HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project
8.2.3 Design and Access Statement
Vol 3: Associated Developments and Off-site Power Station Facilities (Part 1 of 2)

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Design and Access Statement Volume 3

Associated Development and Off-Site Power Station Facilities

Contents

1 INTRODUCTION

Introduction

1.1.1. This Design and Access Statement (DAS) comprises three volumes, which would be certified through the Development Consent Order (DCO):

- Volume 1 – Project Wide (Application Reference Number: 8.2.1);
- Volume 2 – Power Station Site (Application Reference Number: 8.2.2); and
- Volume 3 – Associated Developments and Off-Site Power Station Facilities (Application Reference Number: 8.2.3).

1.1.2. Volume 1 sets the context for Volumes 2 and 3 of the DAS, including the relevant legislative context and guidance relating to DASs.

1.1.3. Volume 3 of the DAS provides the assessment of the Off-site Power Station Facilities and each of the Associated Development sites which are required to support construction of the Power Station.

1.1.4. Whilst the Site Campus is located within the Wylfa Newydd Development Area (WNDA), it is covered separately in detail in Volume 3 along with the other Associated Development sites.

1.1.5. The Associated Development works included in the Development Consent Order include:

- a Site Campus providing accommodation for construction workers;
- a temporary Park and Ride facility at Dalar Hir for construction workers;
- a temporary Logistics Centre at Parc Cybi;
- A5025 Off-line Highway Improvements; and
- Wetland habitat creation and enhancement works.

1.1.6. This volume provides separate appendices for the Off-site Power Station Facilities (Appendix 1-1) Site Campus (Appendix 1-2), Park and Ride (Appendix 1-3), Logistics Centre (Appendix 1-4) and A5025 Off-Line Highways Improvements (Appendix 1-5). Further context to the Associated Development sites is set out in Volume 1 of the DAS, the Planning Statement (Application Reference Number 8.1) and chapters A2 and D1 of the Environmental Statement (Application Reference Number 6.1.1).

1.1.7. The Landscape and Habitat Management Strategy sets out how key landscape elements and habitats within the WNDA (outside the Power Station Site) would be created and managed. The wetland habitat creation and enhancement works are also addressed in the Landscape and Habitat Management Strategy.

1.1.8. Figure 1 shows the Associated Development and Off-site Power Station Facilities sites in the context of the Wylfa Newydd DCO Project sites.

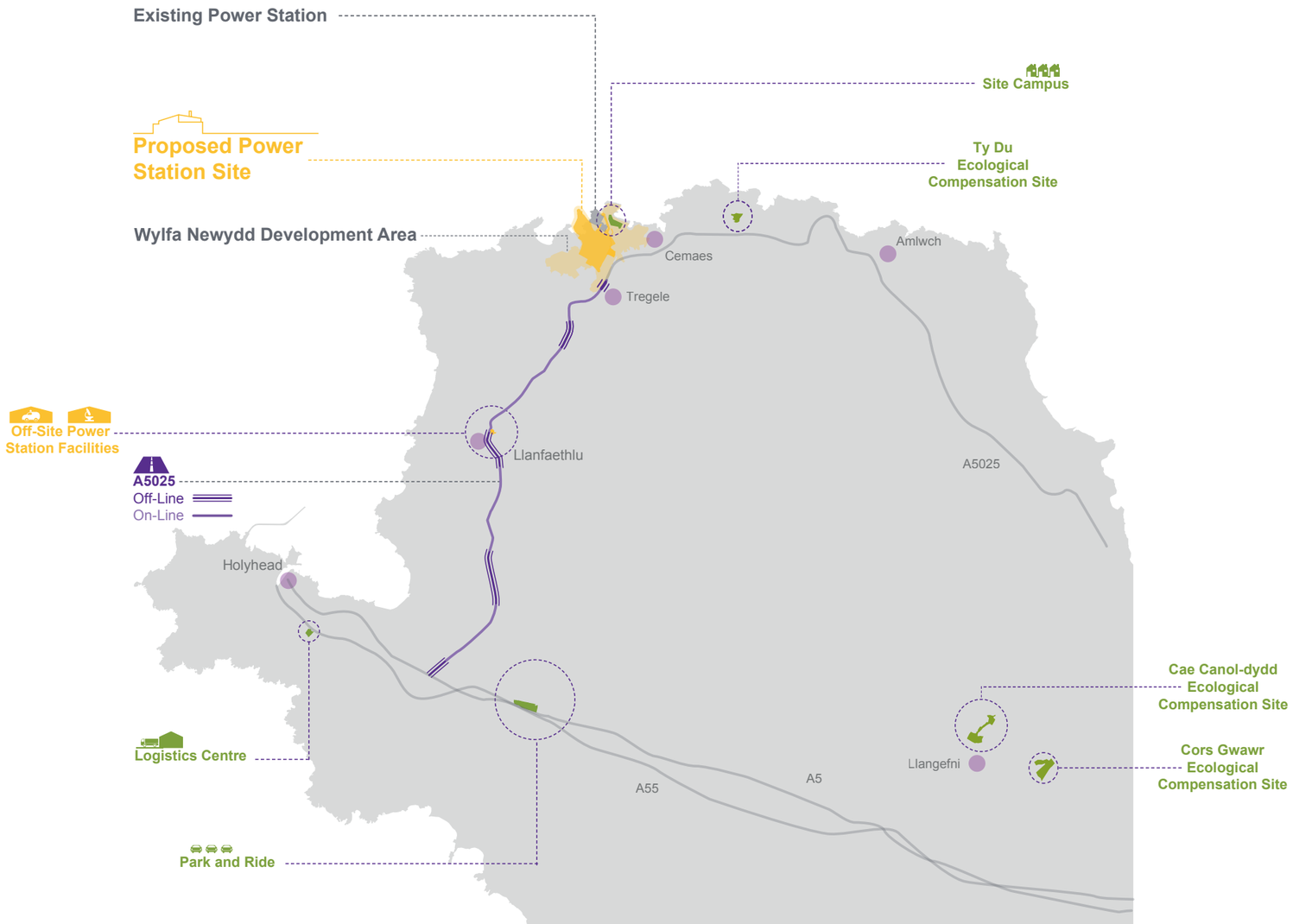

Figure 1 Associated Development and Off-site Power Station Facilities sites in the context of the Wylfa Newydd DCO Project sites

APPENDICES

APPENDIX 1-1 OFF-SITE POWER STATION FACILITIES DAS
APPENDIX 1-2 THE SITE CAMPUS DAS
APPENDIX 1-3 PARK AND RIDE FACILITY AT DALAR HIR DAS
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HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Design and Access Statement Volume 3

Appendix 1-1 Off-Site Power Station Facilities

Contents

PART A: CONTEXT AND PRINCIPLES

1 INTRODUCTION

Introduction

1.1 PURPOSE OF THE DOCUMENT

1.1.1. This Design and Access Statement (DAS) sets out the process of design evolution for the proposed Off-Site Power Station Facilities.

1.1.2. The masterplanning process explained in this document has informed the parameters for the Off-Site Power Station Facilities as set out in the maximum parameters in the Development Consent Order (DCO) parameters tables. The DAS also sets out the 'design principles' that will control how Horizon will construct and operate the Off-Site Power Station Facilities.

1.1.3. The DCO will require detailed design and landscape schemes to be submitted and approved in accordance with the design principles and parameters.

1.1.4. This document forms part of Volume 3 of the DAS [APP-409] and [APP-410], which is structured as follows:

- Volume 1 [APP-407] provides an overview of the entire Wylfa Newydd DCO Project including the Associated Development;
- Volume 2 [APP-408] relates to the Power Station Site; and
- Volume 3 relates to the Off-Site Power Station Facilities and Associated Development, including the Site Campus, Logistics Centre, Park and Ride facility and A5025 Off-line Highway Improvements.

1.1.5. The DAS forms part of a suite of documents which support the DCO application for the Wylfa Newydd DCO Project, as set out in Volume 1 of the DAS.

1.2 GENERAL CONTEXT

1.2.1. In order to provide resilience against extreme events with very low probabilities, and in line with industry good practice, Horizon is required to develop a suite of integral facilities that would be physically separate from, but local to, the Power Station Site. These facilities form part of the Nationally Significant Infrastructure Project alongside the Power Station and would include the following (hereafter collectively referred to as the 'Off-Site Power Station Facilities'):

- an Alternative Emergency Control Centre (AECC);
- an Environmental Survey Laboratory (ESL); and
- a Mobile Emergency Equipment Garage (MEEG).

1.2.2. The location of the Off-Site Power Station Facilities in the context of the remainder of the Wylfa Newydd DCO Project components is shown in figure 1.

1.2.3. For details of the site selection process undertaken for the Off-Site Power Station Facilities, refer to the Site Selection Report, Volume 3 - Off-Site Power Station Facilities [APP-438]. For further detail relating to alternatives and design evolution, refer to the Environmental Statement, chapter E2 Alternatives and design evolution [APP-240].

1.2.4. The Off-Site Power Station Facilities will be a permanent development used during the operational phase of the Power Station. It is expected that they will be operational from 2024 until the decommissioning of the Power Station.

1.3 STRUCTURE OF THIS DOCUMENT

1.3.1. This document is set out in two parts. Part A defines the 'design principles' with which the detailed design of the Off-Site Power Station Facilities has to accord (based on an appraisal of the site context and design brief). Part B then provides an analysis of how the detailed design has been developed in accordance with these principles and parameters (specifically addressing the key elements of good design identified in EN-1, EN-6 and TAN12).

1.3.2. Part A: Context and principles:

- Chapter 1 introduces the Off-Site Power Station Facilities sets out the design brief, operational and functional requirements, and describes how this document relates to Volumes 1, 2 and the rest of Volume 3 of the DAS.
- Chapter 2 summarises the existing physical context of the site. The chapter also reviews design related feedback from consultation events and explains how the proposed development has evolved in response to this, and Horizon's project optimisation process.
- Chapter 3 defines the 'design principles' that the detailed design of the Off-Site Power Station Facilities will adhere to (having regard to the context set in chapter 2). It also sets out the approach to flexibility sought through the DCO application for the Off-Site Power Station Facilities. The obligation to ensure the design meets the design principles will be secured through a requirement in the DCO.

1.3.3. Part B: Illustrative design proposals:

- Chapter 4 details how these design principles could be delivered by setting out illustrative design proposals.
- Chapter 5 shows how the proposed development could promote high levels of environmental sustainability.
- Chapter 6 sets out how the proposed development could demonstrate safety and security.
- Chapter 7 provides details relating to accessibility of the site including details of proposed inclusive access measures.
- Chapter 8 details proposed movement for all users, including car parking, servicing and highways.
- Chapter 9 outlines the proposed approach that will be taken to preparing a decommissioning strategy.

1.3.4. Appendix A sets out the facility environmental design objectives and detailed commentary on how they may be met in the illustrative design.

1.3.5. Appendix B sets out how the design principles may be met in the illustrative design.

1.3.6. Appendix C sets out the documents referred to in this document.

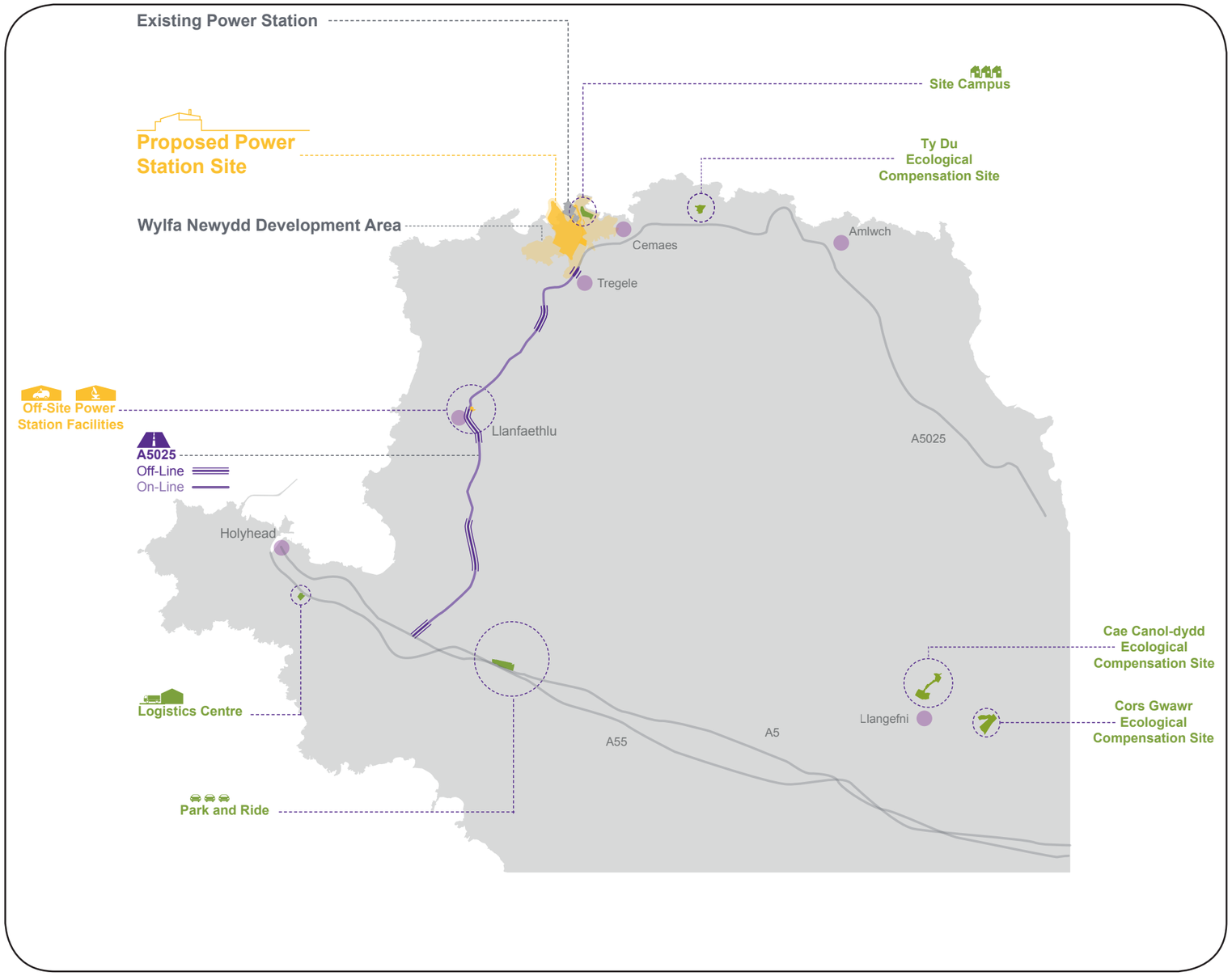

Figure 1 Off-Site Power Station Facilities within the context of the Wylfa Newydd DCO Project sites

1.4 SITE SELECTION

1.4.1. A four-stage site screening process has been used to inform the selection of the Off-Site Power Station Facilities site. Full details of the process are contained within Volume 3 of the Site Selection Report and summary details are set out in the Planning Statement [APP-406].

1.4.2. As set out in more detail in the Volume 3, Off-Site Power Station Facilities of the Site Selection Report, Horizon considers that locating the Off-Site Power Station Facilities onto a single site at Llanfaethlu is the most appropriate and suitable solution as it a partially brownfield site. The consolidation of all Off-Site Power Station Facilities would reduce the environmental impacts on the local population and make better use of available land. There was also general support during consultation for the redevelopment of this site.

1.5 STRATEGIC DESIGN BRIEF

1.5.1. The Off-Site Power Station Facilities form an integral part of the Wylfa Newydd DCO Project to which this application for development consent relates.

1.5.2. The Off-Site Power Station Facilities would incorporate the following:

- provision of two new buildings and associated infrastructure at Llanfaethlu (see figure 1 for general location) such that:
  - the MEEG and AECC are to be combined into one building;
  - the ESL building is to be located separately, close to the entrance of the overall facility;
- appropriate office facilities to suit staff requirements;
- appropriate welfare facilities to suit staff numbers;
- security measures commensurate with the nature of the facility;
- various plant necessary to run the facility;
- provision of staff/delivery parking spaces;
- provision of an overspill car park for use during an emergency event or training exercise;
- an allowance for disabled and motorcycle spaces commensurate with the number of overall spaces; and
- provision for Heavy Goods Vehicles (HGVs) should be utilised for vehicle movements to and from the Power Station Site.

1.5.3. In response to this brief, the Off-Site Power Station Facilities consist of:

- MEEG/AECC building at the centre of the site;
- ESL building at the north-west of the site;
- ancillary buildings i.e. generator, pump house, fuelling station, substation, refuse building and underground tanks;
- staff parking to the north of the site, close to the buildings;
- areas of hardstanding west and east of the MEEG/AECC building for vehicle access and manoeuvring;
- a drainage swale;
- an area for temporary offices i.e. 'portable office pods and container storage'; and
- an overspill carpark to the south which would be used during an incident.

1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

ESL

1.6.1. The ESL will be used for environmental monitoring and would contain radiation monitoring equipment to conduct radiological surveys in the local area.

1.6.2. The ESL would be used for routine sampling. There would be an operational workforce of three staff at the ESL on a regular basis working normal day-time hours only. In an incident, the ESL would be operational 24 hours per day.

MEEG

1.6.3. The MEEG would enable Horizon to store a number of specialist vehicles at a location close to but separate from the Power Station Site, allowing them to be rapidly deployed if needed to support an incident. The MEEG could also be used as a marshalling point for support arriving on Anglesey before onward dispatch to the Power Station Site in an emergency situation.

1.6.4. The MEEG would have an operational workforce of up to four staff and 12 drivers during training (which would happen during normal working hours approximately once a year). During an incident, the staff would be working 24 hours per day, seven days per week. During periodic vehicle checks, typically once every month, a similar number of staff will also be required on-site. The facility would not be staffed at other times.

AECC

1.6.5. The AECC would provide back-up command and communications facilities that would be used to remotely manage an incident at the Power Station in the extremely unlikely event the primary facilities on the Power Station Site were untenable or if there was no access to the Power Station Site.

1.6.6. During normal operation of the Power Station, it is expected that the AECC would be in use only once per year for an annual incident exercise. This would normally be carried out during working hours, however in some instances a full out-of-hours exercise may be required.

1.6.7. Approximately once a month, maintenance would need to be carried out at the facility, which may include running a back-up generator for a short time.

DECOMMISSIONING STRATEGY

1.6.8. At present, it is assumed that the Off-Site Power Station Facilities would be decommissioned and removed around the same time as decommissioning of the Power Station commences at the end of its operational life. Any alternative proposals for use of the building or the site beyond this period would need to be considered and determined as part of a future planning application at that time.

FUNCTIONAL AND OPERATIONAL REQUIREMENTS

1.6.9. The operation and management of the overall facility is based on the following requirements:

- its primary function is as an emergency response facility;
- the facility would support 24 hours a day working when required for a training event or incident;
- daily non-emergency operation of ESL for samples analysis, typically with normal working weekly hours;
- periodic checks typically once every six months (AECC/MEEG);
- periodic vehicle checks typically once every month (MEEG);
- the facility would be resilient to flooding and to seismic events; and
- power supplies would be fed from independently backed-up supplies so that the facility remains operational for up to seven days in the event of a loss of off-site power.

1.6.10. The key functional and operational requirements are listed. Table 1 shows information for the operational period.

Table 1 Operational information

ITEM	INFORMATION
Operational programme	For the life of the Power Station.
Size of operational workforce	MEEG: up to 4 staff and 12 drivers during training or incident. AECC: up to 30 persons during training or incident ESL: up to 12 persons during incident management, up to 3 persons during normal daily use.
Shift patterns	MEEG, AECC, ESL: typically normal working hours. However, 24 hours a day, seven days a week during incident management.
Combustion plant	Generator on-site and heating, ventilation and air conditioning (HVAC) supply to occupied areas at the end of the building. Extract from kitchen and toilet facilities.
Operational vehicles	MEEG: Twelve large emergency response multi-terrain vehicles, two large back hoe excavators, staff cars, HGVs from off-site to pick up emergency equipment and fork lift trucks. To be operated during training exercises or during incident management. Four 4x4 vehicles to serve ESL sample collection. Staff car vehicles.
Traffic modelling	Refer to transport assessment (ES Volume C - Road traffic-related effects (project-wide) App C2-4 - DCO Transport Assessment [APP-101]). MEEG and AECC only used during training exercise, incident or routine maintenance.
Operational traffic data for opening year	Refer to transport assessment. MEEG and AECC only used during training exercise, incident or routine maintenance.
Goods deliveries	General deliveries to the buildings for consumables etc. Approximately one per week in normal circumstances and during an incident.
Access	Via main entrance at west of site on to A5025.
Parking	Provision of up to 12 staff /delivery parking spaces in close proximity to the buildings. Provision of two disabled spaces in close proximity to the buildings. Provision of two motorcycle spaces in close proximity to the buildings. Provision of an overspill car park for use during an emergency event or training exercise (54 spaces).
Fuel storage	The site includes storage tanks to hold fuel for vehicle and plant operations. Storage requirement for 43,500 litres of fuel.

2 CONTEXTUAL ASSESSMENT

Contextual assessment

2.1 PHYSICAL ASSESSMENT

SITE LOCATION

2.1.1. The site is located directly adjacent to the A5025, north of Llanfaethlu and approximately 6km, as the crow flies from the Wylfa Newydd Development Area. The site is bounded by the A5025 to the west, residential/storage buildings to the north and south-west, and farmland to the south and east.

2.1.2. The overall site boundary covers approximately two hectares of land area with a maximum north to south dimension of 154m and maximum east to west dimension of 204m. The site location is shown in figure 2.

2.1.3. Off-line Highways Improvements would be made on the A5025 south off the site, up to the point where the site boundary, per figure 2, intersects the A5025 at its most southerly point. On-line Highway Improvements would be made on the A5025 northwards of this point.

2.1.4. Drainage works, including an attenuation pond, would be undertaken in the easternmost area of the site. These works would form part of the Off-line Highway Improvements. For further details, refer to Design and Access Statement Volume 3 Appendix 1-5 Off-line Highway Improvements.

