the presence or absence of protected or notable species.
- 3.6.44 Mammal ledges, underpasses and clear span bridges would be provided where the new road alignment crosses all watercourses, to allow the safe passage of animals beneath the new sections of road.
- 3.6.45 To mitigate for loss of great crested newt habitat at Llanfachraeth (section 3) and Llanfaethlu (section 5), additional land would be enhanced through the creation of a pond, planting and the creation of log piles.
- 3.6.46 Bat boxes would be provided on trees to be retained within section 7 of the improvement works, to mitigate for the loss of potential roost features in trees being removed.
- 3.6.47 Planting to visually screen and contain roadside features, improve landscape integration and reinstate field boundaries would be undertaken along the new sections of road, wherever practicable. In addition, habitats to the northwest of the new alignment at Valley (section 1) and at Llanfachraeth (section 3) near the new viaduct crossing would be enhanced for biodiversity gain.

Environmental effects

- 3.6.48 With the mitigation identified in place, no significant adverse effects are predicted for ecology during either construction or operation.

Landscape and Visual

Context

- 3.6.49 The existing A5025 runs close to the Anglesey AONB. The A5025 between Valley and the Wylfa Newydd Development Area passes through settlements and agricultural areas.
- 3.6.50 People and communities potentially affected by changes to views include:
- residents at residential properties;
 - users of community areas and facilities within settlements (e.g. roads, pavements, shops and churches);
 - users of public rights of way and cycle ways;
 - users of transport routes;
 - users of, or visitors to, specific facilities such as Valley cemetery.

Mitigation

- 3.6.51 The alignment of sections 5 and 7 of the A5025 Off-line Highway Improvements has been designed to avoid sensitive areas such as the AONB and designated ancient woodland.
- 3.6.52 During construction light spill would be limited where practicable to reduce adverse visual effects on views and the AONB. In addition, appropriate colours and types of fencing, hoarding and other temporary structures would be used to reduce adverse landscape character and visual effects. The colour of the noise barrier would be selected to reduce visual effects.
- 3.6.53 Planting would be established as quickly as possible on completion of works to reduce the amount of time bare earth were visible and to enable early establishment of vegetation.
- 3.6.54 A landscape management strategy would be implemented for a period of three years, following the completion of construction works, to ensure successful establishment of landscaping and long-term viability of planting.
- 3.6.55 Permanent operational lighting would be designed to control light spill, and reduce adverse visual effects and adverse effects on the tranquillity of the AONB.

Environmental Effects

- 3.6.56 The significant effects remaining following implementation of identified mitigation are outlined below.
- 3.6.57 The presence of construction works would result in significant adverse effects on local landscape character within all sections of the works; significant adverse effects on views would also be experienced by a range of people along all sections of the works.

- 3.6.58 During the first year of operation there would be significant adverse effects on landscape character in section 3 of the improvement works and ongoing disruption of views for people within sections 1, 3, 5 and 7. As planting matures the scale of the effect would reduce with significant effects on views remaining for residential properties and users of public rights of way and users of a local road in Llanfachraeth within section 3 of the A5025 Off-line Highway Improvements. In addition, one residential property within section 5 and one residential property within section 7 would experience a significant effect on views.

Cultural Heritage

Context

- 3.6.59 Along the length of the A5025 being considered, a total of 201 heritage assets have been identified. Six of these assets are considered to be of high value, comprising Eglwys St Maethlu's Church, four HLTs and Capel Soar Standing Stone Scheduled Monument. In addition, the potential for the presence of unknown archaeological remains to be present within some sections of the works has been assessed as high.

Mitigation

- 3.6.60 Heritage assets were considered during route selection and the design of the preferred route in order to avoid features or reduce impacts on setting.
- 3.6.61 Shrub planting on embankment would be undertaken to reduce visual intrusion on the operational road on the setting of Capel Soar Standing Stone Scheduled Monument.
- 3.6.62 Where stone walls and cloddiau require removal as part of construction, they would be re-built in order to maintain historic field patterns.
- 3.6.63 The slackening of earthworks slopes at the Llanfaethlu off-line section would reduce impacts on the setting of Capel Soar Standing Stone Scheduled Monument, Siop Soar Listed Building and the Black Lion Inn Listed Building at Llanfaethlu.
- 3.6.64 An archaeological mitigation strategy is also proposed which would be developed in consultation with relevant stakeholders. This would potentially include archaeological excavation, archaeological strip, map and sample, targeted watching briefs, historic landscape surveys and photographic recording are proposed to make a permanent record of any remains prior to their removal or provide a permanent visual record of the current conditions of archaeological remains, historic buildings, historic landscapes and/or their settings.
- 3.6.65 The disused lime kiln located to the west of the existing A5025 works would be protected from accidental damage by the installation of exclusion fencing before construction commences in that area to avoid accidental damage during construction.