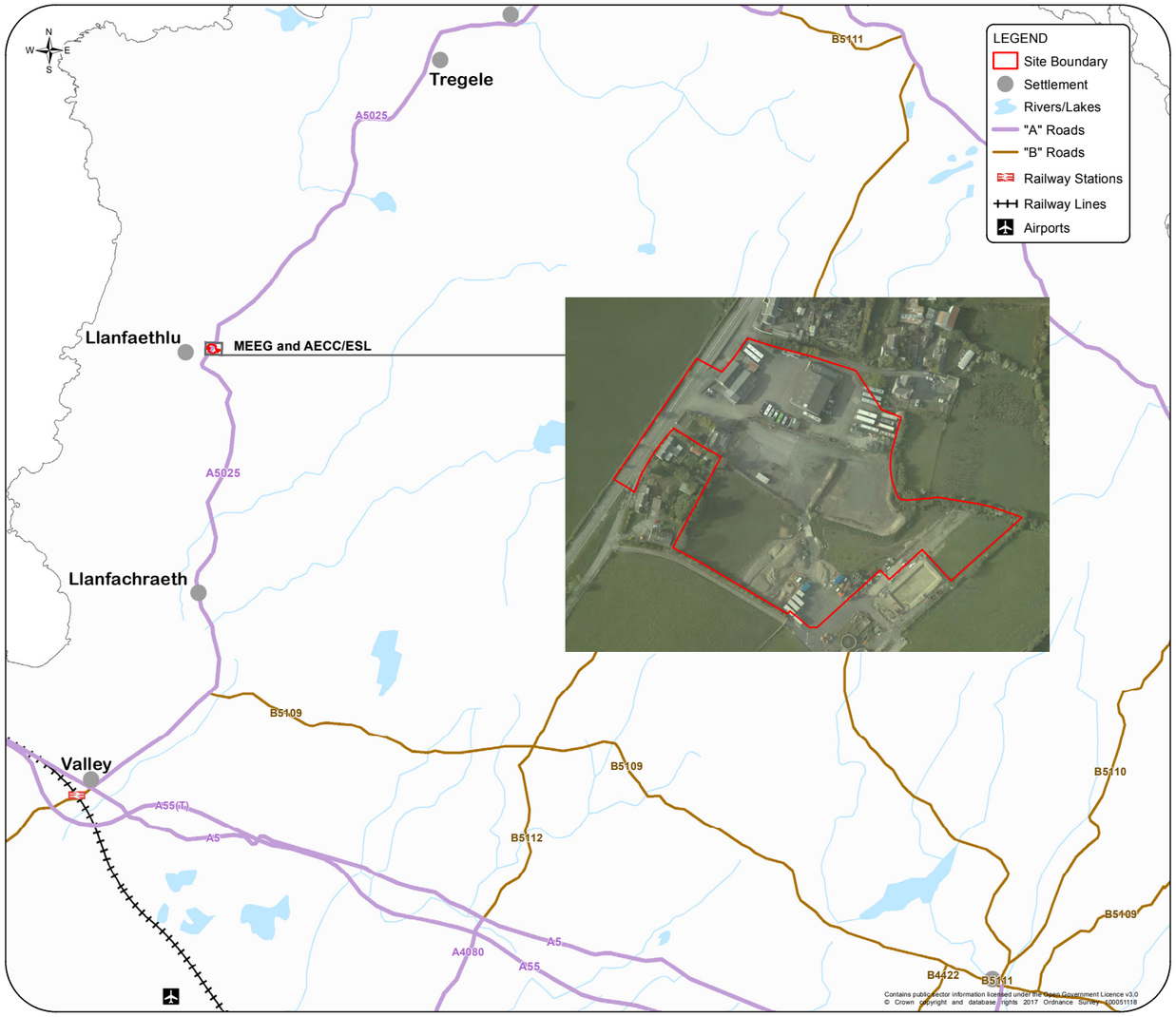

Figure 2 Site location

EXISTING LAND USE

2.1.5. The site is located within an area of undulating landform gently rising to the north-west. There are also noticeable drumlin features to the west and east. The site topography generally falls gently from west to east across the site. The western edge along the A5025 is 55 metres above ordnance datum (mAOD) with the eastern edge at 48 mAOD A bund 1.5m to 2.0m high is present running from west to east through the middle of the site This bund separates the current brownfield area of the site from the farmland to the south and from a small watercourse, a tributary of the Afon Llanrhuddlad, which runs approximately to the east. There is a significant drop to the south-east corner of the brownfield area.

2.1.6. The site exhibits two contrasting characteristics. The northern half of the site is a former bus depot, and is currently used for garaging and vehicle storage (brownfield) and the southern section is predominately open farmland (greenfield). The existing buildings on-site are due to be demolished (including the property to the west adjacent to the site entrance) and it is anticipated that the area of hardstanding and industrial sheds of the former bus depot may contain some historic ground contamination. There are hedgerows to the southern and eastern boundaries and an evergreen shelterbelt to the north; otherwise, vegetation is limited.

2.1.7. Figure 3 depicts the current land uses.

HERITAGE

2.1.8. The site was historically fields with small clusters of buildings adjacent to the site. Buildings to the north-east are indicated to include a smithy. In the middle of the twentieth century, part of the site was developed as a garage, a residential property was built on the site in the south-west corner and a sewerage treatment plant installed to the south-east of the site.

TOPOGRAPHY

2.1.9. The site is located within an area of undulating landform gently rising to the north-west. There are also noticeable drumlin features to the west and east. The site topography falls from the western edge along the A5025 to the eastern edge. A bund is present running from west to east through the middle of the site. This bund both separates the current garage area of the site from the farmland to the south and from a small watercourse, a tributary of the Afon Llanrhuddlad, which runs approximately to the east. There is a significant drop to the south-east corner of the garage area.

GEOLOGY

2.1.10. Superficial ground and drift geology are present on-site that are recorded as Devensian Till. The bedrock recorded consists of Gwna Group quartzite and schist.

SOILS

2.1.11. The garage area is covered in buildings, concrete or asphalt surfacing with the depth of made ground increasing towards the eastern boundary and the tertiary river located on this boundary. The bund between the field and the garage is made up of made ground with the soils in the field classified as slowly permeable with seasonally wet loams and clays.

SURFACE/GROUND WATER

2.1.12. There is an unproductive aquifer in the superficial deposits within 50m of the site boundary, generally to the north and west of the site. This has low-permeability and is classed as having negligible significance. There is a secondary aquifer located on-site within the bedrock; this is classed as having predominantly low-permeability layers. There is a tertiary river located on-site on the eastern boundary.

FLOOD RISK

2.1.13. The site is indicated as having no risk of fluvial flooding. At the current level of protection, the site is at risk of pluvial flooding from the west of the A5205 and from land to the north.

Site boundary

Figure 3 Aerial image

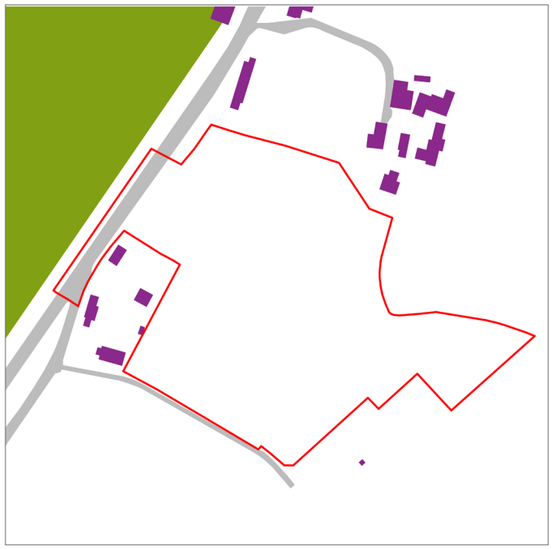

Figure 4 Landscape designations

AONB

No designation

LANDSCAPE DESIGNATIONS

2.1.14. The site lies approximately 15m to the east of the boundary of the Ynys Môn/Anglesey Area of Outstanding Natural Beauty (AONB). The site was located within the Anglesey Special Landscape Area (SLA), as designated in the Ynys Môn Local Plan (Isle of Anglesey County Council (IACC), 1996). This was, however reviewed in 2012 and six specific SLA designations proposed rather than the island-wide designation. This is reflected in the Joint Local Development Plan (JLDP) (replacing the Ynys Môn Local Plan). The site is not located in one of these six new SLA designations.

2.1.15. Figure 4 depicts the applicable landscape designations.

Site boundary (all figs)

Figure 5 Landscape character

LCA5

LANDSCAPE CHARACTER

2.1.16. A review of published landscape character information has been carried out in order to gain an understanding of the nature and value of the landscape character of the area, including the landscape character of the Anglesey AONB, the Anglesey-wide SLA and the proposed Mynydd Mechell SLA.

2.1.17. The MEEG site is located within the Landscape Character Area LCA5: North West Anglesey, as defined in the Isle of Anglesey Country Council Landscape Strategy (IACC, 2011). The area is described as having an extensive drumlin field resulting in a classic 'basket of eggs' description for the landscape. The hillocks run south-west to north-east and the majority have a land cover of improved grassland. There are also areas of marsh, scrub and rocky outcrops at Mynydd y Garn and Mynydd Mechell. Wind turbines form a distinctive feature in the landscape.

2.1.18. Figure 5 depicts the LCA in relation to the proposed site.

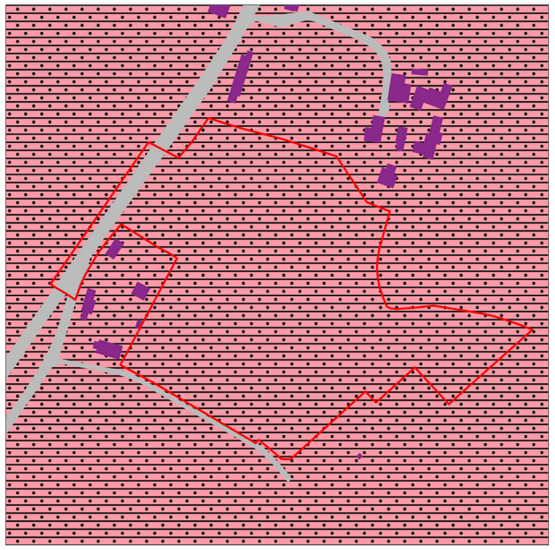

Figure 6 LANDMAP classifications

LANDMAP

2.1.19. The site is identified within the LANDMAP Visual and Sensory Aspect Area "North-west Drumlins".

2.1.20. Figure 6 depicts the LANDMAP areas applicable to the site.

North-West Drumlins: Basket of eggs glacial landscape of smooth oval hillocks with damp hollows. Land cover of medium sized, rolling to undulating, pasture fields with hedgerow boundaries. Small villages, hamlets and scattered farms linked by small roads. Settled character in an unremarkable but tranquil, pleasant landscape.

Farmland - West Anglesey: An area of improved grassland dominated farmland. The northern boundary consists of a concentration of semi-natural habitats, in particular heath and acid grassland.

Fieldscape - North West Mon: Elongated strip of small field systems and clusters of nucleated settlements between the upland bloc of Myndd y Garn and the low-lying systems to the north and east. Characteristic of Anglesey, but differentiated from other areas due to its varied field and settlement patterns.

Figure 7 Key views

KEY VIEWS

2.1.21. Visually, the site is mostly contained by rising landform to the west at Carreglwyd and by adjacent housing to the north and south. Views are more extensive from the north-east, south-east and east, although the drumlin features restrict views in places. Views out of the site to the west and east are fairly rural in character. To the west there are views towards field and scrub within the AONB, and to the east there are longer distance views across Anglesey and towards Snowdonia. Views north and south are mostly contained by adjacent built form with some glimpses of Mynydd y Garn to the north and Llanfaethlu village to the south. The A5025 along the western boundary of the site is a noticeable detractor due to busy moving traffic. Wind turbines are also visible to the east.

1. View looking south-east from the Public Right of Way (PRoW) situated within the AONB.
2. View from the PRoW south of the site looking north towards the site.
3. View looking south near Aber Pwll Fferm.

View towards the site looking east, across the A5025

View from across the fields looking north towards the site

Figure 8 Panorama photographs

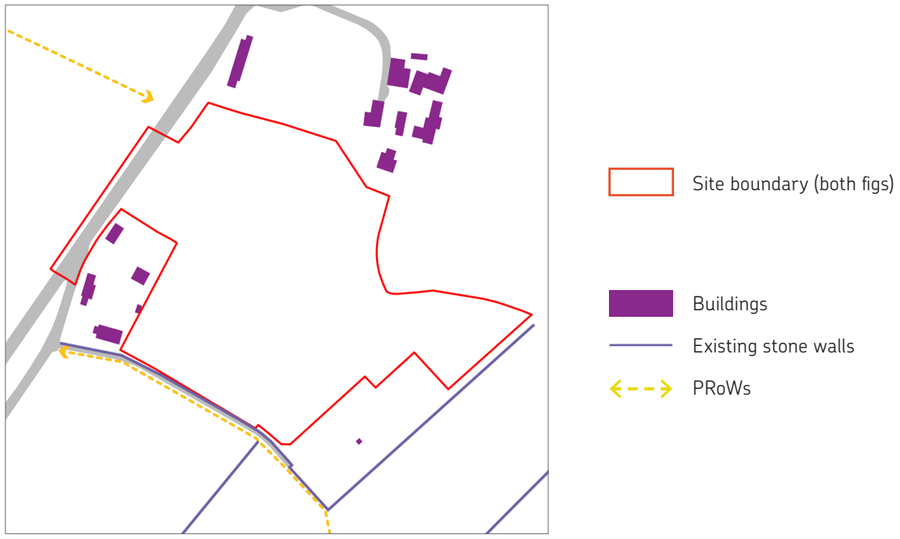

Figure 9 Landscape features

LANDSCAPE FEATURES

2.1.22. A public right of way (PRoW) runs along the southern boundary and connects along the eastern boundary. Key characteristics of the adjacent AONB, rolling farmland, hedgerows and stone walling are also evident to the east.

2.1.23. Figure 9 depicts applicable landscape features.

Figure 10 Hedgerows and other vegetation

WOODLAND AND VEGETATION

2.1.24. The surrounding vegetation pattern is one of hedgerows with dense linear belts of planting. The hedgerows predominantly comprise hawthorns that have been stunted in growth due to the windy and open nature of the surrounding landscape. Areas of dense planting exist along watercourses, folds in the topography and around local farmsteads.

2.1.25. The northern area is a brownfield site with very limited areas of existing vegetation (hedgerow to the east and a shelterbelt to the north only). The southern area is generally grass land with hedgerows to the western, southern and eastern boundaries.

2.1.26. Figure 10 depicts current hedgerows and other vegetation present.

SURROUNDING AREA

2.1.27. There are three clusters of buildings surrounding the site boundary which have been present since before 1886 (from historical maps), in the north-east, north-west and south-west corners. There are two Licensed Discharge Consents recorded within 200m of the site boundary. There are four other industrial sites within 250m of the site boundary including a sewage works and an alcoholic drinks distillery. There are two Sites of Special Scientific Interest (SSSIs) within 1km of the northern site boundary at Llyn Garreg-Lwyd: a large reed bed in a former ornamental lake. There are 26 records of ancient woodland within 1km of the site boundary. The Anglesey AONB lies to the west of the site boundary. The AONB also takes in three sections of open, undeveloped coastline which have been designated as Heritage Coast; the nearest section is north-west of the site at Porth Swtan.

2.1.28. To the north and south-west of the site, along the A5025, there are a number of buildings, which are currently residential in use, close to the proposed site. To the north-east of the site, are a number of residential buildings and storage buildings. Further to the south-west, along the A5025, a new school has been built which opened in autumn 2017.

Figure 11 Surrounding area

ENVIRONMENTAL DESIGN OBJECTIVES

2.1.29. Habitat surveys of the Llanfaethlu site and the surrounding land have been carried out to identify the ecological interests and inform the development of the landscape proposals. For further details, refer to chapter E9 - Terrestrial and freshwater ecology of the Environmental Statement [APP-247].

2.1.30. The key findings are shown visually on figure 12 and include:

- woodland/dense tree and shrub planting;
- cultivated land;
- poor semi-improved grassland;
- marshy grassland, adjacent to the unnamed stream;
- hedge boundaries, the majority part of a hedge bank system;
- potential protected species activity; and
- the Afon Llanrhuddlad tributary flowing east out of the site.

2.1.31. As a result of environmental assessment work and associated surveys, a list of environmental design objectives (EDOs) have been developed for the facility which have informed the design principles. Appendix A lists the EDOs and provides detailed commentary on how the objectives could be met through the design process, by the illustrative design, during the construction, operation and decommissioning phases as applicable. The EDOs have been informed by the environmental constraints outlined below.

ENVIRONMENTAL CONSTRAINTS

2.1.32. There are a number of environmental constraints (figure 13) that have been considered on this site and have been a significant driver in the development of the masterplan layout. These constraints include:

- Existing hedgerows to the boundaries of the site. The design proposes to remove existing poor quality vegetation and replant these areas with native tree and shrub planting, drawing on the selection of species, planting density and pattern of the surrounding character and that of the adjacent AONB.
- Existing surrounding buildings. The design proposes that the buildings are to be in keeping with local vernacular (i.e. industrial agricultural type buildings). The smaller building to edge of site would be similar in height to the existing one, with the road side elevation proposed to be in keeping with local vernacular (i.e. stone-effect cladding).
- Existing watercourses. The design would protect and retain the existing watercourse to the east of the site.

2.1.33. The extent of the ecological assets and their proposed protection areas have been illustrated on figure 14.

Figure 12 Key findings from habitat survey

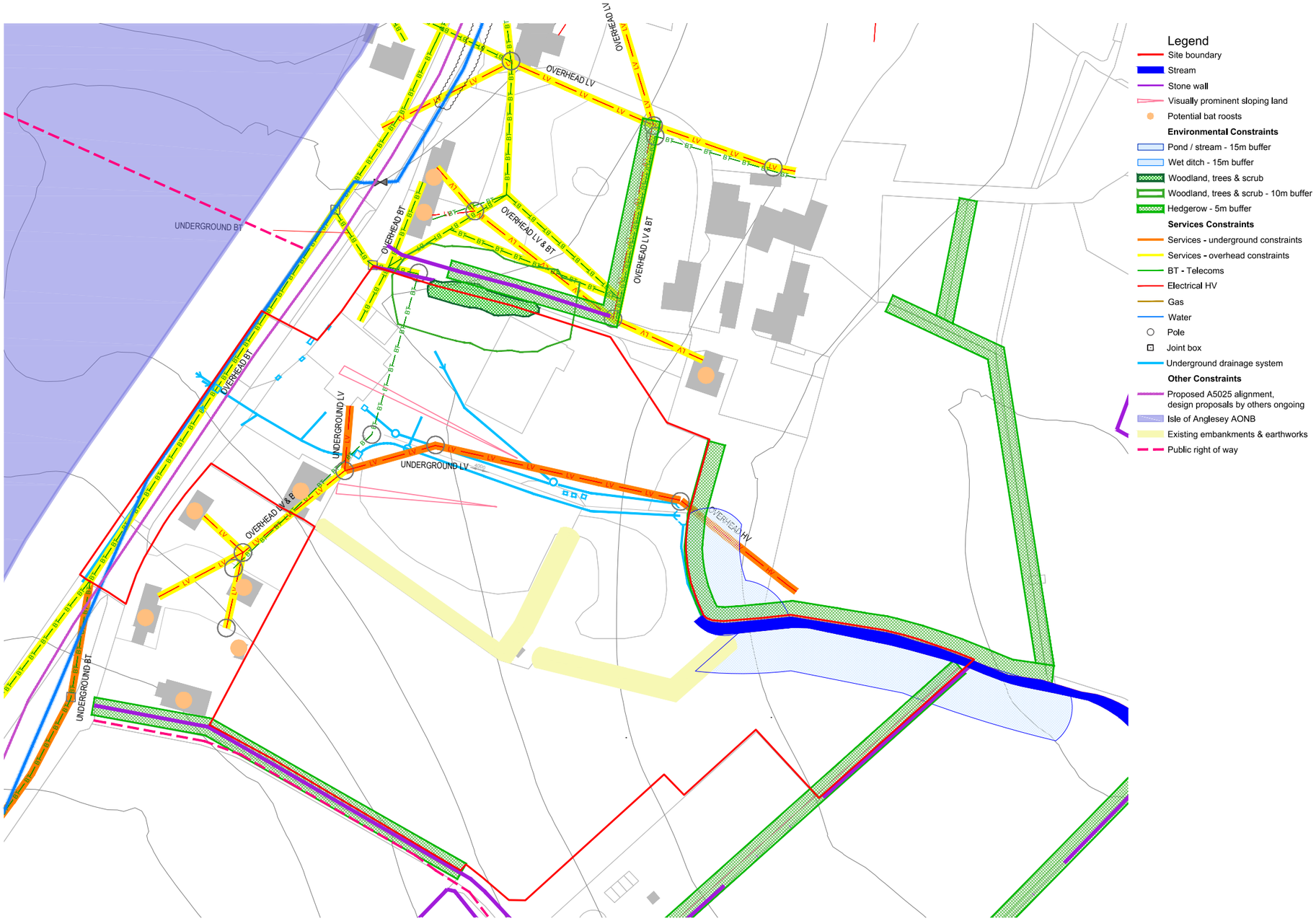

Figure 13 Environmental constraints

Figure 14 Extent of ecological assets and zones of protection

2.2 POLICY ASSESSMENT

2.2.1. Planning policy provides a key component of the context for the Wylfa Newydd DCO Project and its constituent parts. Volume 1 of the DAS provides an overview of national, regional and local planning policy, where they are relevant to the determination of the DCO.

2.3 REGULATORY REQUIREMENTS

2.3.1. The key driver for the design of the Off-Site Power Station Facilities are the operational and management requirements in order for it to perform its primary function as an emergency response facility.

3 PRINCIPLES OF PROPOSED DEVELOPMENT

Principles of the proposed development

3.1 OBJECTIVES

3.1.1. This chapter outlines the process of design evolution, having regard to the site brief, functional and operational requirements, contextual assessment and pre-application consultation. This has informed a series of 'design principles' which will control the detailed design of the Off-Site Power Station Facilities.

3.1.2. It is anticipated that construction of the Off-Site Power Station Facilities would commence in year 3 and last until year 5. It is anticipated that the Off-Site Power Station Facilities would be operated throughout the operation of the Power Station until decommissioning.

3.1.3. The layout of the Off-Site Power Station Facilities has been developed to:

- respond to the site brief, functional and operational requirements;
- meet the EDOs, where feasible;
- accommodate the required buildings that house the facilities;
- respond to the context of the site as far as possible;
- retain key site characteristics; and
- reduce the potential impact of the building and lighting.

3.1.4. To meet this objective, the design approach identifies the key areas of ecological and hydrological value and incorporates measures to protect and enhance these valuable assets, embedding them seamlessly within the design. A constraints drawing has been produced and is shown in figure 13 above.

3.2 CONSULTATION AND DESIGN EVOLUTION

CONSULTATION

3.2.1. Volume 1 of the DAS provides an introduction to the consultation process for the Wylfa Newydd DCO Project, which is set out in detail in the Main Consultation Report [APP-037].

3.2.2. The three main stages of the consultation process, between 2014 and 2017 are explained in the Main Consultation Report. With regard to the Off-Site Power Station Facilities the key design changes were progressed between the Stage Two and Stage Three Pre-Application Consultation. This followed an important period of review, which included the appointment of a joint venture partner and consultants to take forward its proposals for project design and deliverability (as well as the feedback from the Stage Two Pre-Application Consultation and other engagement with local stakeholders).

3.2.3. This section summarises the specific consultation responses relating to the Off-Site Power Station Facilities only. Further information can be found in the Main Consultation Report.

3.2.4. As part of Horizon's emergency planning arrangements and since the Stage One Pre-Application Consultation in 2014, Horizon has been working closely with regulators to understand the needs for Off-Site Power Station Facilities in order to meet the requirements established by the Office for Nuclear Regulation (ONR). Stage One Pre-Application Consultation outlined the details in respect of a 'Broad Area of Search' in which sites would be selected

3.2.5. A design review with DCfW in November 2015 provided the first opportunity to consult upon the requirements and design vision for the Off-Site Power Station Facilities. At this stage of the project, the AECC and ESL were not proposed to be located at the current site and were instead proposed to be located at Cefn Coch, which is adjacent to the A5025 and south of Pandy. The MEEG was proposed to be located at the current site (Llanfaethlu). The following feedback was received:

- A site and context analysis must be undertaken and the design developed in response; and
- Attractive precedents exist for contemporary semi-industrial buildings with creative approaches to building envelope design. These should be explored as part of an overall project building language. Curtilage treatment and servicing access requirements need to be sensitively designed and scaled appropriately to respond to context.

3.2.6. A second design review took place in June 2016, which provided the opportunity for Horizon to present a revised layout to DCfW. At this stage of the project, the preferred site for the AECC and ESL remained at Cefn Coch and the preferred site for the MEEG remained at the current site (Llanfaethlu). The following feedback was received:

- Each of the Wylfa Newydd DCO Project sites are separate and have little visual or functional connection and, therefore, should each be considered on their own merits and within their own context rather than necessarily being related to each other as a family of buildings; and
- Design should be focused on creating something that is attractive to experience and encounter visually and physically, rather than rely upon screening and mitigation. Mitigation may be appropriate but this should not be a starting point.

3.2.7. At the end of August 2016, Horizon then launched the second stage of pre-application consultation. At this stage an additional site was identified and consulted upon in addition to Cefn Coch and Llanfaethlu. The additional site was located on the outskirts of Llanrhuddlad at Cylch y Garn School, which was due to be closed prior to the commencement of construction of the AECC and ESL. The following feedback was received.

3.2.8. MEEG site (Llanfaethlu):

- IACC expressed support in principle for development of the MEEG on this site and considered that there are opportunities to minimise any visual impact through enhancing the building's appearance and using screening and landscaping;
- Natural Resources Wales (NRW) comments on the Llanfaethlu site expressed support for the proposed approach to flood risk but noted the need for further information about a range of other environmental matters including noise, vibration and air quality; and
- A few members of the public expressed support for the proposals for locating the MEEG at Llanfaethlu, alongside a few requests for further information including construction impacts, traffic impacts and the scale of the development.

3.2.9. AECC and ESL (Cefn Coch – no longer proposed):

- IACC questioned the rationale for locating the AECC and ESL on the greenfield site at Cefn Coch, rather than a previously developed site; and
- There were mixed views about the proposals at Cefn Coch, with the most frequent concern relating to the potential negative visual impact on the surrounding area.

3.2.10. AECC and ESL alternative site (Llanrhuddlad – no longer proposed).

- A number of local residents expressed opposition towards the alternative AECC and ESL site at Llanrhuddlad, with numerous reasons given, including visual impact on the surrounding area, the scale of the development, noise, light and air pollution and flooding concerns.

3.2.11. One of the principal reasons for the general support received for the development of the Llanfaethlu site was its status as brownfield land, where national and local policy supports the development of brownfield land in preference to greenfield sites. Conversely, the appropriateness of the development of the Cefn Coch greenfield site was generally questioned. The alternative AECC and ESL site at Llanrhyddlad was also not supported by respondents as explained above.

3.2.12. Current proposals now seek to accommodate the MEEG, AECC and ESL on the Llanfaethlu site, which has been achieved via ongoing design work and making better use of the available land as well as increasing the footprint of the site. Previously the Llanfaethlu site was discounted as being a possible alternative site for the AECC and ESL as it did not fall within a specified 1.5km to 5km distance from the Power Station Site. Horizon has since been able to satisfy itself that the Llanfaethlu site would meet relevant ONR requirements. As such, Horizon has considered how better use can be made of the Llanfaethlu site to accommodate all Off-Site Power Station Facilities in one location

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SUMMARY OF DESIGN EVOLUTION

3.2.13. This section provides an overview of the overall design development of the Off-Site Power Station Facilities site.

3.2.14. The design evolution started with a requirement for a facility to house vehicles and equipment with the site only accommodating the MEEG; the AECC and ESL being located on a separate site.

3.2.15. Early studies were undertaken to look at space requirements for the MEEG buildings and infrastructure on the land available. Environmental and site data was also gathered to inform the design, per original requests from DCfW. From the environmental data and site analysis, a set of EDOs were developed, and a layout evolved to meet the EDOs and the requirements of the facility.

3.2.16. An initial assessment was undertaken that look at a single building on the site located towards the rear of the site with hardstanding around it. This layout utilised all the existing hardstanding area of the site and removed all the existing buildings on the site. Figure 15a (1) shows this layout.

3.2.17. An additional requirement for storage was identified, and to avoid increasing the size of the original building, an additional building was incorporated on the site of an existing building on the western boundary of the site. The larger building was also rotated through 90 degrees to improve the through access of the building and improve vehicle manoeuvring on the site, with a level area for loading and unloading.

3.2.18. Figure 15a (2, 3 and 4) shows this layout.

3.2.19. This layout was then further developed with the following modifications, in accordance with suggestions by DCfW to respond sensitively to the context:

- MEEG and satellite building orientated to reflect the arrangement of the surrounding farm buildings;
- buildings located to enable better use of the existing site contours to areas of bunding;
- areas of vegetation added to reinforce surrounding vegetation pattern and to help provide site screen and break up the scale of the hard surfacing, and to sit the MEEG building into the landscape. Building located to best suit level information based on topographical survey;
- area identified for portable office pods and International Organisation for Standardisation (ISO) containers added with additional planting to screen and mitigate the site with the surrounding landscape; and
- southern boundary amended to integrate better into the A5025 drainage and allow for additional planting to screen the facility from the south.

3.2.20. Following Stage Two Pre-Application Consultation and project optimisation, it was identified that the criteria for the AECC and the ESL location could be relaxed and these facilities would also be located on the same site as the MEEG. In addition to siting requirements, the facility requirements for all the three facilities were reviewed.

3.2.21. This review identified that the AECC could be accommodated within the main storage building on the MEEG site. The secondary storage requirements on the MEEG site was not needed and the ESL building could be reconfigured to fit on the plot identified for the secondary storage on the MEEG site.

3.2.22. These new requirements allowed the overall principles of the site as developed for the MEEG only to be retained.

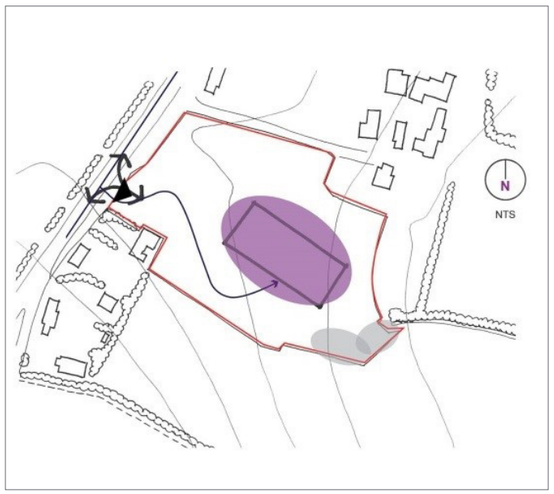
3.2.23. Additional design development identified that the removal of the existing building within the site on the side south of the entrance would improve the drainage proposals for the site.

3.2.24. The area used for the site was extended to include all the land within Horizon's ownership. This allowed the landscape planting to be extended on the south boundary and in front of the sewage treatment plant. It also allowed a temporary/overspill parking area to be incorporated on the site. This would provide parking for the training within the AECC or operation of the AECC. Due to its infrequent use, a grasscrete permeable paving solution could be adopted.

3.2.25. Figure 15b shows this layout.

3.2.26. The illustrative design has achieved a balance between meeting the functional requirements of a MEEG, AECC and ESL as outlined in the strategic design brief and EDOs for the site.

- The site replaces an existing bus depot with higher quality buildings and improved planting around the site.
- Boundary treatments are enhanced on all sides.
- Building maintain the local vernacular for agriculture-type buildings.
- Design retains the existing water courses.
- Design improves the flows of surface water across the site.
- Design uses Sustainable Urban Drainage Systems (SuDS) for main paved areas and permeable surfacing for the temporary parking area.



1) **Capacity study 01:** The MEEG facility only was considered for the site north of Llanfaethlu.

An initial capacity study was undertaken to determine the viability of the site, this included:

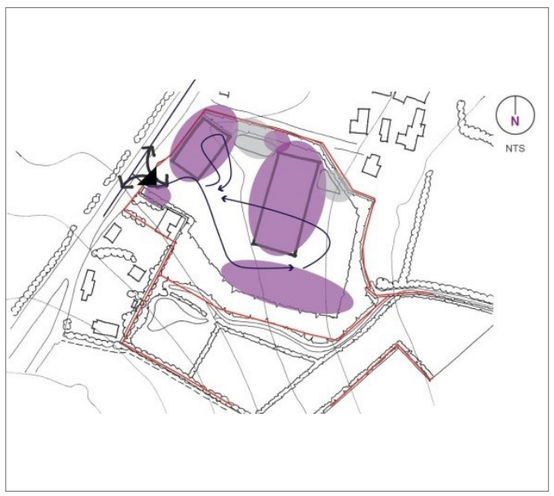
- site test fit at MEEG; and
- space planning exercise undertaken to indicate the viability of the building location and vehicle circulation.

2) **Capacity study 02:** The initial layout, based on capacity study 01, was refined to include:

- MEEG located centrally on site, sat east to west, to enable 360 degree vehicle circulation about building footprint; and
- additional building added for vehicle storage at the north-west site boundary, adjacent the A5025.

3) **Design development 03**: The capacity study was further refined to incorporate:

- MEEG and satellite building orientated to reflect the arrangement of the surrounding farm buildings;
- site security fencing position identified and added;
- buildings located to enable better use of the existing site contours to areas of bunding;
- buildings positioned to provide less obtrusive approach views from the existing A5025; and
- areas of vegetation added to reinforce surrounding vegetation pattern and to help provide site screen and break up the scale of the hard surfacing, and to sit the MEEG building into the landscape.



4) **Design development 04**: The design was further refined to incorporate:

- building located to best suit level information based on topographical survey;
- area identified for portable office pods and ISO containers added with additional planting to screen and mitigate the site with the surrounding landscape; and
- southern boundary amended to integrate better into the A5025 drainage.

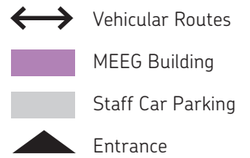


Figure 15a Evolution of scheme design

5) **Design development 05**: The site north of Llanfaethlu was identified to accommodate three facilities previously located on separate sites; the MEEG, the AECC and the ESL. The illustrative layout of the facility has been developed to meet a series of requirements, driven by the site constraints and the functional constraints of the amount of users and vehicles. The proposed architectural layout indicates:

- MEEG/AECC combined and the proposed MEEG footprint retained with a building at the centre of the site;
- ESL building replaces the satellite vehicle storage facility located alongside the A5025 to the west of the site;
- ancillary buildings i.e. generator, pump house, fuelling station, substation, refuse building and underground tanks;
- staff parking to the north of the site, close to the buildings;
- areas of hardstanding west and east of the MEEG/AECC building for vehicle access and manoeuvring;
- an area for the storage of temporary offices i.e. 'portacabins' and ISO storage containers;
- an overspill car park to the south which would be used during an incident or training exercise; and
- a grass swale is proposed to run through the site to accommodate flood surface water from the site and the A5025, its design would follow guidance set out by SuDS Wales and would maximise opportunities to improve biodiversity within the site.

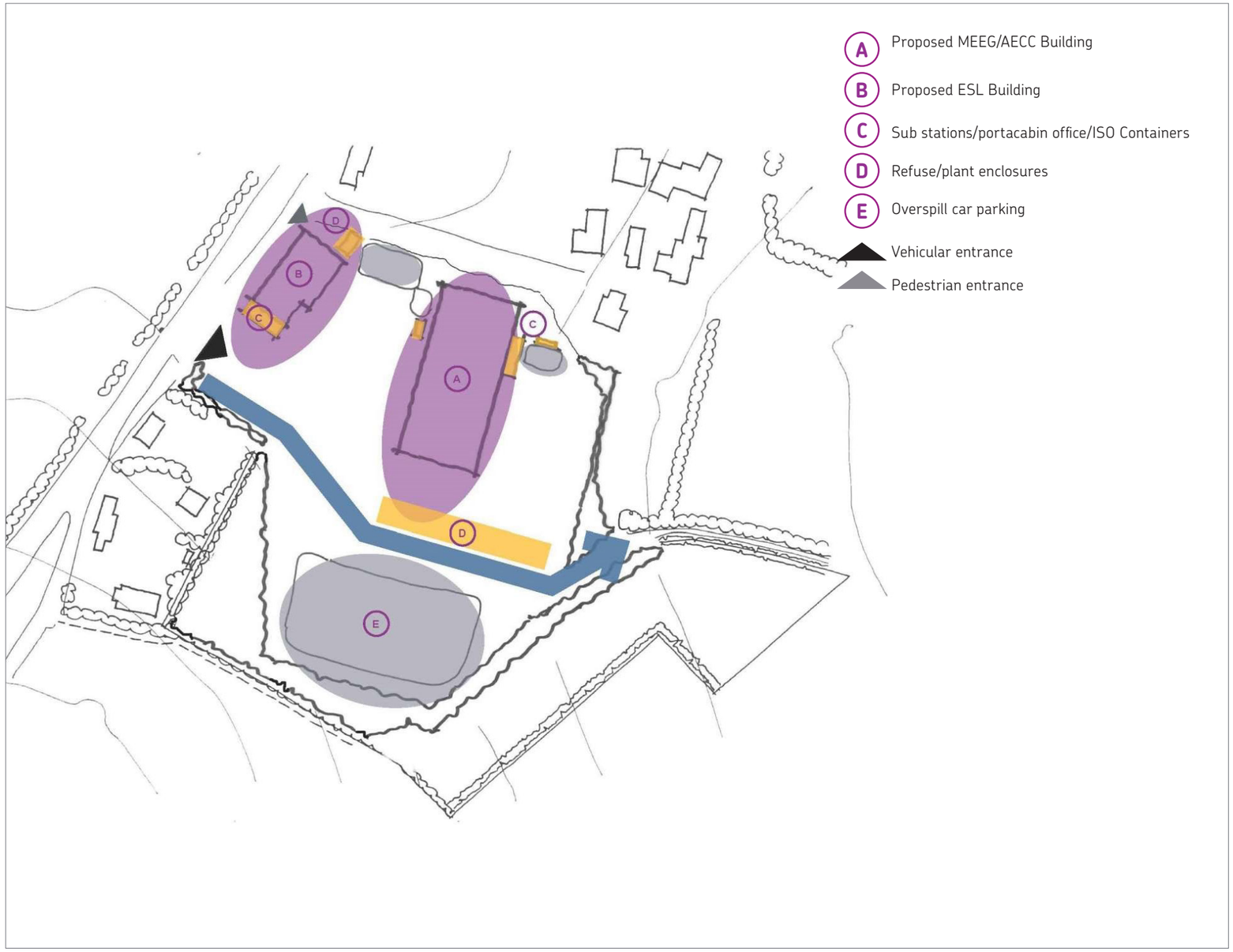


Figure 15b Evolution of scheme design: current proposals

3.3 PARAMETERS FOR IMPLEMENTATION

3.3.1. The 'parameters approach' adopted by Horizon identifies defined envelopes for the construction the Wylfa Newydd DCO Project within which future development will be undertaken.

3.3.2. The reason for adopting this approach is to ensure that Horizon has sufficient flexibility to accommodate any design changes that may be required between the DCO being granted and construction commencing.

3.3.3. The parameters approach is adopted across the Wylfa Newydd DCO Project. The parameters for the Off-Site Power Station Facilities are generally more limited, though an amount of flexibility is, however, required for the proposed buildings and structures to allow for changes that may arise from variances in subsequent design and manufacture.

3.3.4. Details of design (including size, external appearance, siting and samples of materials) for the Off-Site Power Station Facilities will therefore be submitted to, and approved in writing by, the local planning authority, within the approved maximum dimensions set in the DCO parameters tables and the design principles set out in section 3.4 of this DAS.

3.3.5. This section explains the rationale for the level of flexibility sought for the Off-Site Power Station Facilities.

POSITIONS OF BUILDINGS AND STRUCTURES

3.3.6. The masterplanning process has determined the general layout for the Off-Site Power Station Facilities. The exact position of buildings and structures would, however, be flexible within the two zones set out in the DCO parameters tables to accommodate the potential for minor changes in the detailed design. There is one zone for the ESL building and one zone for the MEEG/AECC building.

BUILDING DIMENSIONS

3.3.7. It is proposed that the length, width and height of buildings would have a tolerance to pre-empt differences in manufacturers' module details and cladding extent. This is reflected in the maximum dimensions set out in the DCO parameters tables. No minimum dimensions are proposed.

3.4 DESIGN PRINCIPLES

3.4.1. The DCO parameters tables and maximum building dimensions (as described in section 3.3) provide the 'envelope' for the built form of the Off-Site Power Station Facilities, within which alternative schemes could be brought forward.

3.4.2. Where details of design are to be pursuant to a DCO Requirement, these must be in accordance with the following design principles.

3.4.3. The operational and functional requirements for the facility, as described in section 1.5 Strategic design brief, and more concisely listed in table 1, underpin the development of these design principles.

3.4.4. Appendix B sets out how the design principles may be met in the illustrative design, and how the facility meets the principles of 'good design' in accordance with EN-1 and EN-6. Good design criteria outlined in the aforementioned National Policy Statements (NPSs) are described in table 2.

3.4.5. As set out in Volume 1 of the DAS, the Planning Act (2008) places importance on good design. Policy relating to good design for energy infrastructure is set out in NPS EN-1 and policy relating to good design specifically for nuclear power generation is set out in NPS EN-6. These policies are set out in detail in the Planning Statement.

3.4.6. While there is no hierarchy in the principles of good design, both NPS EN-1 and EN-6 recognise that the nature of energy infrastructure developments can limit the choice an applicant may have in respect of the visual appearance of buildings. For these reasons, the policies recognise that the achievement of good design goes beyond visual aesthetics and that the functionality of infrastructure is just as important. In this respect, the Planning Inspectorate needs to be satisfied that energy developments are functional and sustainable, and having regarding to regulatory and other constraints, are as attractive, durable and adaptable as possible. In making this assessment, paragraph 2.8.1 of EN-6 confirms that the need to ensure the safety and security of a nuclear station and to control the impacts of its operation, should be given substantial weight in determining whether or not the principles of 'good design' under EN-1 have been achieved.

3.4.7. For the purposes of this DAS, policy relating to good design has been grouped into the six themes set out in table 2. Grouping them in this way does not seek to alter the meaning of policy and is applied to help demonstrate how the design principles in this chapter underpin the delivery of good design.

Table 2 Good design

GOOD DESIGN	CORRESPONDING THEME
The applicant should take into account functionality including fitness for purpose (NPS EN-1, Para 4.5.1). The need to ensure the safety and security of the power station, and the need to control the impacts of its operations, must be given substantial weight given the importance of these factors to the operation of a nuclear power station (NPS EN-6, Para 2.8.1). The GDA, site licensing and environmental permitting processes will consider certain aspects of design, which the IPC should not replicate (NPS EN-6, Para 2.8.4).	Functionality
Applying good design to nuclear power stations means giving substantial weight to the need to control the impacts of its operations (NPS EN-6, Para 2.8.3). Good design can act to mitigate the impacts of nuclear power stations, such as landscape and visual impacts (NPS EN-6 Para 2.8.3). Good design can help mitigate adverse impacts through use of appropriate technologies. (NPS EN-1, Para 4.5.2).	Mitigation
The appearance should demonstrate good aesthetic as far as possible (NPS EN-1, Para 4.5.3) Energy infrastructure developments should be sustainable and, having regard to regulatory and other constraints, should be as attractive, durable and adaptable as they can be (NPS EN-1, Para 4.5.3). The applicant should take into account aesthetics, including its contribution to the quality of the area in which it would be located (NPS EN-1, Para 4.5.3). The applicant may not have any or very limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3).	Appearance
Applying good design to energy projects should produce sustainable infrastructure that is sensitive to place (NPS EN-1, Para 4.5.3). There may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3).	Character
Applying good design to energy projects should produce sustainable infrastructure that is efficient in the use of natural resources and energy used in their construction and appearance. (NPS EN-1, Para 4.5.3).	Sustainability
For some structures where the functional requirements may change over the lifetime of the structure, such as sea defences, they should be capable of being adapted if the need were to arise in future without major re-design or significant physical disruption (NPS EN-6, Para 2.8.2).	Adaptability

This table should be read in conjunction with Appendix B, which sets out how the design principles may be met in the illustrative design, and how it meets the principles of 'good design'.

GENERAL / MASTERPLANNING PRINCIPLES

3.4.8. The site will be laid out to meet the operational requirements of the facility.

3.4.9. Buildings will be positioned, designed, and orientated to reduce their effects on the surrounding areas as far as practicable within operational requirements.

3.4.10. The site building design layout will seek to minimise noise at nearby noise-sensitive receptors as far as reasonably practicable within operational requirements.

3.4.11. The proposals will seek to minimise the overall visual impact of the site as far as practicable within operational requirements.

3.4.12. Existing greenfield land to the south of the existing bund will generally be soft landscaped to reflect the extent of the existing development.

3.4.13. Development will generally create a strong building frontage to the A5025.

3.4.14. Day-to-day staff parking will be located in close proximity to the MEEG, AECC and ESL buildings.

3.4.15. Storage containers and temporary offices will be located away from the A5025 street frontage.

3.4.16. Turning circles will allow for vehicles, including HGVs, to enter and exit the site in forward gear.

3.4.17. The perimeter of the site will be secured with 2.4m high welded-mesh-type fencing within the site boundary. The precise fence line will have regard to local topography and vegetation and seek to minimise visual impact within operational requirements. The use of spikes, serrated wire or other aggressive security measures will be avoided, where practicable. Coverage by security lighting and cameras will avoid intruding on neighbouring properties.

3.4.18. Vehicular access to the site will be through an entrance located at the site of the existing vehicular entrance.

3.4.19. A secure, gated access for pedestrians and cyclists will be provided.

3.4.20. Where safety and operational requirements allow, the location of plant and orientation of buildings will screen noise sources from nearby noise-sensitive receptors.

3.4.21. The closest residential receptors (to the south of the boundary of the site) will be screened from the fixed plant area and substation by the MEEG/AECC building.

3.4.22. Closed circuit television (CCTV) will be provided at strategic locations within the site.

3.4.23. An external refuse area, for the storage and collection of recyclable and general waste, to be easily accessible to both building occupants and by waste management contractors to facilitate collection.

3.4.24. Detailed design will not prohibit the ability to obtain and comply with the Off-site Power Station Facilities Environmental Permit and the Power Station Nuclear Site Licence.

BUILDING DESIGN PRINCIPLES

3.4.25. Architectural treatment of proposed buildings and structures will seek to integrate with surrounding landscape to reduce adverse visual effects.

3.4.26. The architectural design of the buildings, including scale, massing and materials, will complement the agricultural setting and location beyond the settlement boundary in the countryside, as far as practicable.

3.4.27. Building forms will be simple and unimposing in the landscape to allow them to harmonise with and complement the surroundings, as far as reasonably practicable within operational requirements.

3.4.28. A restricted natural palette of materials and colours will be used to help integrate the buildings into the surrounding environment, and the quality will reflect the permanent nature of the development.

3.4.29. Fixed plant will be designed, as far as practicable to reduce day-time and night-time noises, to meet specified noise level at nearest receptors.

3.4.30. If required, the stack height for the standby generator will not be more than approximately three metres above the roof of the standby generator enclosure, representing a total height above ground level of not more than approximately six metres.

LANDSCAPE DESIGN PRINCIPLES

3.4.31. Landscape design will ensure that the operational and security requirements of the facility can be met.

3.4.32. The planting strategy will reflect the planting patterns, density and species mix in the wider landscape surrounding the site. The strategy will:

- integrate the development site with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the site; and
- protect, manage and enhance the nature conservation value of the site and integrate with and protect adjacent habitats and locations containing protected species or other locally important species or habitats.

3.4.33. Planting will achieve visual screening of the Off-Site Power Station Facilities during the operational phase, as far as reasonably practicable.

3.4.34. Hard and soft landscaping will be used to help integrate the Off-Site Power Station Facilities appropriately into the surrounding landscape, to integrate the development into the local landscape and reduce adverse visual effects.