Environmental effects

- 3.6.66 The significant effects remaining following implementation of identified mitigation are outlined below.
- 3.6.67 Construction works would detract from the semi-rural character of the setting of Siop Soar and Black Lion Inn, Grade II Listed Buildings, located on the existing A5025 at Llanfaethlu.
- 3.6.68 Potentially significant effects during construction would include noise and visual intrusion into the setting of Capel Soar Standing Stone and two small Orthostatic Stones on Slight Mound, south of Tyn Felin. This effect would extend into the operation of the A5025 Off-line Highway Improvements.
- 3.6.69 Construction works would sever Melin Ty'n y Felin, a historic building from the rural landscape to the west and result in visual intrusion on its setting.

Combined effects

- 3.6.70 During construction, there are likely to be combined effects on residential properties within the communities in and around Valley, Llanfachraeth, Llanfaethlu, Cefn Coch and Tregede due to adverse effects on views and effects from noise, vibration and dust deposition. Users of Llanfaethlu Primary School are also likely to perceive combined effects during construction arising from visual intrusion, noise and vibration and dust.
- 3.6.71 Combined effects on the special qualities of the AONB could arise during the construction and operation phases resulting from changes to views, increases in noise levels, increased traffic and changes to the setting of historic features.

3.7 Associated Development - Logistics Centre at Parc Cybi

Socio-Economics

Context

- 3.7.1 The village of Trearddur Bay lies approximately 1.5km to the south of the Logistics Centre. The village contains a range of facilities, including a hotel, golf club, B&Bs, post office, a restaurant, a café, a church and other commercial businesses. An extensive commercial and industrial area (Penrhos Retail/Industrial Park) is located approximately 260m to the north of the Logistics Centre site, on the opposite side of the A55. This supports the majority of the 30 or so local businesses and other commercial receptors, located within 1km of the site.

Mitigation

- 3.7.2 The Wylfa Newydd CoCP and Logistics Centre sub-CoCP set out the standards and measures of work ensuring compliance with legislation and the effective planning, management and control of construction activities with

the aim of controlling adverse effects on the local community and the environment

- 3.7.3 Access to all commercial or community receptors outside of the construction site, would be maintained throughout the construction phase of the Logistics Centre.
- 3.7.4 Site security and a secure fenced boundary would ensure the safe and secure operation of the facility as well as acting as a mitigation measure to deter crime.
- 3.7.5 Mitigation during decommissioning would be similar to that applied during the construction phase.

Environmental effects

- 3.7.6 Taking into account the mitigation identified, there are no significant socio-economic effects considered likely to arise during construction, operation and decommissioning of the Logistics Centre.

Public Access and Recreation

Context

- 3.7.7 There are no public rights of way, or other sites such as common land or open access land, within 250m of the site. Lôn Trefignath provides a link between Trearddur and Kingsland. The section of this road within the Parc Cybi industrial estate has been restricted so that access by motorised vehicles is prohibited; the section of Lôn Trefignath that is restricted to non-motorised users has become an attractive route for cyclists and pedestrians and is recognised by Sustrans as a local cycle route.

Mitigation

- 3.7.8 Access for users of the shared-use cycleway/footway that runs along the north side of the spine road for Parc Cybi industrial estate and Lôn Trefignath cycle path would be maintained throughout construction, subject to a small diversion.
- 3.7.9 In order to provide a new site access, the existing site entrance would be stopped up and a wall constructed alongside the Lôn Trefignath cycle path. During the operational phase, the new site entrance would accommodate the Lôn Trefignath cycle path and the existing shared-use cycleway/footway with a single shared crossing at the site entrance marked by a zebra crossing.
- 3.7.10 All buildings would be removed from the site during decommissioning and it is assumed the site entrance, including the provision for cyclists and walkers, would not be affected by these works. Mitigation during decommissioning would be similar to that applied during construction.

Environmental effects

- 3.7.11 With mitigation in place, no significant adverse effects for public access and recreation are anticipated during construction, operation or decommissioning of the Logistics Centre.

Air Quality

Context

- 3.7.12 There are no residential properties or public rights of way within 350m of the site boundary. The closest residential property is approximately 400m to the south of the site. The Lôn Trefignath cycle path runs along the southern boundary of the Logistics Centre site. There is also a shared-use footway/cycleway which is approximately 20m from the southern boundary of the Logistics Centre site.
- 3.7.13 At locations in the vicinity of the Logistics Centre where there are sensitive human receptors present, air quality is generally good and concentrations of pollutants are well below the relevant Air Quality Objectives.

Mitigation

- 3.7.14 Mitigation is largely focused around good site practice and air quality monitoring during construction and is captured within the Wylfa Newydd CoCP and the Logistics Centre sub-CoCP. Mitigation similar to that detailed for the construction phase would also be employed during the decommissioning stage.

Environmental effects

- 3.7.15 Taking into account the mitigation identified there are no potentially significant air quality effects arising from the construction, operation or decommissioning of the Logistics Centre.