3.4.35. Horizon will undertake quarterly landscape site inspections for a 5-year period, followed by annual inspection for second 5-year period (total 10 years) in order to ensure landscaping has established appropriately. In the event that these inspections identify that planting has not established, replacement planting on a like for like basis will be undertaken at the first available planting season.

3.4.36. Boundary treatments, including existing hedges and trees, will be retained where possible within operational requirements.

3.4.37. The landscape character will be enhanced along the eastern and southern boundaries.

3.4.38. A linear belt of shrubs, trees and/or hedgerow will be planted/retained to the site boundary where appropriate and subject to operational security requirements to provide visual screening and to help integrate the development into the surrounding landscape.

3.4.39. The stone wall on the northern and eastern perimeter of the site will be retained and repaired where necessary to help retain the existing landscape character, and to provide some noise screening by reducing the likelihood of direct lines of sight between noise sources (e.g. fixed plant and vehicles) and nearby sensitive receptors.

3.4.40. The southern portion of the site surrounding the overflow parking area and adjacent to PRoW 29/008/1 will be soft landscaped in order to protect the recreational amenity of footpath users during use of the overflow car park. This landscaping will be maintained during the operational phase.

3.4.41. The planting schedule will complement the nearby A5025 Off-line Highway Improvements and the local landscape character.

3.4.42. The overspill car parking area will use sustainable drainage measures to limit the potential for increased storm water runoff.

3.4.43. New soft landscaping areas will be provided in various locations around the perimeter of the site, including e.g. hedgerow, shrub and tree planting, where this does not conflict with operational and security requirements of the Off-Site Power Station Facilities.

SUSTAINABILITY PRINCIPLES

3.4.44. The development will avoid adverse impacts on existing habitats of low or greater value and existing habitat features will be retained where practicable, including hedgerows, boundary features and watercourses.

3.4.45. The drainage design will provide sustainable attenuation capacity to address increased surface water runoff rates and pollution interception risks arising as a result of the development.

3.4.46. Surface water drainage and attenuation will be designed to maintain current runoff rates up to a 1 in 100-year storm event and will not increase the risk of off-site flooding.

3.4.47. Lighting will minimise light spill as far as reasonably practicable within operational requirements to minimise effects on sensitive ecological species such as bats, otter and water vole.

3.4.48. Operational lighting will also be designed to control light spill, whilst providing safe levels for site use and security, to limit effects on night-time human viewers, for example local communities.

3.4.49. Measures such as restricting heights of lighting columns and using directional or down lights will be used where practicable.

3.4.50. Soft landscaping on the eastern and southern boundaries of the site will reduce light spill onto sensitive ecological receptors, where this does not conflict with operational and security requirements.

3.4.51. The facility will include water-efficient fittings which help reduce water consumption.

3.4.52. A Class 1 full retention oil/water separator will be used for drainage from hardstanding areas.

3.4.53. A swale will be provided between the main part of the Off-Site Power Station Facilities and the area of additional car parking to safely convey or absorb surface water flows that may exceed the capacity of the road drainage system.

3.4.54. The overflow parking area will comprise cellular grassed paving construction or similar, with sustainable drainage.

3.4.55. At least one electric vehicle charging point will be provided.

PART B: ILLUSTRATIVE DESIGN PROPOSALS

4 ILLUSTRATIVE DESIGN PROPOSALS

Illustrative design proposals

4.1 THE OVERALL SITE SCALE

4.1.1. This chapter demonstrates how the detailed design for the Off-Site Power Station Facilities could be developed in accordance with the parameters and design principles set in the DCO Requirements and in chapter 3 of this DAS.

4.1.2. Chapters 5, 6, 7 and 8 specifically address the key design issues of environmental sustainability, community safety, accessibility and movement, which link back to the fixed design principles.

4.1.3. The pattern and arrangement of the building and landscape design have been developed to reflect the scale of the surrounding areas. The main buildings have been arranged to mimic a collection of farm buildings with the setting reinforced with stone walling, hedgerows and dense tree and shrub planting providing screening and shelter. A grass swale is proposed to run through the site to accommodate flood surface water from the site and the A5025, its design would follow guidance set out by SuDS Wales and would maximise opportunities to improve biodiversity within the site.

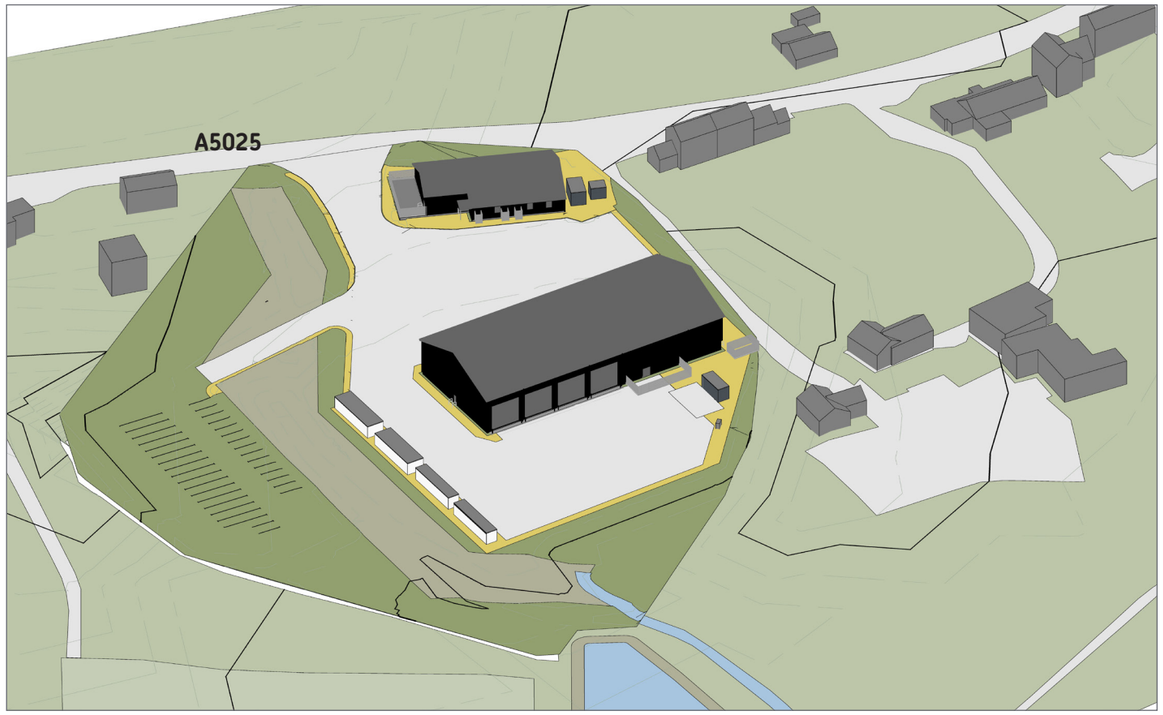


Figure 16 Aerial model image (existing context and indicative proposed massing diagram)

SITE LAYOUT

4.1.4. The indicative layout of the facility has been developed to meet a series of requirements, driven by the site constraints and the functional requirements of the amount of users and vehicles.

4.1.5. The architectural layout indicates:

- MEEG/AECC building at the centre of the site;
- ESL building at the north-west of the site;
- ancillary buildings i.e. generator, pump house, fuelling station, substation, refuse building and underground tanks;
- staff parking to the north of the site, close to the buildings;
- areas of hardstanding west and east of the MEEG building for vehicle access and manoeuvring;
- an area for the storage of temporary offices i.e. 'portacabins' and ISO storage containers; and
- an overspill car park to the south which would be used during an incident or training exercise.

4.1.6. The indicative proposed site masterplan is shown in figure 17.

LEGEND

- Site boundary
- Road surface
- Footway / pedestrian route surface
- Permeable road surface
- Proposed building footprint
- Existing lay-by to be resurfaced
- Soft landscaping
- Retained hedgerow
- Existing watercourse
- Discharge location
- Close boarded domestic fencing
- Security fence (2400mm paladin type)
- Stone wall
- Retained stone wall
- Pedestrian crossing
- Gate and barrier access
- Road barrier
- Embankment/cutting locations

Buildings and elements

- A MEEG and AECC
  (Mobile Emergency Equipment Garage)
  (Alternative Emergency Control Centre)
- B ESL
  (Environmental Survey Laboratory)
- C Substation (with anti climb measures)
- D Pumphouse
- E Generator
- F External plant area
- G Refuse (with anti climb measures)
- H Fuel pump
- Under ground fuel tank
- Portacabins and containers

Figure 17 Proposed site masterplan

4.2 LANDSCAPE PROPOSALS

4.2.1. The landscape strategy for the site at Llanfaethlu seeks to place the proposed facilities into the landscape, reflecting the distinctiveness, scale and character of the local area.

4.2.2. As part of the wider environmental assessment process, a detailed landscape and visual baseline assessment has been carried out (see Environmental Statement chapter E10 - Landscape and visual [APP-248]). This, combined with the environmental and ecology studies have informed the development of a set of landscape objectives to be incorporated into the design. These include:

- new hedgerow and dense tree and shrub planting to the site boundary to provide visual screening and integrate the development into the surrounding landscape;
- reinforce the landscape character along eastern and southern boundaries;
- buildings to be in keeping with local vernacular to integrate the development into the rural surroundings;
- ecological enhancements to be embedded in the design; and,
- planting strategy to reflect that scale, pattern and make-up of the surrounding landscape and integrate with the adjacent A5025 highway scheme.

LANDSCAPE DESIGN

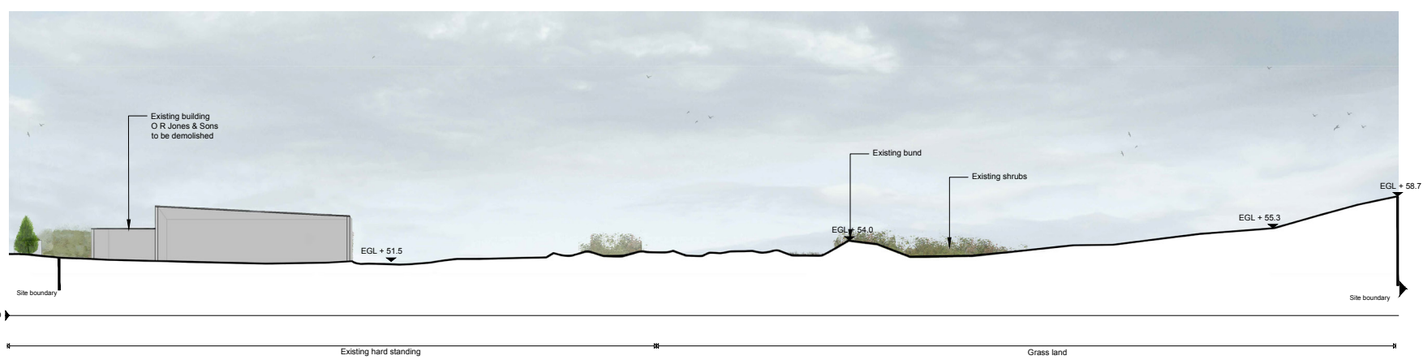
4.2.3. In line with the design principles set out in section 3, the illustrative configuration of the proposed buildings echoes the arrangement of the surrounding existing farm buildings in this landscape. The arrangement focuses the planting proposals on the site boundaries where the design would incorporate screening and shelter for the site.

4.2.4. The design would increase the depth and scale of planting within the site, mimicking the dense planting alongside the streams and within the 'folds' in the surrounding topography.

4.2.5. A grass swale would be developed, running west-east through the site, which would introduce enhanced biodiversity and visual contrast to the concrete surrounding the operational areas. The swale would provide a degree of separation between the 'hard' daily operational aspects of the site and the softer occasional overspill parking area surrounded with dense planting.

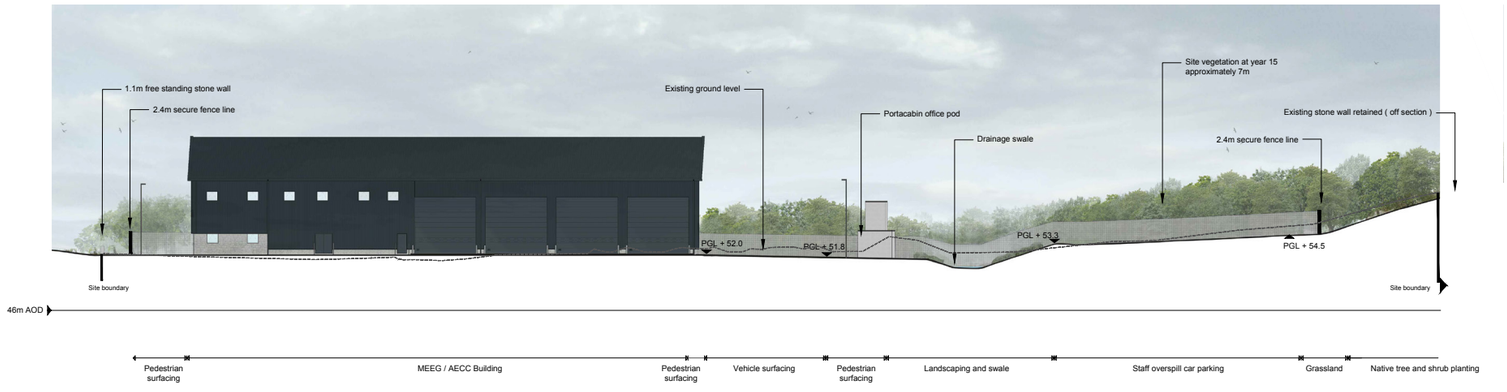
4.2.6. The scheme would be developed to fully integrate with the proposed A5025 Off-line Highway Improvements landscaping design (please refer to Design and Access Statement Volume 3 Appendix 1-5 Off-line Highway Improvements).

4.2.7. See figure 18, figure 19 and figure 20 for illustrative cross sections and the landscape masterplan.



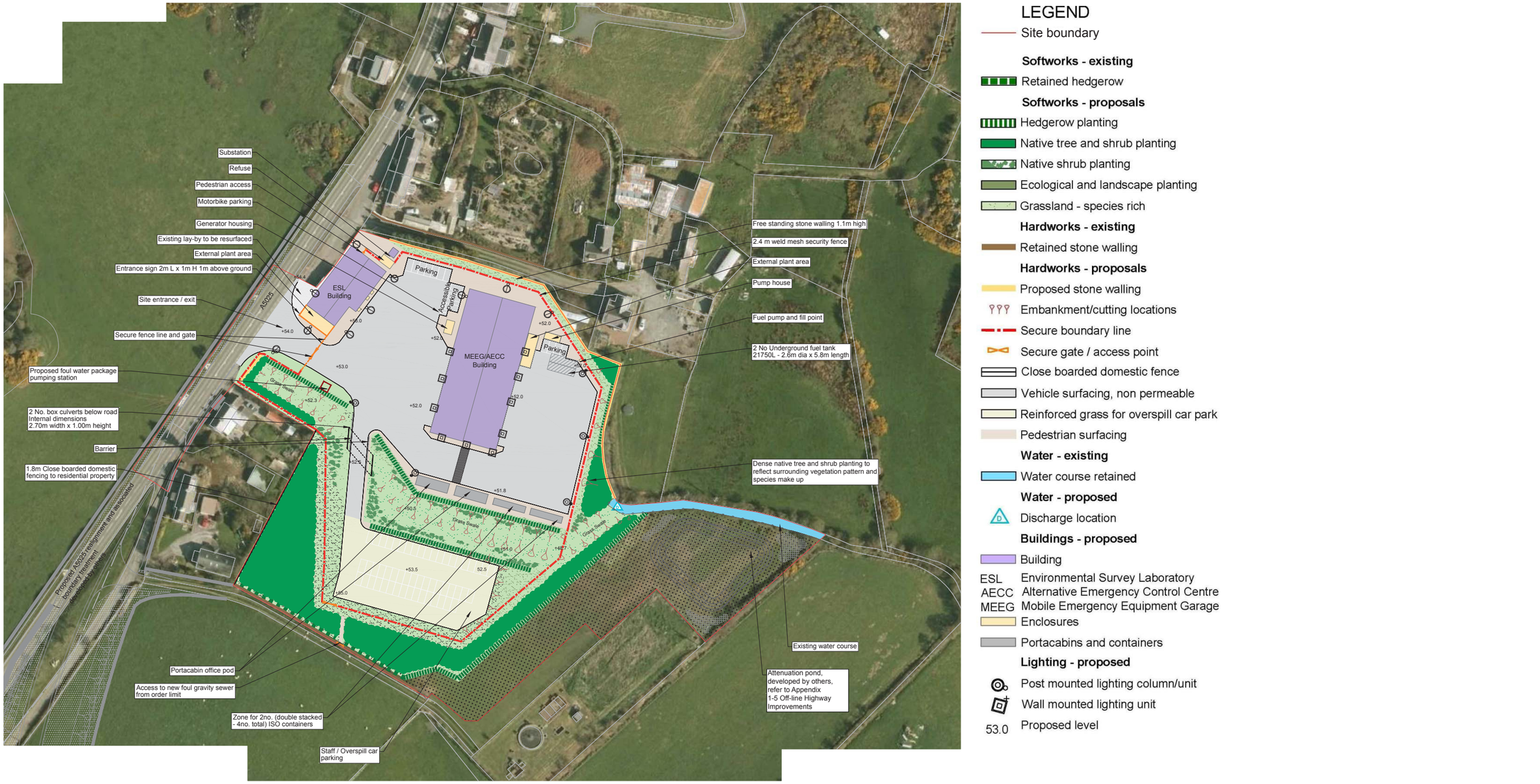
Section A - Existing

Figure 18 Existing cross section looking east



Section A - Proposed

Figure 19 Indicative proposed cross section looking east



LEGEND

Site boundary

Softworks - existing

Retained hedgerow

Softworks - proposals

Hedgerow planting

Native tree and shrub planting

Native shrub planting

Ecological and landscape planting

Grassland - species rich

Hardworks - existing

Retained stone walling

Hardworks - proposals

Proposed stone walling

Embankment/cutting locations

Secure boundary line

Secure gate / access point

Close boarded domestic fence

Vehicle surfacing, non permeable

Reinforced grass for overspill car park

Pedestrian surfacing

Water - existing

Water course retained

Water - proposed

Discharge location

Buildings - proposed

Building

ESL Environmental Survey Laboratory

AECC Alternative Emergency Control Centre

MEEG Mobile Emergency Equipment Garage

Enclosures

Portacabins and containers

Lighting - proposed

Post mounted lighting column/unit

Wall mounted lighting unit

53.0 Proposed level

Figure 20 Indicative landscape masterplan

PLANTING STRATEGY

4.2.8. The planting strategy would reflect the planting patterns, density and species mix in the wider landscape surrounding the site.

4.2.9. The planting strategy is made up of landscape elements, which help to mitigate the adverse impacts of the site and enhance the local landscape character. The landscape elements thus require regular maintenance or inspection to achieve their longer-term objectives.

4.2.10. The landscape elements that support the strategy are divided into broad classification types, e.g. hedges which are then subdivided into their detailed design or management needs, in conjunction with their landscape function. The landscape elements proposed for the site are as listed in table 3.

LANDSCAPE FUNCTIONS

4.2.11. Each landscape element has been assigned one or more landscape functions. The landscape function defines the long-term design and maintenance objective of each landscape element, i.e. why they are there and what they are intended to achieve in environmental terms.

4.2.12. A description of the landscape environmental functions is provided in table 4.

4.2.13. The planting strategy is shown on figure 21 overleaf.

Table 3 Landscape elements

LANDSCAPE ELEMENT	DESCRIPTION
Species-rich grassland (grass swale)	To establish permanent areas of grass and herb species appropriate to the location with a species composition and diversity capable of being maintained through appropriate management, which would be encouraged to naturally develop biodiversity interest over time, including valuable habitat for invertebrates.
Dense tree and shrub planting/ woodland planting	To ensure the successful establishment of tree and shrub belts dominated by tree species appropriate to the location. Composition, age and structural diversity to perform the intended function (i.e. screening/ landscape integration) through ensuring sufficient density, height and widths are maintained, and that areas are managed in sympathy with nearby tree belts/woodland.
Native hedgerows / with trees	To create low maintenance, biodiversity enhancing hedgerows trimmed and shaped to a constant height and width appropriate for future growth, and which maximises foraging and breeding resources for birds, bats and invertebrates.

Table 4 Landscape functions

LANDSCAPE FUNCTION	DESCRIPTION
Visual screening	Mitigation against adverse visual impacts by screening views of the development site and associated infrastructure from properties and public viewpoints, including PRoWs.
Landscape integration	Integrate the development site with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the site.
Nature conservation and biodiversity	Protect, manage and enhance the nature conservation value of the site and integrate with and protect adjacent habitats and locations containing protected species or other locally important species or habitats.

Figure 21 Indicative planting strategy

PLANT SELECTION

4.2.14. Plant species have been selected to complement and integrate with the existing landscape character and the adjacent A5025 Off-line Highway Improvements. Native and local provenance species would be used for all planting areas.

SPECIES-RICH GRASSLAND

4.2.15. Species-rich grasses and wildflowers have been selected that are tolerant of semi-shade and suitable for sowing beneath newly planted or established hedgerows and shrub and tree belts, and within the grass swale. The native seed mix would create a high quality naturalistic sward.

4.2.16. Typical grass and wildflower species could include:

4.2.17. Grass species:

- *Agrostis capillaris* (common bent)
- *Anthoxanthum odoratum* (sweet vernal-grass)
- *Briza media* (quaking grass)
- *Cynosurus cristatus* (crested dogstail)
- *Festuca ovina* (sheep's fescue)
- *Festuca rubra* (red fescue)
- *Phleum bertolonii* (smaller cat's-tail)
- *Trisetum flavescens* (yellow oat-grass)

4.2.18. Wildflower species:

- *Achillea millefolium* (yarrow)
- *Centaurea nigra* (common knapweed)
- *Galium verum* (lady's bedstraw)
- *Leucanthemum vulgare* (oxeye daisy)
- *Poterium sanguisorba* (salad burnet)
- *Prunella vulgaris* (selfheal)
- *Ranunculus acris* (meadow buttercup)
- *Rumex acetosa* (common sorrel)
- *Silene dioica* (red campion)

NATIVE HEDGEROW WITH TREES

4.2.19. Shrub and occasional tree species would be selected that are appropriate to the location and are representative of hedgerows in the surrounding area.

4.2.20. Typical species could include:

4.2.21. Tree species

- *Betula pendula* (birch)
- *Quercus robur* (pendunculate oak)
- *Sorbus aucuparia* (rowan)

4.2.22. Hedgerow species

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)
- *Rosa arvensis* (field rose)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)

LINEAR BELTS OF SHRUBS AND TREES/WOODLAND

4.2.23. Tree and shrub species have been selected that are appropriate to the location or are as already existing within the local area in woodland clumps or in linear belts too narrow to be considered woodland but more substantial than a hedgerow.

4.2.24. Typical species could include:

4.2.25. Trees

- *Alnus glutinosa* (alder)
- *Betula pendula* (birch)
- *Quercus robur* (pendunculate oak)

4.2.26. Shrubs

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinose* (blackthorn)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)

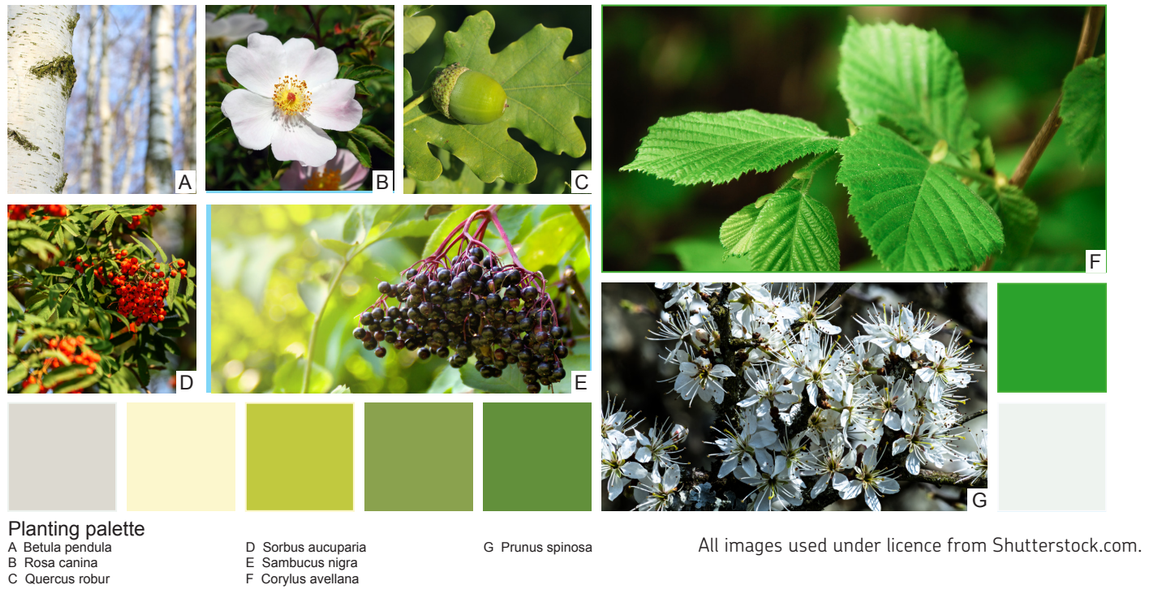


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Figure 22 Indicative planting palette

LANDSCAPE MATERIALS

4.2.27. Quality hard landscaping surface materials are proposed to create a pleasant and safe environment for pedestrians and vehicles moving throughout the site.

4.2.28. The main elements of the palette are as follows, with visuals of the palette in figure 23 and a layout of the strategy in figure 24.

AREA 1 – MAIN OPERATION AREA

- concrete – standard carriageway finish to be used on main vehicle circulation areas;
- block paving – for use in parking bays;
- asphalt surfacing to tie into A5025;
- pedestrian footpaths – concrete block to provide a clearly identifiable and separated pedestrian route. Contrasting to add visual interest and aid pedestrian navigation; and
- stone walls – repair/upgrade distinctive elements of the traditional agricultural landscape which exist on-site, including stone walls and field boundaries. New elements to complement the existing rural agricultural landscape.

AREA 2 – OVERSPILL CAR PARK

- reinforced grass / cellular grass paving – areas for overspill car parking.

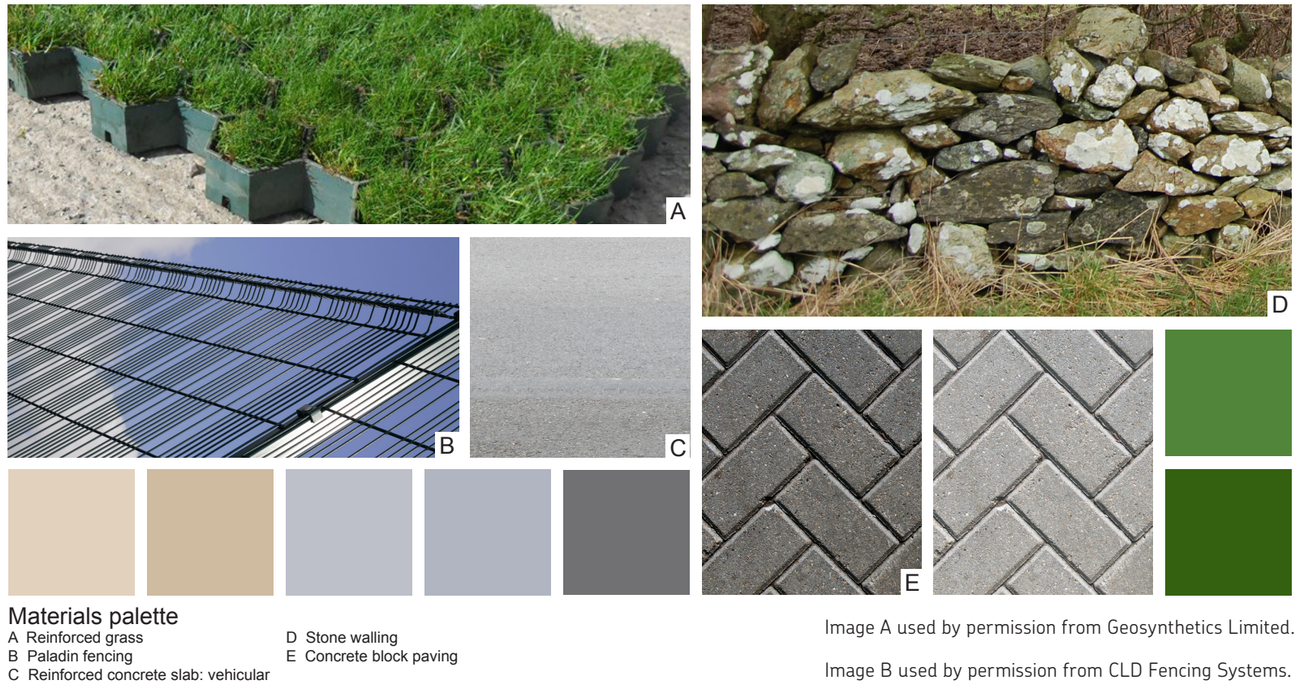


Figure 23 Indicative hard landscape palette

Image A used by permission from Geosynthetics Limited.

Image B used by permission from CLD Fencing Systems.

Images C & E used under licence from Shutterstock.com

Figure 24 Indicative material strategy

LANDSCAPE MAINTENANCE

4.2.29. On completion of the landscape scheme, all planted and seeded areas would be maintained by Horizon for the lifetime of the development. To ensure the successful establishment and long-term health/vitality, two phases would be followed:

a) A landscape maintenance/establishment period. This would commence immediately after the whole scheme was completed and be carried out in accordance with a detailed specification. The planting would be inspected regularly to check the condition of the plants and maintain surrounding grassed areas. Any plant failures would be replaced. The inspection would also include the checking of tree stakes and ties and their adjustment as and when necessary.

b) After completion of the above establishment period, the scheme would be maintained for the life of the Power Station to create a sustainable landscape which helps mitigate against the visual and other environmental effects of the site.

4.2.30. Objectives would be agreed for particular areas along with the maintenance operations required to achieve these objectives. Typical activities are described in table 5.

4.2.31. Planting would be maintained to keep a 3m distance from the security fence.

Table 5 Indicative landscape management table

LANDSCAPE	LANDSCAPE MANAGEMENT RECOMMENDATION	GENERIC MANAGEMENT
Species-rich grassland (grass swale and on woodland edges)	Allow a diversity of grasses and wildflower species that are appropriate to the site to develop and create greater biodiversity. Manage a variety of wildflower species to provide colour, form, texture, scale and variety. Manage in sympathy with adjoining species-rich habitats.	Grass cutting Weed control
Native hedgerow with trees	Use same form of local hedgerow management to integrate with local landscape. Allow framing of views across to wider landscapes. Encourage a variety of species to enhance wildlife corridors. Ensure links between adjacent habitats. Trees allowed to grow to full height to provide intermittent screens.	Pruning Hedge cut Weed control Treatment of arisings Replant gaps Accommodate trees when cutting
Dense planting/woodland	Retain and replenish where required to keep cover. Maintain shrub layer for low-level screening. Mix of species to reflect local landscape character, particularly when adjoining other linear features. Provide seasonal colour and variety in plant form. Retain as a continuous feature to provide wildlife corridors to other planted areas on and off-site.	Coppice Pruning Thinning Felling Treatment of arisings Chemical treatments

4.3 ARCHITECTURAL BUILDING DESIGN PROPOSALS

INTRODUCTION

4.3.1. The overarching design philosophy and approach has been to create a simple building form, to blend the new facility with the existing surrounding buildings and the natural landscape form where possible. The proposed development would seek to minimise adverse effects on the local landscape by adopting a simple building form, a choice of natural colours and a specific building envelope material palette. Aesthetically, the intent has been to draw synergies between the proposed buildings and the agricultural appearances of some of the structures and buildings which are staggered intermittently throughout the local area. The proposed site layout, while designed to meet the functional and operational requirements of each facility, has been indicatively set out to position the taller building towards the back of the site or locate to suit the lower topographical natural areas of the sites. Thus the approach provides embedded mitigation to reduce the visual impact of the building heights and also aid general site massing due to the careful use of both the existing and the proposed site levels.

4.3.2. In addition, the design aims to capitalise on the layout of the existing brownfield site by orientating the buildings in such a way as to reduce their visual effect on the surrounding areas, particularly existing residential areas within the vicinity of the site.

4.3.3. The buildings on the site would be permanent given their requirement to be available for the lifespan of the Power Station itself. The design must therefore ensure that it responds to local context particularly well, recognising that the development will be a feature within the landscape for many years to come. A restricted natural palette would be adopted for the buildings to integrate them within the context of the village setting whilst recognising the functional requirements of the buildings where the use of complementary materials to that of the surrounding area will be sought. An assessment of locally occurring stone, rocks and other natural materials would be made in arriving at a number of distinctive design elements, which will subsequently feed into settling key design concepts.

4.3.4. Using all of these inputs, the design was developed following feedback from the consultation as well as through further engagement with DCfW and the IACC. The aim has been to create well-integrated, well-designed sustainable buildings, which would respond to the character and identity of the local surroundings through the sympathetic use of materials, architectural treatment and landscaping.

4.3.5. An inclusivity access audit has been undertaken in order to achieve the necessary access requirements to and within the site (see section 7.1).

4.3.6. During the design it was identified that the Llanfaethlu site could also accommodate the AECC and ESL facilities. Following a review of the original provision on the site, the AECC was located on a first floor within the MEEG building and the ESL was located on the plot of the storage garage that fronted the site. This allowed the use of a second site for these facilities to be dispensed with.

4.3.7. Sketches and computer generated images of the proposed site are shown on figure 25 and figure 26.

Figure 25 Indicative aerial sketch, viewed from surrounding fields to the south of the site

View towards the site looking east, across the A5025

View from across the fields looking north towards the site

Figure 26 Computer generated images

MEEG/AECC BUILDING

4.3.8. The MEEG/AECC facility is a two-storey building with a rectangular footprint.

4.3.9. The function of the MEEG would be to manage and store vehicles and equipment which would be required following an incident or severe event on the Power Station Site. The vehicles and equipment stored within the facility would respond to both conventional and radiological emergencies at the Power Station during the operational phase.

4.3.10. The AECC is located on the first floor of the building and would share amenity facilities with the MEEG. The AECC element of the facility would be used to manage an incident at the Power Station in the unlikely event that the main emergency control centre is unusable.

4.3.11. The indicative gross internal area of the MEEG/AECC building is approximately 1,713m2; ground floor at 1,200m2 and first floor at 513m2.

4.3.12. The functional requirements for this combined facility include the following:

- kitchen and mess room facility to allow for recreation/ rest space;
- toilet and shower facilities with lockers and benches;
- dosimetry room for the issue of dosimetry for 20 people and receipt and dispatch of vehicles from the facility;
- bunk room with multiple means of escape. This room may also be utilised by the occupants on the ESL in an incident response situation;
- windows to non-secure rooms;
- external shrouds to rainwater pipes;
- portable office accommodation units and four ISO containers to be stored on-site for emergency deployment if required;
- 2.4m high site security fencing to the site perimeter and
- independently backed-up power supplies so that the building can remain operational for a period of seven days in the event of loss of off-site power.

4.3.13. The AECC portion of the building would generally be unoccupied, except during routine training periods or following an incident on-site requiring an emergency response team to be based off-site and operate from this remote facility. At such times the AECC facility may be occupied by up to 20 site personnel, plus 10 emergency services personnel. Generally, the MEEG would be unoccupied, except during routine training periods, the periodic vehicle checks or following an incident that requires support vehicles and equipment from the MEEG. As well as providing storage for emergency response vehicles and equipment, following an event, the building would be used to provide the controlled deployment of vehicles to the Power Station Site. In these circumstances all personnel would be briefed prior to leaving the facility and issued with operational and passive dosimetry. These operations would be led by the facility leadership team (four personnel). These four personnel, would be supplemented with an additional 12 emergency response drivers during training or when responding to an incident at the Power Station Site.

4.3.14. During such periods of response, the building would be operated 24/7 and as such the sleeping accommodation is required, along with the need to store seven day's supply of provisions to accommodate both operations located within the building.

4.3.15. The building is to be designed to reflect the local vernacular and surrounding developments in elevational treatment and scale as much as possible whilst satisfying the functional criteria of the facility.