Noise and Vibration

Context

- 3.7.16 The following groups of sensitive receptors have been identified within 600m of the site:
- residential properties at Penrhyn Geiriol, southwest of the Logistics Centre;
 - residential properties at Tyddyn-Uchaf, south of the Logistics Centre;
 - residential properties at Kingsland Road;
 - commercial premises located at Penrhos Industrial Estate, north of the Logistics Centre; and
 - industrial premises located in between the A55 and London Road, northeast of the Logistics Centre.

Mitigation

- 3.7.17 Mitigation was embedded into the site selection process and design for the Logistics Centre. The site boundary is at least 400m from any residential communities and operational controls would ensure HGVs would be dispatched in a controlled fashion to the Wylfa Newydd Development Area. In addition, traffic flows would be strictly controlled to avoid need for reversing.
- 3.7.18 Mitigation is largely focused around good site practice and is captured within the Wylfa Newydd CoCP and the Logistics Centre sub-CoCP. Mitigation similar to that detailed for the construction phase would also be employed during the decommissioning stage.

Environmental effects

- 3.7.19 Taking into account the mitigation identified, there are no significant noise and vibration effects considered likely to arise during construction, operation and decommissioning of the Logistics Centre.

Soils and Geology

Context

- 3.7.20 In the areas where hardstanding is absent, the site is underlain by loamy, slowly permeable soils. With low natural fertility, the agricultural quality of the soil ranges from good to poor.
- 3.7.21 Ground Investigation and risk assessments identified that parts of the site were underlain by soils mixed with man-made materials as a result of historical activities. Assessment of these soils did not identify any risks to human health or the environment. However, an assessment of the site area concluded that the risk of encountering unexploded ordnance was medium.

Mitigation

- 3.7.22 During construction, measures to reduce effects would include the careful stripping, storage and reuse of soils, the implementation of pollution prevention measures and the sustainable management of excavated materials as set out within the Wylfa Newydd CoCP and Logistics Centre sub-CoCP.
- 3.7.23 Prior to undertaking any construction works at the Logistics Centre, Horizon would undertake a non-intrusive magnetometer survey to further investigate the potential for unexploded ordnance. In addition, an explosive ordnance disposal engineer would be present on site during shallow ground works in the southeast of the site to monitor works and provide advice to staff.

Environmental effects

- 3.7.24 Taking into account the mitigation identified, there are no significant effects on soils and geology considered likely to arise during construction, operation and decommissioning of the Logistics Centre.

Surface Water and Groundwater

Context

3.7.25 There are three small watercourses recorded within the study area and the site has been assessed as being at low risk of flooding from rivers, although some risk of surface water flooding has been identified. One private water supply (Tyddyn Uchaf, Penrhos, Holyhead) and two wells have been identified within 1km of the site.

Mitigation

3.7.26 Mitigation as outlined in the CoCPs, would include the following.

- soil storage mounds would have slopes of one in two or less where practicable and where soils would be stored for longer than 60 days, stockpiles would be seeded to reduced runoff;
- all refuelling, oiling and greasing would take place above drip trays or on impermeable surfaces and vehicles would not be left unattended during refuelling. Appropriate spill kits would be easily accessible during these activities;
- pollution prevention measures (such as temporary settlement ponds and silt fences) would be put in place to prevent the deposition of silt or other material arising from construction works in watercourses;
- use of secondary containment for any permanent oil storage tanks and temporary storage of over 200 litres of oil; and
- culverts and outfalls would be designed to ensure they were at an appropriate elevation relative to stream level, scour protection is used and outfalls were angled to prevent erosion.

3.7.27 Horizon would install appropriate drainage, such as sediment settlement ponds onsite prior to main construction to manage the quality and volume of run-off.

3.7.28 During construction all surface runoff would be passed through an oil/water interceptor before passing through an underground attenuation tank, which would be used to attenuate flood events.

3.7.29 Mitigation during decommissioning would be similar to that applied during the construction phase

Environmental effects

3.7.30 Taking into account the mitigation identified, there are no significant effects on surface water and groundwater considered likely to arise during construction, operation and decommissioning of the Logistics Centre.

Terrestrial and Freshwater Ecology

Context

- 3.7.31 Potentially sensitive sites, habitats and species in or around the Logistics Centre site include:
- North Anglesey Marine/Gogledd Môn Forol cSAC (approximately 0.85km to the north), Anglesey Terns SPA (approximately 1.2km to the north), and Beddmanarch-Cymyran SSSI approximately 1.1km east of the Logistics Centre;
 - two local Wildlife Sites: Arfordir Bwth Corwgl – Bae Trearddur Wildlife Site (approximately 1.65km to the south-west) and Rhostir Mynydd Celyn Wildlife Site (approximately 1.95km to the west);
 - designated ancient woodland; and
 - protected and notable species including reptiles, breeding birds, bats and water voles.