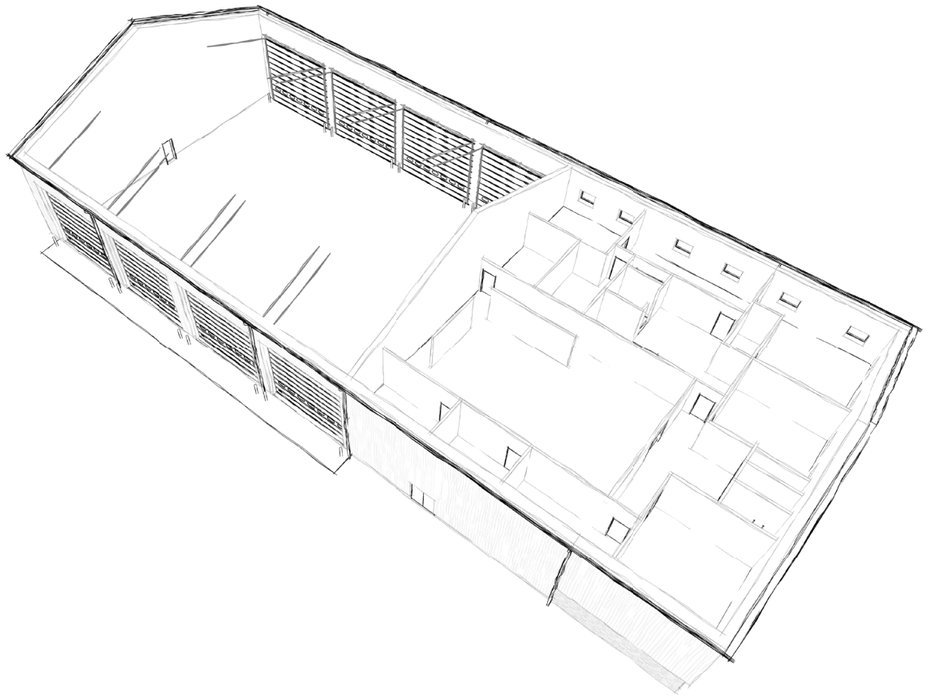


Figure 27 MEEG/AECC indicative building development sketch

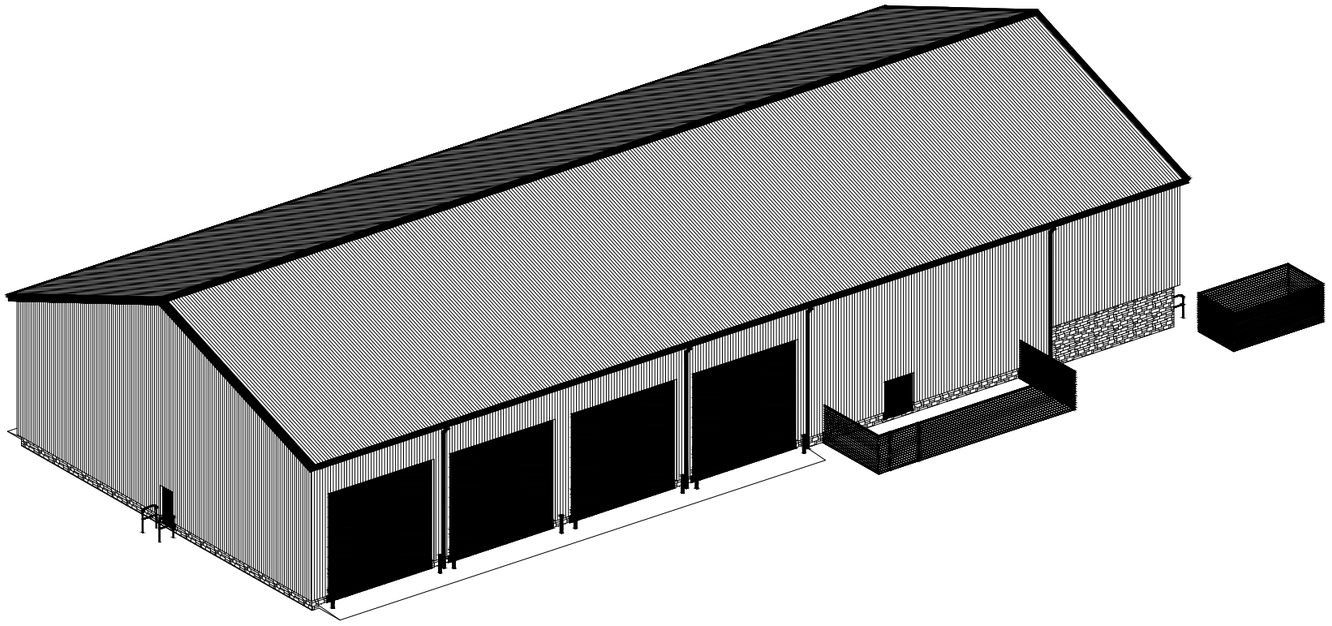


Figure 28 MEEG/AECC building indicative visualisation/massing

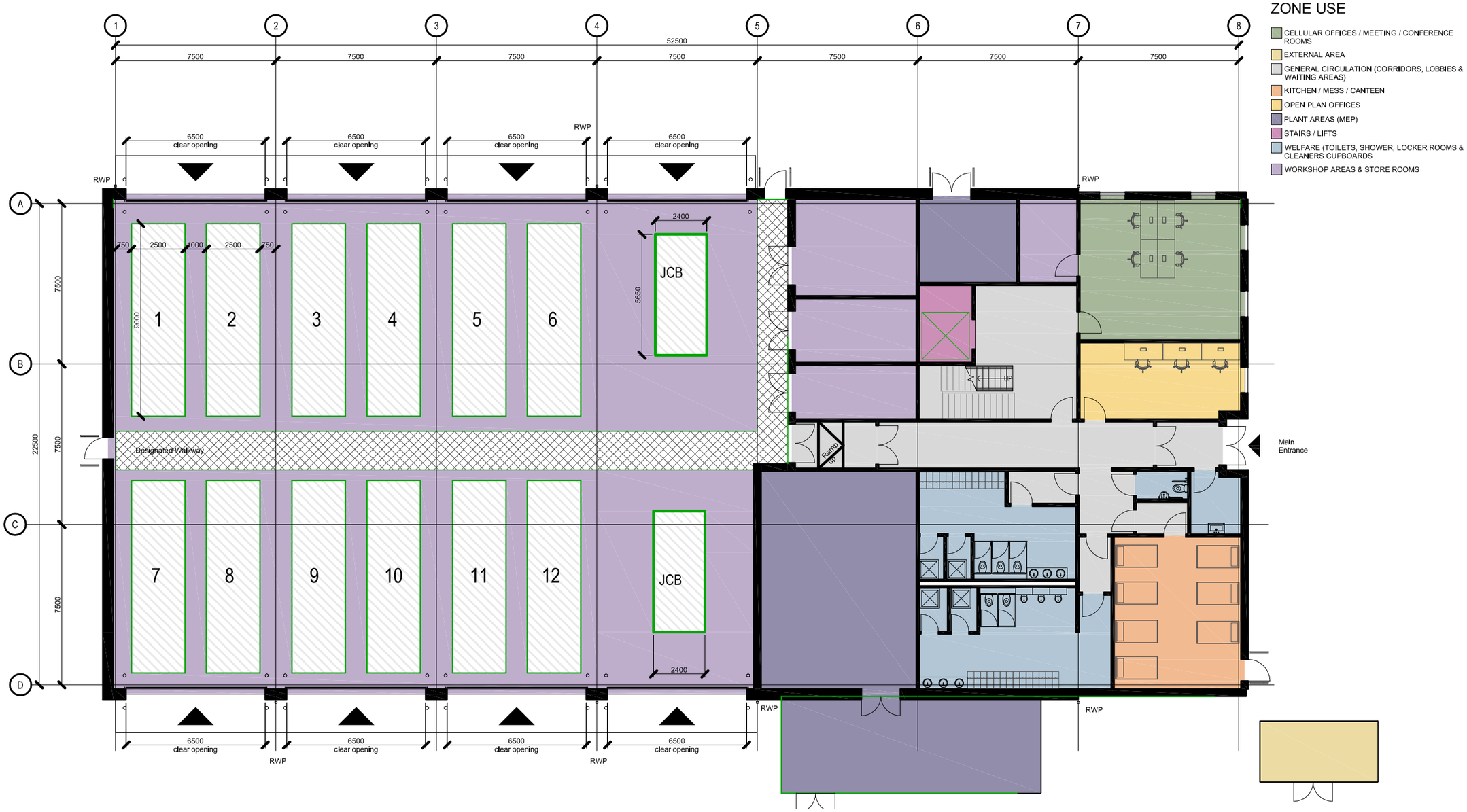


Figure 29 MEEG/AECC indicative building ground floor plan

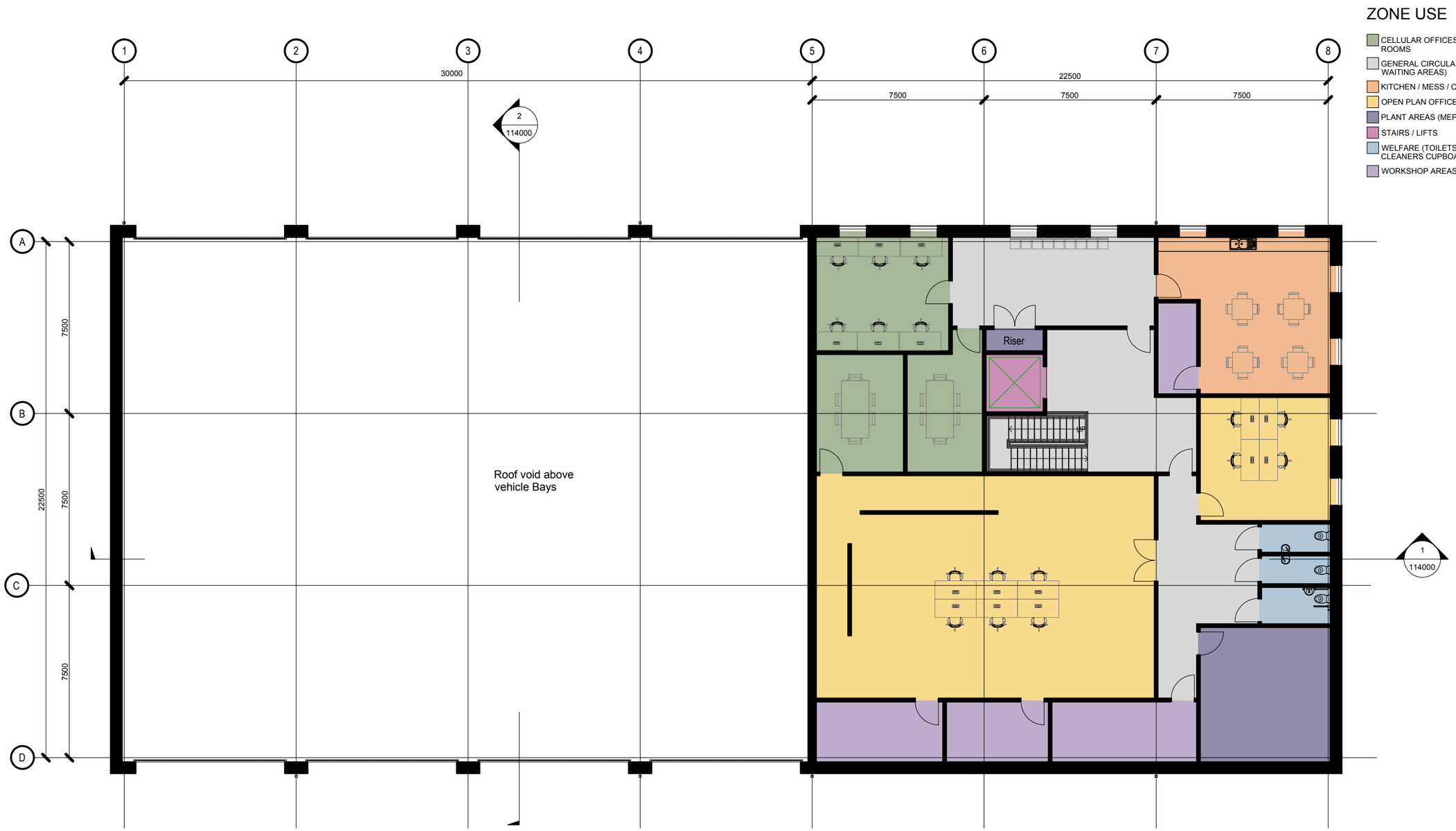
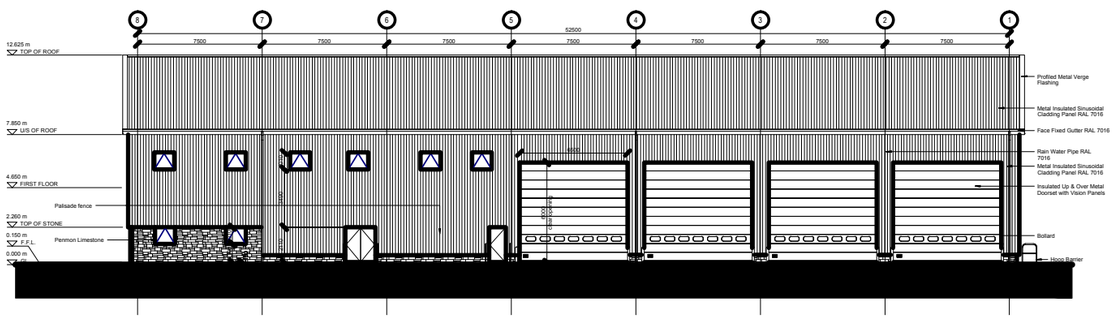
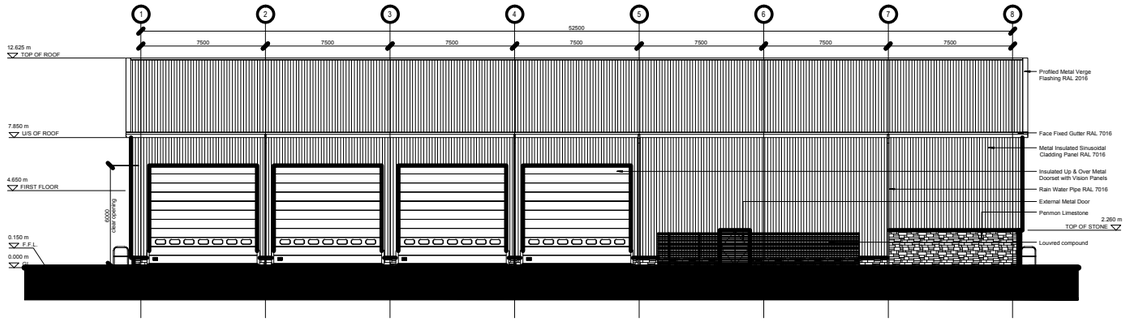
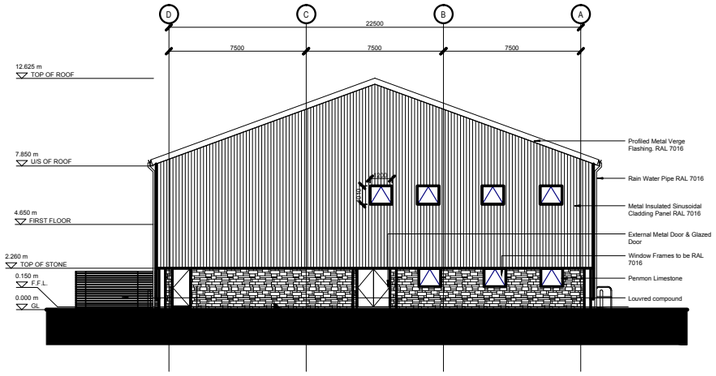


Figure 30 MEEG/AECC building indicative first floor plan







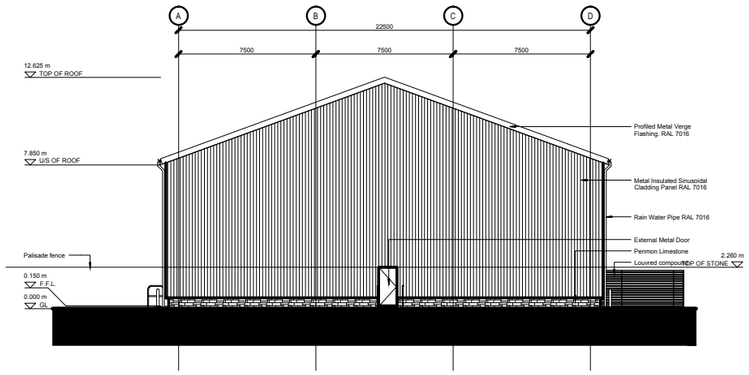
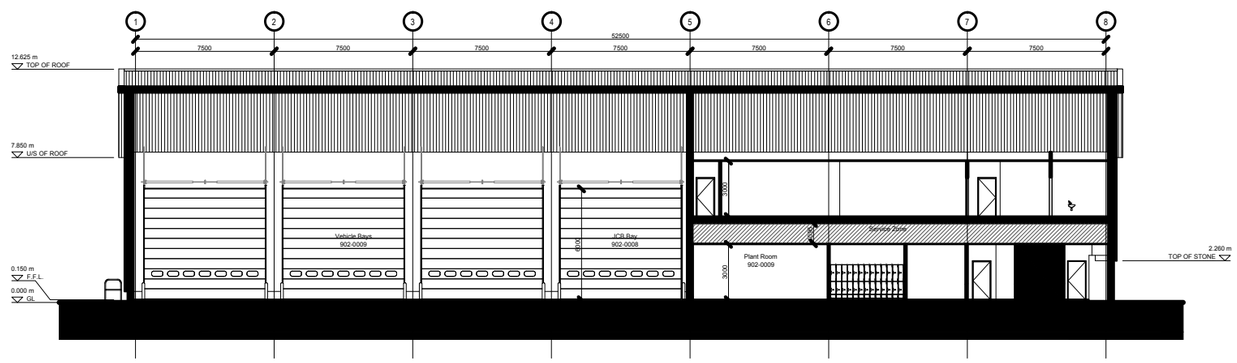


Figure 31 MEEG/AECC building indicative elevations



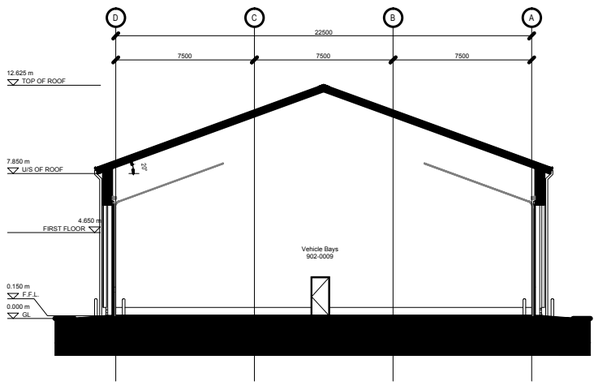


Figure 32 MEEG/AECC building indicative sections

ESL BUILDING

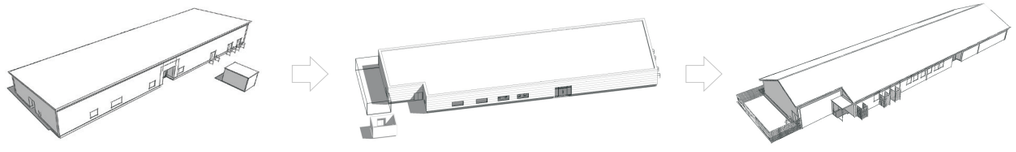
4.3.16. The function of the ESL would be to carry out analysis of environmental survey samples during normal operations and also to analyse samples for radiation levels during an off-site nuclear emergency. The desire to respond to the environment in which the facility would reside has been assessed and as such, materials and a roof form have been introduced to be in keeping with the farmstead vernacular local to the chosen site.

4.3.17. The indicative gross internal area of the ESL building is approximately 365m^2.

4.3.18. It is planned that the ESL would be staffed by up to three personnel during normal operating hours, increasing to up to 12 personnel when deploying monitoring teams. During periods of responding to incidents at the Power Station this facility would be required to operate 24/7.

4.3.19. The functional requirements for the ESL include the following:

- a specialist delivery hatch with direct vehicle access;
- health physics data collection room;
- analysis preparation area;
- analysis room;
- a mess room and food store;
- two distinct clothing stores;
- equipment Store;
- sample and lab stores; and
- toilet and shower facilities. Sleeping accommodation would be utilised within the MEEG/AECC facility following an incident if required.



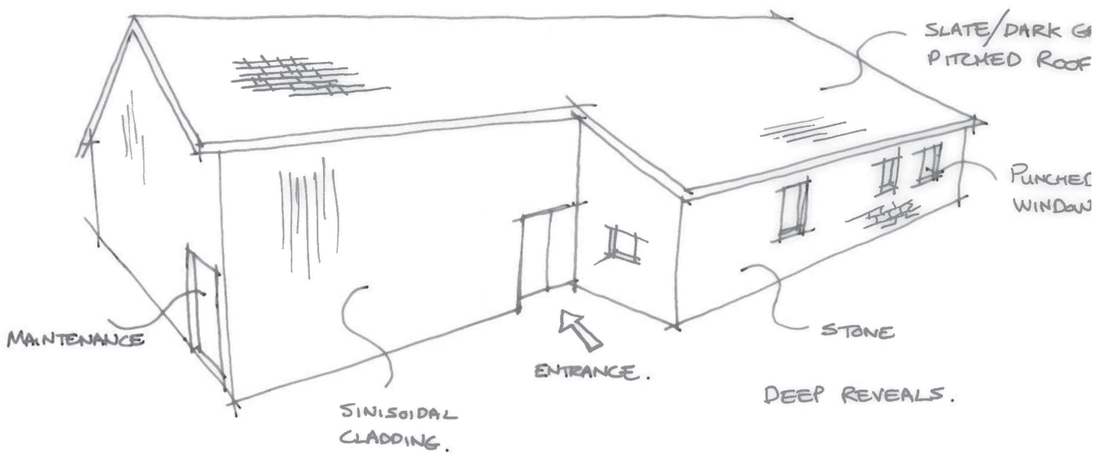


Figure 33 ESL building indicative development sketch

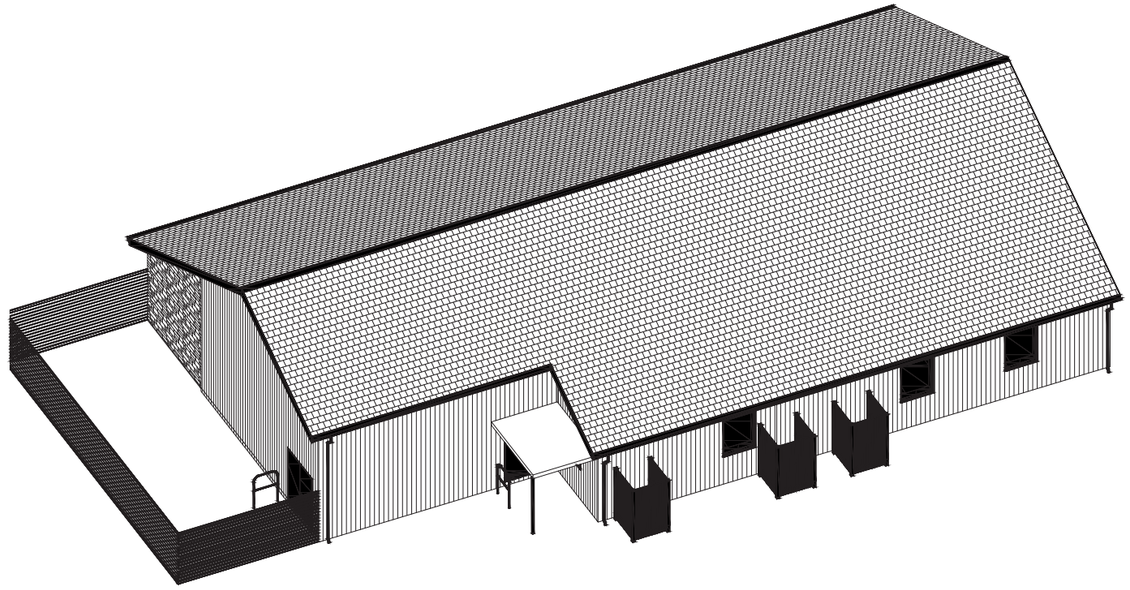


Figure 34 ESL building indicative visualisation/massing

Figure 35 ESL building indicative floor plan

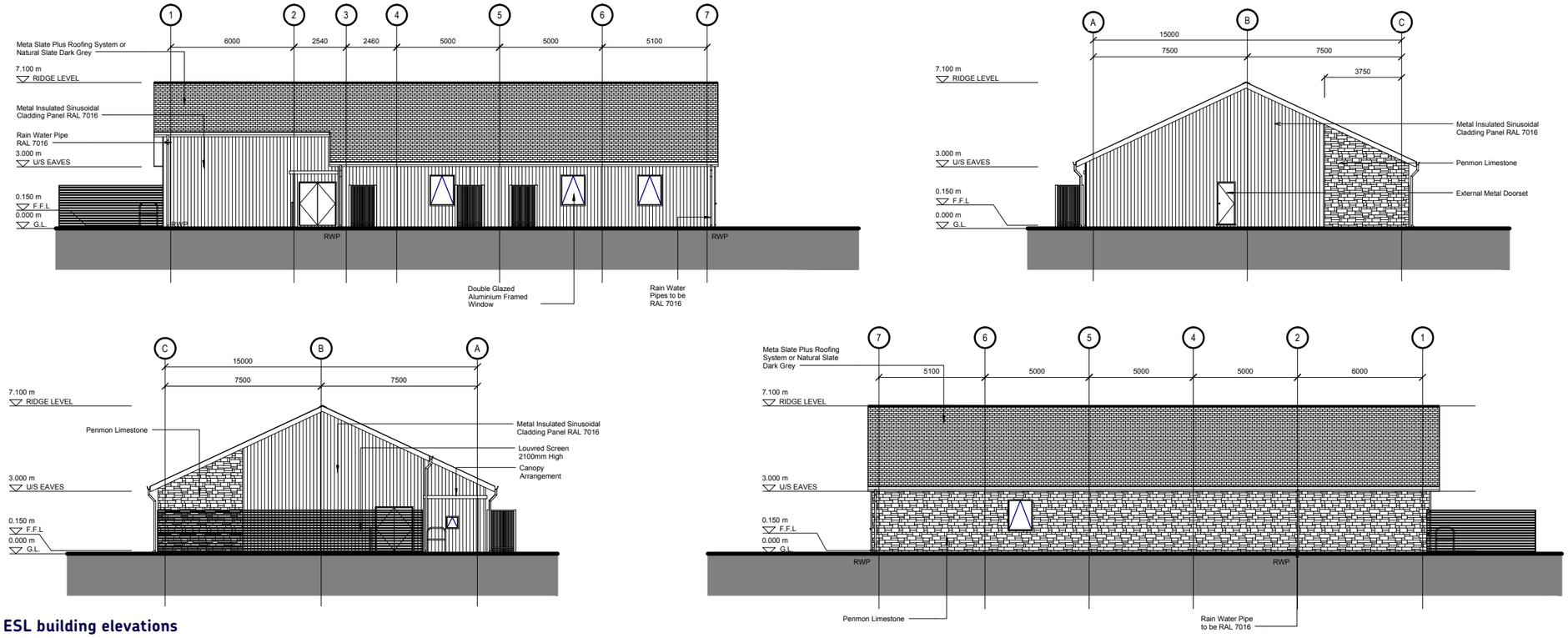


Figure 36 ESL building elevations

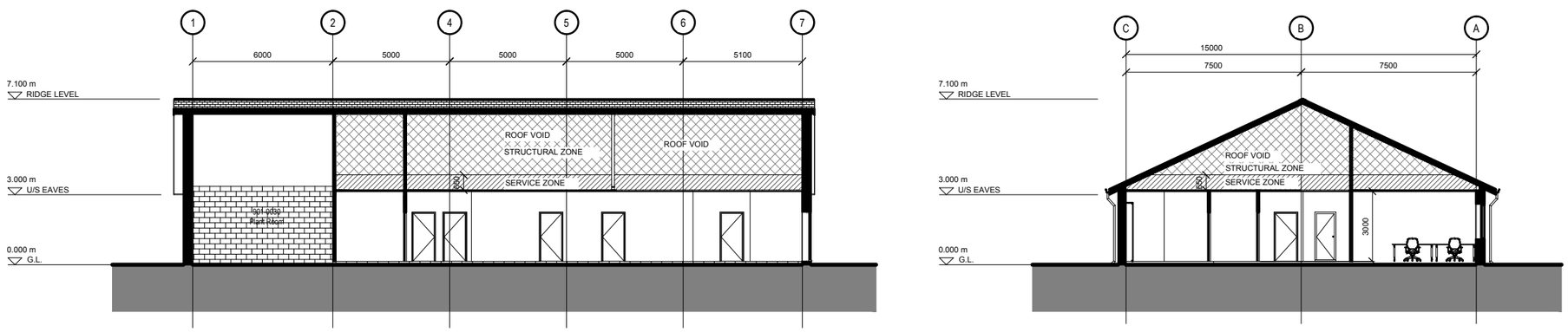


Figure 37 ESL building indicative sections

TYPES OF CONSTRUCTION AND STRUCTURAL SOLUTIONS

MEEG/AECC

4.3.20. The MEEG/AECC building is partially shielded from view by the ESL building from the road. The gradient of the site would also assist in reducing the scale of the building to onlookers passing by the site.

4.3.21. A structural steel portal frame structure with some internal concrete security walls within the ancillary accommodation to the north-eastern end of the facility is proposed. As such, the building has a duo pitch roof profile constructed using a composite metal cladding supported by light gauge purlins spanning between steel beams.

4.3.22. The building façade utilises sinusoidal insulated cladding panels (the same as the ESL building) with stone walling surrounding the lower levels of the ancillary accommodation. This arrangement provides an operationally efficient facility whilst also giving a human scale to the building reflective of the surrounding developments.

4.3.23. Due to the seismic requirement for the facility and safety concerns, the stone walling would need to be reinforced if load bearing or alternatively provided as a non-load bearing element within a rain screen system.

ESL

4.3.24. To accommodate the architectural concept, the proposed structure comprises a single storey steel structure. The building has a traditional pitched roof constructed using a composite metal cladding supported by light gauge purlins on steel beams.

4.3.25. The building façade is formed from composite cladding panels supported by side rails to the elevations facing into the site and by stone walling to the roadside elevation. This has been selected to try to retain/replicate the existing stone wall which forms the boundary of the site in this location so as to retain the streetscape and blend with the local vernacular of the farmsteads and cottages surrounding the development. The cladding utilised would match that proposed for the MEEG/AECC building located further within the site and reflect the barn structures utilised by local farmers. It is proposed to have a vertical sinusoidal profile and be dark grey in colour. The roof would utilise the same material and be complemented by matching fascia boards and dark grey/black downpipes and guttering.

ELEVATIONS AND SECTIONS

THE SITE

4.3.26. The neighbouring properties to the development site are residential properties and commercial storage units with pitched roofs and a mixture of cladding materials, such as stonework, profiled cladding and dark stained timber boarding. Low level stone walls are common along the A5025 giving protection from the roadside to neighbouring residential properties and forming robust lower level walls to the barn developments. Interspersed within the landscape are isolated farmsteads and supporting outbuildings, which have also influenced the massing and illustrative elevational treatments for this facility.

ELEVATIONAL TREATMENT

4.3.27. The buildings on the site would utilise a standard material palette of dark grey coloured vertical sinusoidal cladding and Penmon stone which is native of the area.

4.3.28. The cladding is utilised on the elevations of the buildings which are adjacent to vehicle areas representative of the modern barn buildings in the area. The roofs would be a 20/25 degree pitch and have minimal overhangs to the long elevations with a stepped flashing and exposed gutters and downpipes. External shrouds may be required to deter climbing of the rainwater pipes.

4.3.29. The north elevation of the MEEG/AECC building has been provided with a more tactile and domestic aesthetic as this is the main pedestrian interface with the facility. Here, Penmon stone walls are proposed to a height of 2.1m, with deep set punched windows and doors with dark grey frames to complement the cladding to the rest of the facility. The punched windows reflect the suggested acceptable proportions detailed in the local planning authority's design guidance documents, and would be set back within the wall thickness providing relief to the elevation of the building. A similar treatment is proposed to the ESL facility to its eastern elevation, wrapping round in part onto the north and south elevations which face the access roadway and neighbouring residential property.

4.3.30. Both the pedestrian doors and window frames would be finished in a dark grey colour to tie in with the cladding to the facility. Where pedestrian doors sit within the dark grey cladding these would be provided in a lighter grey colour to tie in with the external colour to the vehicular doors

4.3.31. The external plant areas and refuse stores are screened with similarly dark grey louvres arranged vertically.

MEEG/AECC SECTIONS

4.3.32. The eaves height for this combined two-storey facility has been set at 7.85m with the 20 degree pitch to the roof reflected of the local barns taking the ridge height to 12.63m.

4.3.33. An additional internal structure would be incorporated over the areas required to be within a security enclosure. This internal structure would sit below the main roof line and so would not be visible externally.

4.3.34. The first floor level is set at 4.65m with the ceiling heights within the ancillary rooms within the building set at 3m.

ESL SECTIONS

4.3.35. The building eaves height has intentionally been kept low at 3m to minimise the overall height.

EXTERNAL BUILDING MATERIALS

4.3.36. The materials selected have been chosen to reflect and respond to the local vernacular of the chosen site and its surrounding environment.

4.3.37. The design would utilise a combination of Penmon limestone local to Anglesey and present in many farmstead and buildings in the hamlet of Llanfaethlu, and dark grey vertical sinusoidal cladding representative of many of the more recent barns within the area. The juxtaposition of these materials is utilised to break up the mass of the buildings.

4.3.38. A slate or slate grey profiled cladding roof with a pitch of 20/25 degrees is proposed. This is compatible with the nature of the neighbouring hamlet developments and is in keeping with design guide proposals for development on Anglesey published by the IACC.

4.3.39. The punched windows also reflect the suggested acceptable proportions detailed in these design guides. They would be set back within the wall thickness providing relief to the elevations of the building.