Mitigation

- 3.7.32 The design of the Logistics Centre would retain as many existing habitat features as practicable e.g. hedgerows; boundary features; exposed rock; marshy grassland; and the waterbody to the north-east.
- 3.7.33 As far as practicable, the lighting design would mitigate the spill into adjacent habitats.
- 3.7.34 A pre-construction survey would be completed to confirm the presence and absence of protected or notable species, including water vole.
- 3.7.35 During operation the potential effects of lighting would be reduced further by planting on the eastern and southern boundaries of the Logistics Centre. Once established, this would provide additional screening of light sources.
- 3.7.36 Mitigation for the decommissioning of the Logistics Centre would be likely to be similar to those measures employed during the construction phase. The significance of any effects would be dependent on the importance of the habitats and species within and around the Logistics Centre at the time.

Environmental effects

- 3.7.37 With the mitigation identified no significant adverse effects are predicted for ecology during construction, operation and decommissioning phases.

Landscape

Context

- 3.7.38 The site is located within the Anglesey AONB. However, the fact the site is located within an industrial area means that there are a limited number of sensitive features to be affected.
- 3.7.39 People and communities potentially affected by changes to views include:

- walkers in the area, plus users of cycleway/footway along the Parc Cybi service road, Parc Cybi service road and users of the Lôn Trefignath cycle path;
- residents in Kingsland; along the B4545 road; in Penrhyn Geiriol and Hunters Chase, Trearddur;
- travellers on the Parc Cybi service road, A5153 and B4545; and
- visitors to Holyhead Mountain, the Trefignath Burial Chamber and to the Tŷ' Mawr Standing Stone.

Mitigation

- 3.7.40 Existing boundary features such as stone walls and hedgerows would be retained and enhanced where practicable and the site layout would be designed to retain the visual link between the Tŷ' Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monument across the southern corner of the site, as far as reasonably practicable within security and operational requirements.
- 3.7.41 The height of construction cabins would be limited to two storeys to reduce effects on the quality of the landscape and views.
- 3.7.42 The architectural treatment of buildings and structures would seek to integrate them with surrounding landscape and reduce adverse visual effects.
- 3.7.43 During operation of the Logistics Centre site, a long-term landscape management strategy would be implemented to ensure successful establishment of proposed landscaping and long-term viability of planting. In addition, seeding of landscape areas with appropriate grassland species would help integrate the site with the surrounding landscape.
- 3.7.44 On decommissioning of the Logistics Centre landscaped areas within the Logistics Centre site would be retained, including the rock outcrop, seeding and hedgerow planting and stone walls along the south-western edge and hedgerows along the south-eastern boundaries would be restored.

Environmental Effects

- 3.7.45 Significant effects on landscape for the construction phase remaining once mitigation has been implemented are summarised below.
- 3.7.46 Changes in land use would affect the landscape character of both a localised part of the Anglesey AONB and the local landscape character. The construction of the Logistics Centre would detract from the rural character and tranquillity of the Anglesey AONB. The local effect of such change would, to some extent, be limited by the presence of the A55 and the former aluminium works to the north.
- 3.7.47 For walkers, and for users of Lôn Trefignath cycle-path and the Parc Cybi service road shared use cycleway and footway, effects on views would increase during the approach to the Logistics Centre site, depending on intervening landform. Removal of woodland and hedgerows would open up

direct views of construction works, which would be seen in combination with the adjacent electricity sub-station and Road King truck stop, and the A55 and former aluminium works located further to the north of the Logistics Centre site.

- 3.7.48 Properties from Kingsland, Kingsland Road, and properties along the B4545, at Penrhyn Geiriol, Trearddur and at Hunters Chase, Trearddur would have views of the construction site as a small part of the wider view containing other features that currently detract from the view (truck stop, electricity sub-station and mast, A55 and former aluminium works). Ground floor views would be filtered by garden vegetation.
- 3.7.49 Travellers on the B4545 and the Parc Cybi service road would experience views of the construction site across gently undulating pastoral farmland as would visitors to the Trefignath Burial Chamber and the Tŷ' Mawr Standing Stone.
- 3.7.50 During the operation of the Power Station, the Logistics Centre site would increase the extent of industrial development within the local landscape. As hedgerow and tree planting matures, it would help to integrate the Logistics Centre into the surrounding landscape to some extent. By year 5 of operation, the presence of the industrial development would continue to have an adverse influence on the character of the local landscape and a localised part of the AONB, as well as the previously identified visual receptors.

Cultural Heritage

Context

- 3.7.51 A total of 94 heritage assets have been identified within 500m of the Logistics Centre site, comprising 86 archaeological remains (largely sites and features excavated in advance of the Parc Cybi employment area), five historic buildings, and three Historic Landscape Types (HLT). Two of these are designated heritage assets considered to be of high value and are located close to the Logistics Centre:
- Trefignath Burial Chamber Scheduled Monument, located approximately 36m to the east of the Logistics Centre site boundary; and
 - Tŷ' Mawr Standing Stone Scheduled Monument, located approximately 380m from the western boundary of the site.

Mitigation

- 3.7.52 An archaeological mitigation strategy would be developed in consultation with relevant stakeholders, potentially including targeted archaeological watching briefs, excavation and strip map and sample to ensure a record of any unknown archaeological remains is made prior to their removal.
- 3.7.53 A photographic survey of the settings of Trefignath Burial Chamber and Tŷ' Mawr Standing Stone Scheduled Monuments would be made, before they are altered by the construction of the Logistics Centre.

- 3.7.54 The site layout has been designed to reduce visual intrusion into the settings of Tŷ Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments and maintain the line of sight between the two heritage assets as far as reasonably practicable within security and operational requirements.
- 3.7.55 During the operational phase hedgerow planting to the north of the Logistics Centre would be undertaken to reinforce and enhance existing hedgerows and the existing stone wall to the south west of the Logistics Centre site would be restored.
- 3.7.56 As part of the decommissioning of the Logistics Centre, the landscaped areas within the site including the rock outcrop, seeding and hedgerow planting would be retained.

Environmental effects

- 3.7.57 Taking into account the mitigation identified, there are no significant effects on cultural heritage considered likely to arise during construction, operation and decommissioning of the Logistics Centre.

Combined effects

- 3.7.58 Residential properties on the south-east edge of Kingsland, and on the north and north-east side of Penrhyn Geiriol, Trearddur are likely to experience adverse effects on views in combination with increases in noise levels during the construction, operation and decommissioning phases. These combined effects are likely to be perceived, by some people affected, to be significant.
- 3.7.59 There would be combined effects on the special qualities of the Area of Outstanding Beauty and local landscape character during the construction, operational and decommissioning stages as a result effects on views and the setting of heritage features combined with noise.

3.8 Cumulative effects

- 3.8.1 Cumulative effects can arise in several ways. The following terms describe the different categories of cumulative effects.
- **Intra-development:** when a receptor is affected by more than one effect from the same development, usually at the same time. These are reported earlier in the summary as combined topic effects and are not reported further in this section;
 - **Intra-project:** when a single receptor is affected by impacts from different developments (in the same complex project) at the same time. For example, noise on the Wylfa Newydd Development Area and light from the A5025 Off-line Highway Improvements could combine to have an effect on a single population of bats feeding in the area; and
 - **Inter-project:** when a single receptor is affected by more than one project at the same time. For example, noise from construction activities associated with utilities diversions within the Wylfa Newydd

Development Area (undertaken as part of different projects) and noise from the construction of the Power Station could combine to have a cumulative effect on local residents.

- 3.8.2 Mitigation for intra-development and intra-project effects has already been identified as part of the EIA for the Wylfa Newydd Project. The assessment of inter-project effects considered mitigation identified for the Wylfa Newydd Project alongside that identified for other projects, where available.

Summary of effects

Intra-project effects

- 3.8.3 The assessed intra-project cumulative effects are summarised in table 3.1 below.

Inter-project effects

- 3.8.4 An exercise was undertaken to identify other projects that could potentially combine with the Wylfa Newydd Project and give rise to inter-project cumulative effects. Criteria taken into consideration in identifying other projects included the following:
- whether the other projects would occur at the same time as the Wylfa Newydd Project;
 - whether effects from the other projects could occur within the same geographical area as effects from the Wylfa Newydd Project; and
 - whether the projects already have the relevant planning consents or are progressing through the application process
- 3.8.5 Approximately 26 projects were identified. Table 3-2 lists the main inter-project cumulative effects considered likely to result from the Wylfa Newydd Project in combination with these projects. Due to an absence of information on the nature and/or timing of numerous projects, a precautionary approach has been adopted to the inter-project assessment.

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Table 3-1 Intra-project cumulative effects

Receptor	Description of intra-project cumulative effect
Socio-economics	
Local economy in Anglesey & north Wales	There would be an increase in annual average income of around £20 million on Anglesey (a beneficial effect) and a substantial investment within the north Wales local economy (a beneficial effect).
Public access and recreation	
Users of WCP between Cemlyn Bay and Cemaes	Construction of the Wylfa Newydd Project combined with the Power Station Access Road Junction (A5025 Off-line Highway Improvements) would extend the period of time over which users of the WCP would experience a reduction in recreational amenity.
Walkers and cyclists on the Lôn Trefignath	Construction and operation of the Logistics Centre, the opening of the A5025 Offline Improvements and construction activity at the Wylfa Newydd Development Area could combine to extend the time over which recreational and travel users would experience a reduction in amenity
Participants of the Tour de Môn	A reduction in recreational amenity along the race would occur during construction of the Power Station due to increased traffic as well as during the traffic management at the Llanfachraeth and Valley sections of the A5025 Off-line Highway Improvements, should they coincide with the event.
Noise and vibration	
Communities and facilities north of Trearddur Bay and at Kingsland	There would be cumulative effects from the interaction of increased noise levels from project-wide traffic on the A5025 with noise resulting from construction and operation of the Logistics Centre
Communities and facilities around the Wylfa Newydd Development Area including in and around Cefn Coch, Cemaes & Tregele	The combined construction effects of different elements of the WNDA Development in combination with one or more of the following: increased noise levels from project-wide traffic on the A5025, elevated noise and vibration during construction of the Park and Ride facility, and the A5025 Off-line Highway Improvements, and from construction of the Off Site Power Station Facilities, could cumulatively increase noise levels and extend the duration over which effects are experienced