4.3.40. Louvred screens would be utilised to enclose the main external plant areas shielding them from view of vehicles passing alongside the development.

4.3.41. External metal door sets in a dark grey colour to tie in with the sinusoidal cladding would provide both buildings with a more agricultural feel, despite the domestic scale of the ESL building elevation.

4.3.42. Because of the seismic requirement for the MEEG/AECC building, the stone wall cladding would be aesthetic in nature, only providing the external weather protection to the building's structure. Stone is only utilised in the areas of this building which would be passed by staff so as to provide a more human scale and tactile experience. Stone has been proposed to the roadside elevation of the ESL facility in order to try to retain the low level stone wall common to the street scene and already present on the site in this location.

4.3.43. An indicative building materials palette is shown on figure 38.

Figure 38 Indicative building materials palette

4.4 BUILDING SERVICES ENGINEERING PROPOSALS

GENERAL REQUIREMENTS

4.4.1. The general requirements for the mechanical and electrical building services installations will be in accordance with the latest applicable technical guides. The development will be required to pass Part L2A 2014 for Wales and will utilise a host of sustainable measures in order to do so.

SEISMIC INSTALLATION

4.4.2. The building services installation shall be designed with consideration given to the seismic level 1 categorisation of the facility. Particular consideration shall be given to the installation and fixing of building services installations to the primary structure.

INCOMING SERVICES

WATER

4.4.3. A new incoming cold water supply and fire main connection to the site would be taken from Dŵr Cymru Welsh Water's existing infrastructure network as part of the site-wide infrastructure works.

ELECTRICITY

4.4.4. The new buildings would be provided with a secondary substation enclosed within a glass reinforced plastic containerised unit mounted on a suitable concrete base.

4.4.5. The incoming electrical supply for the buildings would be metered. The point of connection for this submission is the fence line of the site.

MECHANICAL SERVICES

4.4.6. Heating shall be provided throughout the new premises by a mixture of low temperature hot water (LTHW) fed heat emitters and variable refrigerant flow (VRF) internal room terminal units. LTHW fed pipe coils shall be provided at high level around the wall perimeter within the smaller rooms (cleaner store, small stores etc.). Heating plant and equipment in the new premises would deliver winter design temperatures within the occupied areas in accordance with CIBSE guidance.

4.4.7. Comfort cooling shall be provided to areas with high equipment and/or occupancy heat gains. Cooling plant and equipment in the new premises would deliver summer design temperatures within the occupied areas in accordance with CIBSE guidance. Cooling shall also be provided to the Communications and Battery rooms to maintain suitable conditions for the equipment installed there.

4.4.8. The ventilation requirements for the new premises are proposed to generally be provided by a combination of natural ventilation, permanent mechanical ventilation and local extract ventilation systems.

4.4.9. The building ventilation system shall be designed to ensure that a comfortable environment is created for the building occupants. Reference shall be made to the following documentation in the development of the ventilation design:

- CIBSE Guide A; and
- Building Regulations Part F.

4.4.10. Where mechanical ventilation is required, fresh air for occupants would be provided at a rate of 12 l/s per person or at a rate necessary to meet the requirements of the activities undertaken on the new premises.

4.4.11. Acoustic attenuation would be provided throughout the building ventilation system in accordance with CIBSE guides.

4.4.12. In the event of a fire or emergency event scenario, the building ventilation system would be designed to automatically switch off.

4.4.13. The mechanical ventilation installation shall provide tempered air only, clean and dirty extract within the new premises to achieve positive ventilation throughout the building.

MECHANICAL VENTILATION SUPPLY AND EXTRACT

4.4.14. The ventilation requirements shall be satisfied by the provision of localised supply/extract heat recovery units (HRUs) at a rate of 12l/s fresh air per person or to achieve the required air changes within the room whilst recovering as much heat as possible from the extracted air.

PUBLIC HEALTH SERVICES

4.4.15. Soil and waste pipework would be installed within the new premises to drain the toilets, wash hand basins, showers and sink units.

4.4.16. The foul water drainage system serving the new premises building is proposed to take the form of a primary vented gravity system (with potential for a pumped element) designed in accordance with the requirements of BS EN 12056 Part 2 – System III and Building Regulations approved Document H.

4.4.17. Where possible each stack would ventilate to atmosphere at roof level. Where this is not practical automatic air admittance valves shall be installed.

4.4.18. All condensate drains from comfort cooling plant and equipment shall discharge internally to the nearest localised foul water drain.

4.4.19. All plant and equipment drainage would connect into the below-ground foul drainage system.

4.4.20. There is no specific requirement to segregate any waste drainage from the general foul and waste drainage installation.

EXTERNAL FIRE HYDRANTS

4.4.21. The site requires a private fire main in accordance with BS 9990.

4.4.22. A separate unmetered underground fire main would be provided throughout the site to ensure an adequate capacity and coverage is available using underground fire hydrants to BS 750.

ABOVE-GROUND FOUL DRAINAGE SERVICES

4.4.23. A system of gravity soil and waste pipework would be installed within the new premises to convey the flow of foul water discharge from the toilets, wash hand basins, showers and sink units. It would connect to the below-ground foul drainage network.

RAIN WATER SERVICES

4.4.24. A rain water drainage system connection would be provided for the buildings and would drain into the sustainable drainage system.

ELECTRICAL SERVICES

4.4.25. The new buildings would be provided with a new electrical supply. Preliminary load calculations estimate the size of supply to be in the magnitude of 438kVA including 20% spare capacity. It is therefore anticipated that the electrical supply entering the building would be 400V 3 phase.

4.4.26. The incoming electrical supply for the facility shall be metered.

4.4.27. The incoming electrical supply for the facility shall enter within a new electrical distribution room. The new electrical distribution room shall house the incoming meter equipment and low voltage (LV) distribution equipment.

4.4.28. The incoming electrical supply to the facility shall be backed-up by a standby diesel generator. The generator installation shall be compliant with the relevant requirements of ISO 8528. The generator shall be located in an external generator enclosure. The generator shall be of an acoustically packaged set arrangement and come complete with its associated control panel and 7-8 hour (on full load) skid mounted storage tank. Bulk fuel storage and fuel delivery to the generator are subject to the development of a site-wide fuel strategy.

INTERNAL LIGHTING

4.4.29. The internal lighting will consider the use of light-emitting diode (LED) luminaires.

EMERGENCY LIGHTING

4.4.30. An emergency lighting alternating current static inverter system shall be installed in accordance with BS 5266-1 throughout the buildings.

ACOUSTICS

4.4.31. The following elements of the design will be considered:

- external building fabric – resistance to noise break-in from the environment and noise break-out to the environment via various elements of the external building envelope (walls, door, glazing, ventilation, etc.);
- internal building fabric – resistance of internal floors, partitions and building services elements (e.g. ducting) to the passage of sound between rooms. This could be important where noise-sensitive and/or noise-producing spaces are located adjacent to each other or where privacy is required;
- room acoustics control – requirement for acoustically absorbent finishes (e.g. suspended ceilings or wall panels), where appropriate, to control reverberation for ensuring suitable speech intelligibility and/or to minimise excessive noise;
- building services noise and vibration control – requirement for building services to not detrimentally affect a space's intended use through the use of, for example, attenuators, ductwork lagging, acoustic louvres, springs, dampers, etc.; and
- plant noise control – requirement for controlling both airborne and structure-borne plant noise and vibration which could potentially affect spaces within the future building or nearby sensitive receptors.

4.4.32. Whilst the MEEG would not be staffed on a day-to-day basis, it would support 24-hour working when required for training events and/or incidents. The design would therefore incorporate measures to, in particular:

- ensure the suitability of noise-sensitive spaces for their proposed uses, particularly the briefing room, control room, communications room and sleeping quarters (four-person), the latter of which are located adjacent to the internal plant room and external plant area, which poses a potential risk for excessive noise transmission; and
- minimise plant noise emissions during the day-time and night-time to nearby, noise-sensitive receptors in the local area, particularly for existing residential receptors located adjacent to the site boundaries and close to the external plant area.

4.4.33. Noise Ratings (NR) shall be maintained within the levels generally defined below:

- Control Room NR35
- Briefing Room NR35
- Kitchen NR40
- Sleeping Quarters NR30
- Small Workshop NR45
- Vehicle Bay/JCB Bay/ISO Bay NR45
- Shower Areas NR45
- Corridors and Lobby Areas NR40
- Toilet Areas NR45
- Cleaner Store NR45
- Stores NR45
- Stores (Vehicle Hall) NR45
- Comms / Battery Rooms NR45
- Plant Room NR50
- LV Room NR45.

4.4.34. Plant and room noise levels would not exceed the requirements as stated above.

4.4.35. Building services installations shall, where required, be provided with all necessary attenuators, acoustic enclosures / insulation and anti-vibration equipment such that their sound power contribution within a room does not cause the NR as defined within that room to be exceeded.

4.4.36. Cross talk attenuation would be included on all ductwork passing between sensitive spaces.

FIRE STRATEGY

4.4.37. An analysis of the fire safety infrastructure of the overall site has been undertaken. It is a legal requirement that the Wylfa Newydd DCO Project meets the functional requirements of the Building Regulations 2010. The buildings have been evaluated to meet 'Welsh' Approved Document B Volume 2:

4.4.38. B5: Site access for tenders and site fire infrastructure like tanks and pump house buildings, and hydrants.

4.4.39. Good fire tender access is provided up to the west, east and south of the buildings, with full turning circles.

4.4.40. The site requires a fire main connection off the street.

4.4.41. The site will be provided with a private fire mains sourced from a dedicated supply, to feed fire hydrants located within 90m of the building entry point, and not more than 90m apart. Each fire hydrant shall be provided with an indicator plate in accordance with BS 3251.

4.4.42. There are to be underground tanks containing diesel. These will be designed to comply with regulations.

4.4.43. If foam has been used during fire-fighting, e.g. a vehicle or diesel fire, then it must be collected via an interceptor and tankered away after a fire event.

4.5 EXTERNAL LIGHTING PROPOSALS

DESIGN PHILOSOPHY

4.5.1. The lighting requirement varies from day-to-day operation, after hours lighting and emergency events. The lighting design approach is about understanding the environment in which this site is located.

4.5.2. Designing to the maximum requirement would not be good practice and advances in controlling lighting have enabled an approach that is adaptive with consideration of the local environment and the dark skies policy, but also ensuring that in the event of an emergency during the night the lighting would enable staff to complete their tasks safely.

4.5.3. Lighting would be designed to avoid/minimise any light spill onto adjacent buildings and onto watercourses and boundary features, including hedgerows and other habitats, in particular the stream to the east of the site.

4.5.4. White LED lighting is proposed as lighting can appear brighter whilst minimising lux levels.

DESIGN ASSESSMENT

4.5.5. The lighting levels required for the facility will be compliant in accordance with and with BS 5489-1:2013 – Code of practice for the design of road lighting and BS EN 12464-2:2014: Lighting of Outdoor work places.

4.5.6. The lighting design would focus on the following areas:

- site entrance;
- MEEG/AECC building;
- ESL building;
- car parking;
- overspill parking;
- pedestrian paths; and
- access/delivery areas (to west and east of MEEG/AECC building).

4.5.7. The design would work under the "broad consideration" that the IACC is working towards a Dark Sky Reserve Status. As such:

- the control would allow the need for full lighting to be operated in the event of an emergency;
- consideration would be given to the presence of existing road lighting; and
- lighting design would be carefully planned to minimise light spill onto adjacent and environmentally sensitive areas, watercourses, hedgerows and other habitats.

SITE ENTRANCE

4.5.8. The entrance to the site is from a road which is not lit. Subject to the predicted volumes of traffic entering this site during the late afternoon and early morning, there would be a requirement to light the entrance to the site from the road. This would allow vehicles on the road to be aware of any HGVs entering and exiting the site. The design would allow for switching these lights off after hours with the ability to activate them in an emergency situation.

MEEG/AECC BUILDING

4.5.9. In the event of an emergency, this site will require enough light so the staff can move and access their equipment quickly and safely; this will involve heavy machinery and equipment. It is not appropriate to have this emergency level of lighting operating every evening. The lighting at this site would be responsive. There will be three levels of light: two levels programmed for every evening, for normal operating times – this level will be 50% of the emergency level, and a security lighting level switching levels down to a minimum at the end of the working day. An override will be programmed into the system so if an emergency event occurs the lighting can be switched to maximum for that period to facilitate safe movement of heavy duty vehicles and equipment.

ESL BUILDING (AREA 1 TO WEST OF SITE)

4.5.10. The ESL building light levels will be dependent on predicted vehicular movement and also allowing for articulated vehicles turning. Due to the rural nature of this site, and the environmental zone classification of E2 and based on the BS EN 12464-2:2014 standard section 5.4, this area has been proposed to be lit to 10 lux average with a uniformity of 40%. Luminaires would be required to have no tilt and be mounted at 6m. An LED light source will be specified with a colour temperature of 4000K. Lighting levels will be lowered at night subject to confirmation of normal working hours and the lights would be dimmed by at least 30%.

CAR PARK AND PEDESTRIAN FOOTPATH

4.5.11. Due to the rural nature of the site, and hedgerow adjacent, the environmental zone classification of E2 and based on the BS EN 12464-2:2014 standard section 5.4, this area has been proposed to be lit to 5 lux average with a uniformity of 25%. A luminaire will be wall mounted on the MEEG building. Lighting levels would be lowered at night and the lights would be dimmed by at least 30%.

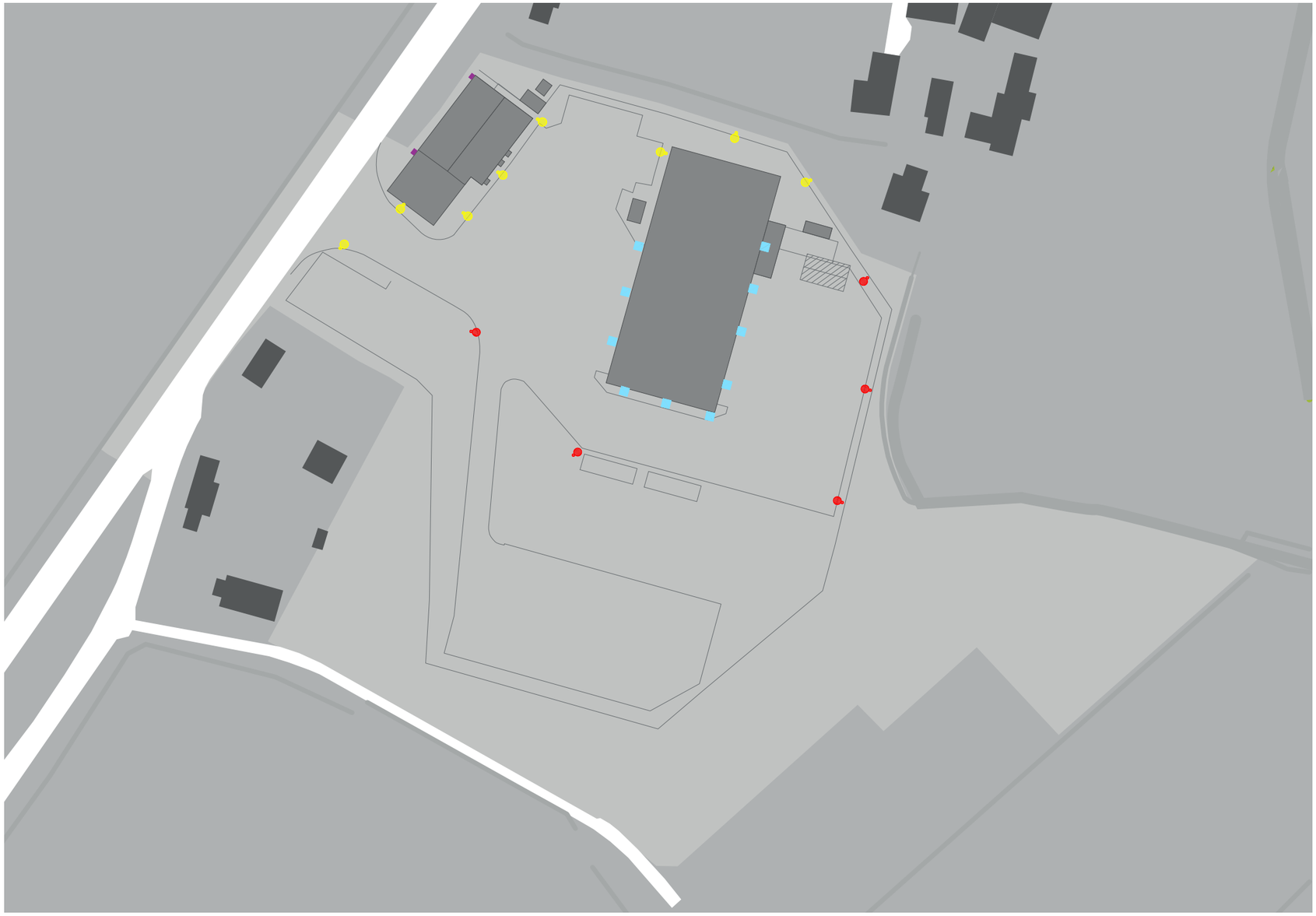
OVERSPILL CAR PARK

4.5.12. The A5025 attenuation pond is located to the east of the overspill car park and hedgerow planting is proposed along the site boundary which would act as a shield to any light spill onto adjacent land. Also, this car park would not be used during normal operational hours, only during an emergency. Based on the proposed location and usage, the proposal is not to provide any lighting to this area.

MEEG BUILDING AND STORAGE AREA (AREA 2 TO EAST OF SITE)

4.5.13. The lighting level in the area to the east of the MEEG/AECC building will be dependent on predicted vehicular movement in and out. Due to the rural nature of the site, the environmental zone classification of E2 and based on the BS EN 12464-2:2014 standard section 5.4 it is proposed that this area would be lit to 10 lux average with a uniformity of 40%. The luminaire specified would have a 50% higher lumen output, but these units will operate at 50% capacity. This allows for the lighting levels to be increased during an emergency event. Luminaires would be required to have no tilt and be mounted at 6m. A LED light source has been recommended with a colour temperature of 4000K. Lighting levels may be lowered at night and the lights may be dimmed while there is no loading/unloading.

4.5.14. A proposed lighting plan is shown in figure 39.



Legend

- Post top mounted at 6m. LED C.5000LM-4000K
- Post top mounted at 8m. LED C.8000LM-4000K
- Wall mounted at 7m height with a 0.5m bracket. LED C.8000LM-4000K
- Wall mounted (other)

Figure 39 Indicative lighting strategy

5 ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability

5.1 INTRODUCTION

5.1.1. Horizon is committed to the process for embedding consideration of sustainability going forwards by continuing to develop the structured exercise of identifying, capturing and documenting sustainable design opportunities and measures. This process fosters good sustainable design practices, relating to design decisions that are in the first instance practicable (i.e. cost effective), and demonstrate positive outcomes against Horizon's Sustainability Assessment's Objectives.

5.1.2 The overarching approach to sustainable design and construction of the Wylfa Newydd DCO Project is set out in Volume 1 of the DAS and in the Sustainability Statement [APP-426] submitted in support of this application. This chapter outlines environmental sustainability measures that would specifically apply to the Off-Site Power Station Facilities element of the Wylfa Newydd DCO Project.

5.1.3. This chapter summarises how the design of the facility has taken into account sustainability during the design development process to date with a view to passing Part L2A 2014 Building Regulations for Wales. Appendix 1-6 of Volume 3 of the DAS includes a review of sustainability guidance from national and local planning guidance, and identifies key sustainability themes. This chapter of the report describes how the development would incorporate good practice sustainable design measures in relation to each of these themes and includes recommended next steps to ensure that sustainability is embedded in the design, construction, operation and decommissioning of the development going forward.

5.2 ENERGY HIERARCHY

5.2.1. A low energy design shall be achieved by adopting the following hierarchy of strategic principles, ordered to represent their relative potential benefits both economic and practical.

A. MINIMISE USE

5.2.2. The MEEG/AECC building is only to be used in an emergency or training event. Building designed to use minimum resources (e.g. heating, power) when not in operation.

5.2.3. Internal temperatures – allow the internal temperature to vary according to external conditions.

5.2.4. Lighting – lighting levels have been considered and designed appropriately for the facility requirements. This includes intelligent system which reduces lighting levels when areas of the facility are not in use.

B. REDUCE WASTE

INSULATION

5.2.5. Insulation optimised to reduce the heating and cooling requirement.

AIR TIGHTNESS

5.2.6. Build tight and ventilate right – the buildings will be well sealed using robust building details to ensure that the ventilation is controlled.

CONTROLS AND ZONING

5.2.7. The buildings are zoned and the controls appropriate such that when areas of the building are not in use the services are off or on standby.

C. RECYCLE

HEAT RECOVERY

5.2.8. Efficient heat reclaim systems have been considered for all mechanical ventilation systems.

D. GENERATE

5.2.9. Renewable energy systems have been proposed to reduce and offset the carbon impact of the development.

5.3 SUSTAINABLE DESIGN

GENERAL

5.3.1. The illustrative design has incorporated the following sustainability measures:

- enhanced/reinstated field boundaries;
- enhanced biodiversity introduction of grass swale, species-rich hedgerows and dense tree and shrub planting;
- selection of native plant species to reflect surrounding pattern and planting make-up;
- use of grass swale to help with management of surface water runoff and flood alleviation;
- choice of materials, robust and reflecting local farmstead vernacular, concrete 'farmyard area' for vehicular movement, concrete block for pedestrian paving and staff car parking areas;
- use of sensitive cut off lighting to minimise light spillage;
- reinforced grass surface for overspill car parking; and
- locating the buildings within the brownfield area of the site and thus minimising impact on existing greenfield area to the south.

SITE ANALYSIS, LAYOUT AND PASSIVE DESIGN

5.3.2. The site is split into two areas, a brownfield site to the north that is currently used as a bus depot and maintenance yard and farmland to the south.

5.3.3. A landscape constraints and opportunities mapping exercise was undertaken for the site taking into account key views, existing vegetation types, watercourses and ecological features. The illustrative design has been chosen to be sympathetic to the local landscape. For example, the external façade of the building will be designed to blend in with the local farmstead vernacular. A constraints drawing has been produced (figure 13).

5.3.4. A planting scheme is proposed which would reflect local character and enhance ecology.

ENERGY AND CARBON

5.3.5. The illustrative design follows a 'fabric first' approach with low U-values and a high level of air tightness. The proposed building services include efficient gas boilers and heat pumps.

5.3.6. The building services design proposals include energy sub-metering and monitoring for all major energy uses within the buildings. Any high load areas would also be sub-metered. This would be managed by a central building management system which would allow for more effective energy management during operation.

5.3.7. Highly efficient LED lighting is proposed for internal and external areas. External lighting would be controlled (e.g. photocell with time switch) to avoid operation during daylight hours.

5.3.8. It is proposed that a permanent power supply would be available on-site from the start of construction to enable construction site activities to be powered by grid electricity where feasible, thus providing energy and carbon savings compared with using electricity generated on-site through less efficient means e.g. diesel generators.

5.3.9. The external lighting would be specified in accordance with the Institute of Lighting Practitioners guidance note for the reduction of obtrusive light. This would ensure that external lighting is concentrated in appropriate areas and upwards light is minimised, reducing unnecessary light pollution, nuisance to neighbours and light spill onto ecologically sensitive areas.

5.3.10. The proposed heating source is electricity which has low NOx emissions at a local-level thus providing a local air quality benefit.

5.3.11. The illustrative design allows for the mitigation of watercourse pollution through the use of SuDS techniques, such as permeable paving, where feasible.