Receptor	Description of intra-project cumulative effect
Communities including Llanfaethlu Llanfihangel-yn-Nhywyn, Llanyngenedl, Valley & West Llanfachraeth	There would be a cumulative effect resulting from the interaction of increased noise levels from one or more of the following: the effects of project-wide traffic on the A5025, the Park and Ride elevated noise and vibration during construction of the A5025 Off-line Highway Improvements and elevated noise and vibration during construction of the Off Site Power Station Facilities
Soils and geology	
Construction workers (working on the Wylfa Newydd Project)	There is the potential for cumulative effects arising from unexpected exposure to contamination at one or more of the development sites (WNDA, the Off-site Power Station Facilities, the Park and Ride, the A5025 Off-line Highway Improvements and the Logistics Centre). Construction workers could be mobile between sites and therefore potentially be exposed to unexpected contamination at multiple sites. However, the likelihood of this occurring is very low.
Landscape and visual	
Local landscape character	Construction of the Power Station would overlap with the construction and operational phases of the Off Site Power Station Facilities, the Park and Ride, the A5025 Off-line Highway Improvements and the Logistics Centre, resulting in combined effects on local landscape character. These cumulative effects would be localised and would be reduced as planting associated with each development becomes established and helps to integrate the developments into the landscape.
WCP walkers, Users of local PRoWs and open access land	<p>Cumulative effects could arise from the interaction of the construction and operation of the WNDA Development and the A5025 Off-line Highway Improvements. This would give rise to visual impacts along around 20km of the WCP between West Llanfachraeth and the Power Station. As mitigation planting becomes established these effects would reduce.</p> <p>Users of local PRoWs and open access land would potentially experience cumulative effects resulting from the construction and operation of the Power Station, Off-Site Power Station Facilities and A5025 Off-line Highway Improvements in combination.</p>
Users of the A5025, the local road network & community of Tregle	Cumulative effects could arise from the interaction of views of construction within the Wylfa Newydd Development Area, of Off Site Power Station Facilities and of the A5025 Off-line Highway Improvements. These effects would reduce as planting develops during the operational phase.

Receptor	Description of intra-project cumulative effect
	The community of Tregale would potentially experience cumulative visual effects resulting from the construction and operation of both the A5025 Off-line Highway Improvements and the Power Station
A5 Holyhead Road	Cumulative effects could arise from the construction of the A5025 Off-line Highway Improvements and the Park and Ride. These effects would be sequential for users of the A5 travelling between Valley and Llanfihangel. These effects would reduce as planting develops during the operational phase.

Table 3-2 Inter-project cumulative effects

Receptor	Description of inter-project cumulative effect
Socio-economics	
Labour market on the Isle of Anglesey and beyond	An increase in labour demand resulting from the Wylfa Newydd Project combined with other developments (potentially including Penrhos Coastal Park, Holyhead Waterfront Redevelopment, Parc Cybi Stage 2, North Wales Connection Project, Rhyd-y-Groes Repower and Menai Science Park) would create opportunities for the local construction workforce and may help to reduce the number of unemployed workers within the sector. Cumulatively, this increased demand may result in workers relocating to the area.
Local economy on the Isle of Anglesey and in north Wales	Investment in the local economy would increase as a result of the Wylfa Newydd Project combined with other projects (including those listed above) on the Isle of Anglesey and in north Wales. This is a beneficial effect.
Businesses, including tourism receptors in Cemaes and Treglele	The Wylfa Newydd Project and the A5025 On-line Highway Improvements could both contribute to environmental and traffic effects, at the same time, potentially affecting local businesses (including tourism and other commercial receptors).
Public access and recreation	
Public rights of way closures and diversions	Short-term closures and diversions and permanent diversions, during construction of the A5025 On-line Highway Improvements in combination with the Wylfa Newydd Project could increase the length of time that some public rights of way would be closed or diverted than would occur from one project alone. Where construction programmes overlap, recreational amenity could be reduced as a result of the increased journey times, plus cumulative construction noise, dust and visual intrusion
Users of public rights of way including the WCP	Potential for a cumulative effect on recreational amenity during construction and operation of the Wylfa Newydd Project combined with construction of the National Grid North Wales Connection project. The WCP would be diverted during construction and operation of the Power Station. In addition, temporary diversions to the re-aligned WCP would be required near Cemaes as part of the National Grid North Wales Connection.
Users of the Lôn Trefignath & the cycleway/footway on Parc Cybi spine road	Parc Cybi Business Park together with the Wylfa Newydd Project would increase the effects of traffic flows across the Lôn Trefignath and the dual use cycleway/footway.

Receptor	Description of inter-project cumulative effect
Noise and vibration	
Properties south of the Wylfa Newydd Development Area.	There is the potential for a more significant effect or new significant noise effects at the properties due to construction noise from the Utilities Diversions interacting with project-wide traffic arising from the construction of WNDA Development.
Properties north of Valley	There is the potential for a more significant noise effect at the receptors due to construction and operational noise from the A5025 On-line Highway Improvements interacting with project-wide traffic.
Properties at Holyhead	There is the potential for a more significant noise effect or new significant effects at properties due to construction noise from the Penrhos Coastal Park interacting with project-wide traffic on the operational A5025 Off-line Highway Improvements.
Conventional waste and materials	
Waste management and disposal facilities	The capacity of waste management facilities in north Wales and north-west England could be affected by the Wylfa Newydd Project in combination with other developments in the area.
Soils and Geology	
Sites of geological importance within GeoMôn Geopark	The Porth Wnal Dolerite RIGS would be affected by the WNDA Development. Effects could also result from two other developments: Penrhos Coastal Park and Holyhead Waterfront Redevelopment, due to their proximity to the Penrhos Drumlin and Holyhead Breakwater Park RIGS.
Surface and Groundwater	
Tre'r Gof Catchment and water within the Tre'r Gof SSSI including the Tre'r Gof SSSI drains	Surface water and groundwater quality could be affected by the construction and operation of landscape mounds and drainage systems associated with the Wylfa Newydd Project. The effects could combine with two other developments: Existing Power Station Decommissioning and Wylfa Newydd Potable Water Supply to affect the Tre'r Gof Catchment. The cumulative effects are unlikely to be significantly greater than those brought about by the works for the Wylfa Newydd Project which would have the dominant effect on the receptor.
Landscape and visual	

Receptor	Description of inter-project cumulative effect
Local landscape character	Local landscape character could potentially be affected by changes as a result of the construction and operation of the Wylfa Newydd Project in combination with the Existing Power Station Decommissioning, as well as up to 12 other projects.
North Anglesey Heritage Coast and Local Seascape Character Area	The construction and operation of the Power Station in combination with three other developments (Existing Power Station Decommissioning; Rhyd-y-Groes Repower; and Amlwch Natural Gas) could result in local changes to the heritage landscape character and the local seascape character.
Users of public rights of way (including the WCP and Copper Trail) and local road networks	Users of the public rights of way would potentially experience adverse changes in views resulting from the construction and operation of the Wylfa Newydd Project in combination with a number of other developments, should programmes overlap.
Community of Cemaes and Tregele	Cumulative effects on visual amenity would arise from construction and operation of the Wylfa Newydd Project in combination with the four other developments: Existing Power Station Decommissioning; North Wales Connection Project; Rhyd-y-Groes Repower; and the Wylfa Newydd Potable Water Supply
Community of Llanfechell and Llanfairynghornwy	Cumulative effects on visual amenity could arise from construction and operation of the Power Station in combination with the one or more other developments: North Wales Connection Project; Rhyd-y-Groes Repower; and the Wylfa Newydd Potable Water Supply.
Community of Llanfaethlu	Cumulative effects on visual amenity would arise from construction and operation of the Wylfa Newydd Project in combination with the operation of Rhyd y Llan Primary School, Llanfaethlu.
Visitors to William Thomas Monument at Mynydd y Garn	Views for visitors would be affected by construction and operation of the Power Station in combination with the four other developments: Existing Power Station Decommissioning; North Wales Connection Project; Rhyd-y-Groes Repower; and the Wylfa Newydd Potable Water Supply.
Visitors to the standing stones north of Llanfechell	Views for visitors would be affected by construction and operation of the Power Station in combination with the three other developments: Existing Power Station Decommissioning; North Wales Connection Project; and Rhyd-y-Groes Repower.
Offshore viewers	Cumulative effects on views would arise from construction and operation of the Power Station in combination with the two other developments: Existing Power Station Decommissioning; and Amlwch Natural Gas.

Receptor	Description of inter-project cumulative effect
Users of A5 Holyhead Road, A55, B4545 and A5153	Views would be affected by construction and operation of the WNDA Development, Park and Ride and A5025 Off-line Highway Improvements in combination with one or more of the following: Anglesey Eco Park; Penrhos Coastal Park; Parc Cybi Stage 2; and North Wales Connection Project.
Cyclists on the shared cycleway/footway Parc Cybi access road and the Lôn Trefignath cycle path	Views for cyclists would be affected by construction, operation and residual effects after decommissioning of the Logistics Centre in combination with the two other developments: Penrhos Coastal Park; and Parc Cybi Stage 2.
Community of Kingsland	Cumulative effects on visual amenity would arise from construction, operation and residual effects after decommissioning of the Logistics Centre in combination with the Penrhos Coastal Park.
Visitors to Trefignath Burial Chamber and the Ty' Mawr Standing Stone	Views for visitors would be affected by the construction, operation and residual effects after decommissioning of the Logistics Centre in combination with two other developments: Penrhos Coastal Park; and Parc Cybi Stage 2.
Cultural heritage	
Eglwys St Padrig's Church, Cemaes Bay	The setting of the church would be affected by the construction of the Power Station and could also be affected by the construction of the Rhyd-y-Groes Repower project. Given the distance between the developments and the fact other development exists within the area this effect is not considered to increase the significance of effects already identified.
Cestyll Garden	Cumulative effects on the historic landscape and associated visual amenity would arise from the combination of the construction and operation of the Wylfa Newydd Project and three other developments: North Wales Connection Project; Utilities Diversions; and Wylfa Newydd Potable Water Supply.
Wylfa landscape	The permanent removal of elements of this landscape by both the Existing Power Station Decommissioning project and the Wylfa Newydd Project would result in an inter-project effect.
Two small stone features on Slight Mound, South of Tyn Felin	Effects on the setting of this feature by both the A5025 On-line Highway Improvements and the construction phase of the A5025 Off-line Highway Improvements would combine resulting in an inter-project effect.
Shipping and navigation	

Receptor	Description of inter-project cumulative effect
Increased risk of boat collision and stranding	Increased boat traffic could and increased risk of collision or stranding could result if construction of the Wylfa Newydd Project and the construction and/or operation of the Holyhead Waterfront occurred at the same time.

4 What happens next

- 4.1.1 The Planning Inspectorate is responsible for examining the application and making a recommendation to the Secretary of State as to whether or not development consent for the Wylfa Newydd Project should be granted. Following submission, the Planning Inspectorate will determine whether to formally accept the application. If accepted the application will then enter the pre-examination phase where interested parties will be asked to register their interest in the application and make representations.
- 4.1.2 At the conclusion of the pre-examination phase, the Examining Authority will hold a preliminary meeting to set the timetable for the examination. The 2008 Act requires the examination of the application to be completed within six months and the Planning Inspectorate then has three months from the end of the examination to provide its report and recommendation to the Secretary of State, who then has a further three months to make the decision.

5 Conclusion

- 5.1.1 Horizon is proposing to construct and operate a new nuclear power station, known as Wylfa Newydd, on land adjacent to the Existing Power Station, on the north coast of Anglesey.
- 5.1.2 The Power Station will take approximately seven years to build, with the first UK ABWR unit becoming operational at the end of year seven, and the second UK ABWR operational approximately two years later. At its peak the construction workforce would be up to 8,500 strong.
- 5.1.3 Associated Developments are proposed to enable efficient delivery of the Power Station and to help reduce adverse social and environmental effects. These include a Park and Ride facility, worker accommodation on a Site Campus, a Logistics Centre, A5025 Off-line Highway's Improvements and the Ecological Compensation Sites.
- 5.1.4 The EIA process and consultation with stakeholders have been key in informing the development of the design and identification of mitigation to avoid or reduce potential adverse environmental effects from the Wylfa Newydd Project.
- 5.1.5 The Wylfa Newydd Project would have a variety of beneficial and adverse effects; significant effects remaining once mitigation has been implemented include:
- creation of jobs during the construction and operation phases of the project and significant economic benefits to Anglesey and the wider north Wales economy;
 - increases in traffic flow and associated increases in noise on the A5025 as a result of construction works;
 - increased noise levels at residential properties primarily around the Wylfa Newydd Development Area and the A5025 Off-line Improvements. The latter would be partially offset by decreases in noise levels along bypassed sections of the A5025;
 - reduction in amenity for the communities of Cemaes and Tregelle as a consequence of effects on air quality; noise and vibration effects; visual intrusion and traffic during construction;
 - tourism businesses are expected to be adversely affected initially however, as the construction phase becomes more established, these businesses are expected to benefit from the increase in customer base from the construction workforce as will other local businesses;
 - loss of amenity for walkers resulting from temporary and permanent closure of some public rights of way including a diversion of the WCP;
 - potential changes to the hydrology of Tre'r Gof SSSI and loss of ancient woodland habitat;
 - effects on landscape and views during construction arising from the removal of existing landscape features and the presence of construction

works; most of these effects would decrease on completion of construction and the establishment of post construction planting; however some effects would remain due to the physical presence of the Power Station and Associated Development in the landscape; and

- loss of some heritage features including removal of historic landscape elements of Cestyll Garden, along with effects on the setting of this and other features.

5.1.6 The Environmental Statement presents a full report of the EIA process and its findings. The full Environmental Statement can be found on the Planning Inspectorate website:

<https://infrastructure.planninginspectorate.gov.uk/projects/wales/wylfa-newydd-nuclear-power-station/>

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