POLLUTION

5.3.12. The fuel used in the standby generator would be ultra-low sulphur diesel (0.001% sulphur content), which would reduce emissions of sulphur dioxide from the generator exhaust by a factor of 100 compared to standard gas oil with a sulphur content of 0.1%.

5.3.13. The external lighting is proposed to be specified in accordance with the Institution of Lighting Professionals guidance note for the reduction of obtrusive light, which would ensure that external lighting is concentrated in appropriate areas and upwards light is minimised, reducing unnecessary light pollution, nuisance to neighbours and light spill onto ecologically sensitive areas.

5.3.14. The illustrative design allows for the mitigation of watercourse pollution through the use of SuDS techniques. Oil interceptors are proposed for areas where there is a higher risk of watercourse pollution such as the vehicle manoeuvring and delivery areas. All water pollution prevention systems are proposed to be designed and installed in accordance with the recommendations in Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SuDS manual (CIRIA, 2015).

5.4 WATER

5.4.1. The water and drainage design aims to identify:

- the surface water drainage strategy including attenuation proposals and any discharge into local watercourses and preventing pollution;
- the foul drainage strategy including any wastewater treatment package plant requirements; and
- the potable water strategy.

5.4.2. The design proposals include water-efficient fittings such as low flush toilets which help reduce water consumption. More detailed specifications will be developed at a later stage in the design process in accordance with recognised best practice for water efficiency.

5.4.3. The proposals also include water metering and monitoring, including sub-metering of major water consuming items/facilities. This allows for more effective water monitoring and management during operation.

5.4.4. Proposals for the landscaped areas exclude the need for any dedicated mains-fed irrigation. This section provides the water and drainage proposals associated with the design, including the strategy covering proposed potable water networks and foul and surface water drainage networks at the proposed facility.

SURFACE WATER DRAINAGE REQUIREMENTS

5.4.5. A new surface water network is proposed to serve the site's drainage requirement.

5.4.6. The storm water storage solution proposed is in the form of a grass swale which runs through the middle of the site combined with below-ground geo-cellular structures. Protection against pollutants and contaminants would be provided with oil separators located upstream of outfall. Surface water flows would be discharged into the local watercourse, subject to an environmental discharge consent.

5.4.7. There are a number of existing services crossing the site which include existing A5025 surface water drainage pipework. It is proposed to remove this pipework as part of the works.

5.4.8. The surface water strategy is visualised in figure 40.

FOUL WATER DRAINAGE REQUIREMENTS

5.4.9. Initial discussions have been held with the local Water Authority (Dŵr Cymru) to identify foul sewer services which have shown connection feasibility. Foul flows generated on-site would be discharged to the existing treatment plant located just outside the south-east of the site, before being discharged to a watercourse.

POTABLE WATER REQUIREMENTS

5.4.10. Initial discussions have been held with the local Water Authority to identify potable water services which have shown connection feasibility. There is a known potable distribution main that runs along the existing A5025, from which it is proposed to take a potable water supply for the site.

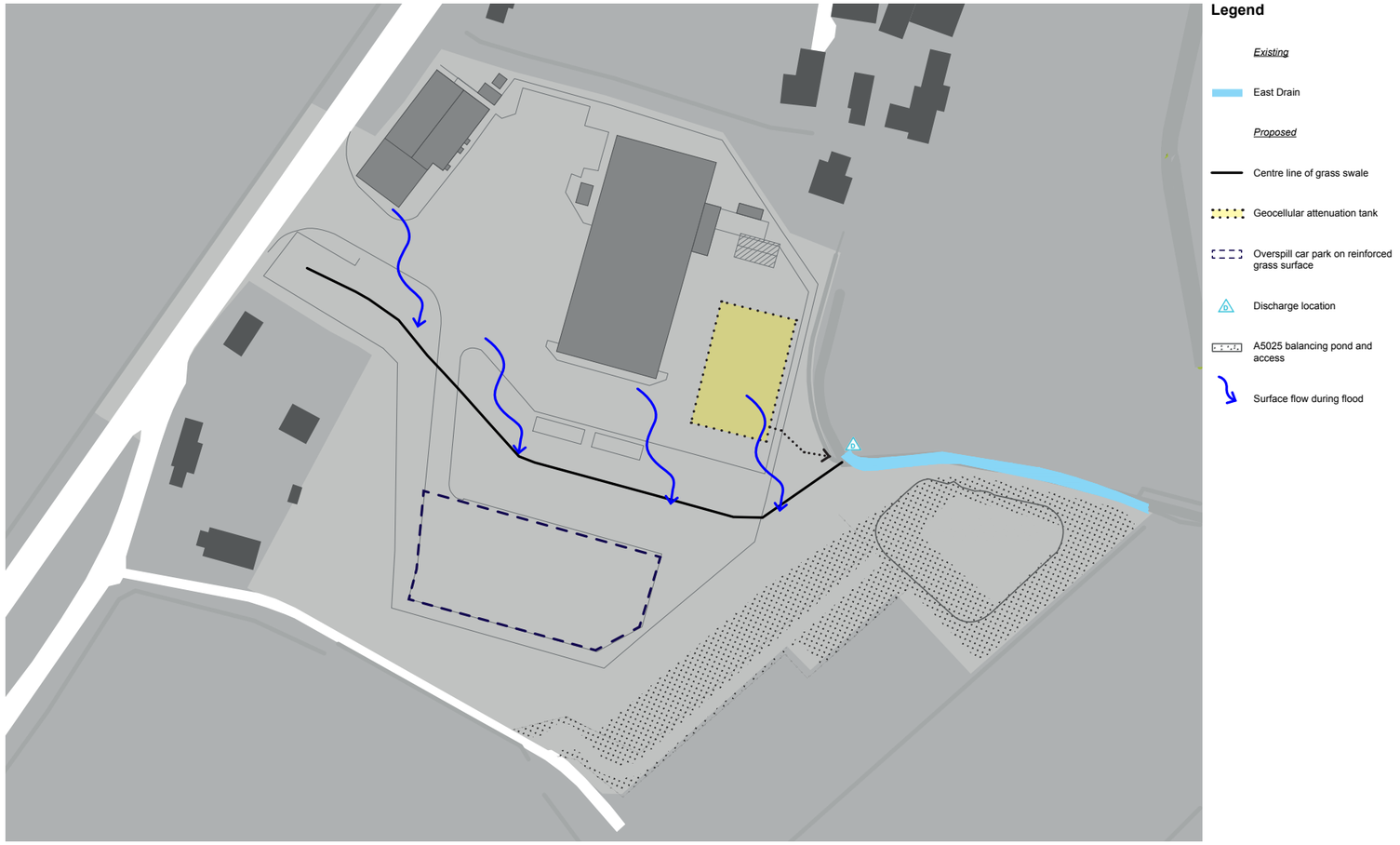


Figure 40 Indicative surface water strategy

5.5 SUSTAINABLE MATERIALS

5.5.1. The proposals are designed to make efficient use of materials.

5.5.2. Preference would be given to the use of sustainable materials. It is anticipated that major building elements including external walls, roof, internal walls, floor finishes and insulation would be specified to achieve an A or A+ rating in the Green Guide to Specification.

5.5.3. During detailed design, the following sustainable material use measures would be reviewed and applied where feasible:

- the use of materials with recycled content;
- the use of materials with Environmental Product Declarations; and
- the use of responsibly sourced materials (e.g. BES 6001 certified, FSC timber).

5.6 NATURAL HABITATS

5.6.1. The development site has been surveyed by a suitably qualified ecologist to identify any features of ecological value and protection and mitigation measures required. The findings and recommendations have been incorporated in the landscape design. This has been described in more detail in section 4.2 Landscape proposals.

5.6.2. Existing features of ecological value including streams and hedgerows would be protected through the incorporation of appropriate buffer zones.

5.6.3. The proposals seek to reduce temporary land use during construction through siting the construction compound on an existing area of hard standing.

5.7 WASTE

5.7.1. The waste management system will be designed to incorporate the following:

- An external screened open-top compound for the parking of commercial waste bins for recyclables and mixed waste:
  - separate collection of recyclables and waste electrical and electronic equipment; and
  - separate collection and storage for hazardous waste.
- No processing of waste, hazardous or otherwise, is to be allowed for within the current design proposals; only pick-up.
- Laydown area and collection of waste to be near site entrance outside the pedestrian gate.
- In the offices, central wastebaskets would be provided to separate recyclable waste at source.
- Waste water handling and sanitation provision (typically through hook-up to the foul water mains, to be confirmed after consultation with utility provider):

5.7.2. It is anticipated that the proposed scheme will require a net import of fill material. In relation to soils:

- Topsoil would be stripped from the overspill car park access road and the area designated for the swale. Topsoil would remain in situ elsewhere.
- The majority of subsoil would remain in situ wherever it is present across the site. However, limited volumes would be stripped in certain areas, for instance from the area designated for the swale and from the overspill car park access road.
- Temporary soil storage would be limited in terms of volume and length of time, and would only be in the construction phase. Topsoil (and subsoil as required) that does not have a certainty of use on-site and that is suitable for use, would be exported off-site for sustainable re-use at a suitable receptor site as soon as practicable, either elsewhere within the Wylfa Newydd DCO Project, or at another site via the Contaminated Land: Applications in Real Environments (CL:AIRE) register of materials.

5.7.3. The waste collection area shall be easily accessible to both building occupants and by waste management contractors to facilitate collection.

5.7.4. Consideration will be given to waste minimisation using Horizon's principles of waste hierarchy minimisation (in decreasing order of preference):

- Prevention and minimisation
- Preparing for re-use
- Recycling
- Other recovery
- Disposal.

5.7.5. A pre-demolition audit of the site will be carried out, with a view to considering the re-use and recycling of existing infrastructure.

5.7.6. The contractor will be required to produce and monitor a site waste management plan and materials management plan in accordance with the Horizon Waste Hierarchy and CL:AIRE Code of Practice.

5.8 CLIMATE CHANGE

5.8.1. The proposed surface water drainage design is based on a one-in-100-year storm event, which includes an allowance for climate change. Flood modelling has been undertaken to ensure there are no significant issues caused by a one-in-10,000-year storm event. The proposals for the development include measures to minimise surface water runoff by incorporating a swale running through the centre of the site.

6 COMMUNITY SAFETY

Community safety

6.1 NATURAL SURVEILLANCE

MANAGEMENT REQUIREMENTS

6.1.1. The MEEG and AECC are not proposed to be manned except during training events and in an emergency. The ESL is a manned facility during working hours. It is not proposed to have any security personnel present on-site during normal operation. Any security management would be undertaken remotely.

FENCING STRATEGY

6.1.2. Consideration has been given to meeting the dual aims of security and minimising visual impact in the selection of the perimeter fencing system. The compound perimeter would require 2.4m high Paladin-type fencing. The site perimeter would be fenced with landscaping behind.

Figure 41 Indicative security strategy

LIGHTING

6.1.3. Lighting would be provided within the boundary of the site and would generally be pole mounted.

6.1.4. External lighting would be to the minimum lux level required to meet applicable standards.

6.1.5. When the facility is unmanned the lighting would be minimal.

ACCESS AND CONTROL SYSTEMS

6.1.6. The site would be accessed from two locations (one vehicle access and one pedestrian access). Both entrances would have gates to the same height as the perimeter fence. Access through these gates would be via a key access.

CLOSED CIRCUIT TELEVISION (CCTV)

6.1.7. CCTV would be provided at strategic locations within the site.

- CCTV can be located on lighting columns or on 5m height camera columns (dependent on CCTV/lighting survey and design).
- All exits to be covered by CCTV for the purposes of identification.
- Cameras on or around buildings locations omitted from figure for security purposes.

SAFETY AND SECURITY

6.1.8. The design of the facility is proposed in accordance with Horizon requirements and Critical Infrastructure protection set by the UK Government (CPNI, 2016). This allows for a low risk, safe and secure environment across the site. The following security provisions would be incorporated into the design.

- fencing would be provided as a minimum around the entire perimeter;
- external lighting designed to BS5489;
- keyed access would be required to the entrance and exit to the site; and
- CCTV.

6.1.9. A review of best practice safe access requirements has been undertaken by the design team, this identified that the following measures to maximise pedestrian and cyclist safety have been included in the design:

- a separate pedestrian entrance from the A5025 at the north-west of the site;
- pedestrian areas generally kept to the north of the site, providing safe access to both buildings;
- the lighting for access roads, pedestrian routes and cycle lanes is compliant with BS5489-1:2013 Lighting of roads and public amenity areas; and
- parking and turning areas are designed for simple manoeuvring, thus avoiding the need for repeated shunting.

6.1.10. It is proposed to erect security fencing around the site establishment facility during the construction phase. Entry to the site would be through electronic, pass activated turnstiles. All personnel working on the Wylfa Newydd DCO Project would have a site-specific safety induction prior to the issue of a security pass. A security facility would be provided at the entrance to the site. All vehicles and pedestrians accessing and leaving the site would be logged in and out. Visitors would be escorted at all times during their time on-site.

6.2 COMMUNITY

HEALTH, WELL-BEING AND SOCIAL ISSUES

6.2.1. The proposals include the provision of an external window to all offices and meeting rooms. This would provide a view out to allow occupants to refocus their eyes and enjoy an external view, thus reducing the risk of eyestrain and breaking the monotony of the indoor environment.

6.2.2. All regularly occupied spaces within the buildings are specified to be fitted with user operated glare control, such as blinds, to remove unwanted glare when required.

6.2.3. Ventilations rates for occupied spaces in the development are specified to good practice standards.

6.2.4. Internal lighting shall be designed to be in accordance with the Society of Light and Lighting (SLL) Code for Lighting 2012 to provide best practice lighting standards. External lighting would be designed in accordance with best practice standard BS5489.

6.2.5. The design proposal allows for appropriate zoning of internal lighting to give building staff and building occupants (where applicable) a good level of control.

6.2.6. It is proposed that the construction contractor would be required to comply with the Considerate Constructors Scheme to minimise nuisance to the local community.

ADJACENCIES TO OTHER FACILITIES

6.2.7. There are a number of residential properties in the vicinity of the site, located primarily either side of the existing entrance when viewed from the A5025. In addition, there are also scattered properties to the rear of the site with agricultural holdings beyond in the surrounding countryside.

6.2.8. There is a property at the south-west of the site that is incorporated into the site boundary. The intention is that this property would be demolished to provide space for the site drainage.

6.2.9. As such, the design of the ESL building would incorporate stone-effect cladding to reflect the current building and properties either side of it. The MEEG/AECC building would reflect local agricultural buildings.

7 ACCESSIBILITY

Accessibility

7.1 INCLUSIVITY ACCESS AUDIT

7.1.1. An inclusivity access audit has been undertaken for the site.

7.1.2. It is intended that there should be no discrimination against any person wishing to work on the Wylfa Newydd DCO Project, either on a temporary or a permanent basis.

7.1.3. The site will be fully compliant with the recommendations of British Standard (BS) 8300 Design of buildings and their approaches to meet the needs of disabled people. Code of practice.

7.2 TRANSPORT AND ACCESS

7.2.1. The proposed Off-Site Power Station Facilities are a key component of Horizon's emergency response facilities. The facility would be accessed during the following scenarios.

- Emergency response event: Access would be required up to 24 hours a day, seven days a week. Emergency response vehicles within the facility could be mobilised and enter/exit the site at any time of the day or night. Emergency equipment could be required to be loaded onto HGVs at any time of the day or night. The facility would be occupied during such an event with staff vehicles parked in the staff car parking spaces provided. Some staff may travel by public transport, be dropped off outside the site or cycle there. Therefore, pedestrian access is required to the site.
- Training event: It is assumed that this would be undertaken once or twice a year to simulate an emergency response event.
- General inspections: the facility would need to be accessed to ensure that the vehicles and equipment are regularly inspected to ensure they are in good working order. Actual maintenance/repairs would be undertaken off-site.
- External stakeholder access/easements: Dialogue with Scottish Power Energy Networks has determined the location of the proposed substation. This is required to be accessed from outside the site. No access to the site is therefore required. Refuse storage has been located outside the pedestrian entrance gate; therefore, refuse collection can occur without the need for the relevant vehicle entering the site.

7.2.2. A green travel plan would be developed for the construction and the operational phase of this development thus helping to reduce transport-related impacts.

7.3 ACCESS TO AND WITHIN THE SITE

7.3.1. Access to the Off-Site Power Station Facilities would be through use of the existing site entrance. The proposed new entrance gate to the site is located a sufficient distance from the road to allow an HGV to wait for the gate to open without the road being obstructed.

7.3.2. An additional pedestrian entrance to the north-west would be provided.

ACCESS AND MAINTENANCE

7.3.3. Access for maintenance, replacement and cleaning of the main building elements have been considered during the design development.

7.3.4. Access to the roof is only required for the maintenance and cleaning of gutters as no roof mounted equipment or roof lights are provided within the facilities. Access to undertake this maintenance is proposed to be from a mobile elevating work platform (MEWP) or temporary scaffold to the gutter lines on both the east and west long elevations. Level hardstanding areas are provided along both of the long elevations of the MEEG/AECC building and to the site side of the ESL to allow for the erecting of such scaffolding.

7.3.5. The windows within both of the facilities would be cleared from ground level using a tucker pole or by hand to the ground floor level. Again this would be carried out from within the development site where possible and from level ground. Such maintenance works would be undertaken when the buildings are not in operation following an incident on-site, so there would not be the requirement for vehicle movements to be carried out during the works.

7.3.6. Disabled access is provided to both facilities with the MEEG/AECC facility benefiting from a personnel lift to transport personnel to the first floor accommodation. Corridor widths and doorways have been proposed which would be suitable for use by wheelchair users and designated toilet and shower facilities have also been accommodated in the MEEG/AECC building. A disabled WC facility is provided within the ESL building.

7.3.7. The accessibility strategy for the site is visualised in figure 42.

Figure 42 Indicative accessibility strategy

8 MOVEMENT

Movement

8.1 GENERAL

8.1.1. Figure 42 shows indicative vehicle and pedestrian movements associated with this facility as well as entrances and exits for vehicles and pedestrians.

STAFF VEHICULAR ACCESS

8.1.2. Workers driving to the facility would enter through the main entrance at the west, from the A5025. Vehicles would then proceed to parking spaces at the north of the site, adjacent to the buildings. Persons would then walk along one of the designated pedestrian routes to the buildings.

8.1.3. In the event of an incident, vehicles would proceed through the main entrance to the overspill car park in the south.

8.1.4. Vehicles would leave the site through the main entrance.

EMERGENCY RESPONSE VEHICLES (MEEG)

8.1.5. Emergency response vehicles are located in the MEEG/AECC building. They would be facing west and would exit directly through the roller shutter doors provided on the building façade. They would then proceed directly through the main entrance gate. On return they would enter through the main entrance gate and enter the MEEG/AECC building from the east elevation, using the road provided, so that no reversing is required.

DELIVERIES TO THE ESL

8.1.6. Samples for analysis at the ESL would be delivered and picked up via the ESL building entrance. Space has been provided for 4x4 vehicles within the parking spaces at the north-west of the site. In an emergency, space has been provided for a 4x4 vehicle to reverse up directly to the ESL building entrance.

HGV DELIVERY AND PICK-UP

8.1.7. HGV delivery and pick-up vehicles would enter and exit the site through the main entrance. There is sufficient width for two HGVs to enter and exit the site at the same time. Generally, these vehicles would move to the east side of the site, following the road provided, to await loading/unloading. The area to the east of the MEEG/AECC building would be constructed relatively flat to allow fork lift trucks to load and unload the HGVs.

8.1.8. The parking and turning areas have been designed for simple manoeuvring, thus avoiding the need for repeated shunting and/or any reversing.

PEDESTRIANS AND CYCLISTS

8.1.9. For pedestrians and cyclists, an additional entrance has been provided to the north-west corner of the site between the substation and ESL building. This entrance has been created to provide a safer access to the buildings and removes the possibility of conflict between pedestrians, cars and the working yard area in front of the MEEG/AECC building. This would be a secure gated access point with the user requiring a key or fob to gain entry.

8.1.10. Footpaths are provided to the northern area of the site to provide pedestrian access to the primary entrance of the main building and ancillary buildings. Footpaths are also provided to the south of the main building to provide safe access to the external storage area.

8.1.11. No external cycle storage is provided. It is assumed that cycle usage would be limited due to the use of the building and any cycles would be stored within the MEEG/AECC building storage area.

8.2 TRANSPORT AND TRAVEL

8.2.1. A multi-modal approach to the traffic and transport assessment has been adopted to assist in designing the development to provide suitable facilities and infrastructure that could encourage travel by sustainable modes to minimise the impact of travel demand on both the local and strategic transport network. This includes assessment of transport-related effects both on-site and off-site, in particular consideration of the operation of junctions and provision for access to bus services and the cycle network.

8.2.2. For further details, please refer to chapter C2 (traffic and transport) of the Environmental Statement [APP-089].

8.3 CAR PARKING

8.3.1. Provision is provided at the Off-Site Power Station Facilities for:

- twelve staff /delivery parking spaces in close proximity to the buildings;
- two disabled spaces in close proximity to the buildings;
- two motorcycle spaces in close proximity to the buildings;
- at least one electric vehicle charging point in close proximity to the buildings; and
- an overspill car park for use during an emergency event or training exercise (54 spaces).

8.4 SERVICING AND MAINTENANCE

8.4.1. General deliveries (e.g. consumables) would be made via the west hardstanding area. Deliveries of fuel may be taken directly via the east hardstanding area.

8.4.2. General refuse collection would be undertaken outside the pedestrian entrance/ exit access with sufficient space provided for a bin store and for a refuse vehicle to pull in off the carriageway alongside the ESL building.

8.4.3. An additional access gate would be provided at the south-west for access to maintain the landscaping to the south.

8.5 HIGHWAY ACCESS

8.5.1. The facility is situated in an old bus maintenance unit adjoining the existing A5025 within a 40mph zone.

8.5.2. The existing site access slopes down and away from the A5025. It is proposed that this gradient would be reduced by raising the levels on-site and extending those levels out to the A5025 channel and to dovetail the bituminous surface into the A5025 pavement construction. This adjustment of levels supports operation of the site to allow a level area to be created to the east of the MEEG/ AECC building to facilitate the safe unloading of vehicles.

8.5.3. The vehicular access into the site would be maintained in its existing location. Junction radius has been determined from auto-tracking HGV vehicles in and out of the property.

9 POST-OPERATION

9.1 POST-OPERATION STRATEGY

Post-operation

9.1 POST-OPERATION STRATEGY

9.1.1. The Off-Site Power Station Facilities would remain in operation for the life of the Power Station.

9.1.2. The post-operation strategy for the Off-Site Power Station Facilities would be to reinstate the site to its current use reinforcing the objectives set out in the Ynys Môn Landscape Strategy and in the LANDMAP landscape character classifications.

9.1.3. The proposals would focus on re-establishing the site to its current use incorporating the key environmental assets that have been identified, enhanced and protected throughout the operation of the site.

A APPENDIX A

FACILITY ENVIRONMENTAL DESIGN OBJECTIVES

This appendix sets out the EDOs that were developed, with regard to the site constraints as set out in chapter 2 of this document, to inform the facility design and landscape principles. The third column provides an illustration of how each EDO could be met through the design process, as demonstrated in the illustrative design provided in Part B of this document.

REF.	OBJECTIVE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN
EDO1	Design to incorporate, where feasible, sympathetic landscape screening and high- quality design in keeping with the historic landscape.	The current land use is a bus depot and maintenance yard contained on its southern and western borders with a 1m to 2m high bund. The boundary planting on the site is predominantly patchy, poor quality vegetation with some woody evergreen trees on the northern and southern boundaries. The design has set out to reflect the planting pattern, density and species mix evident in the wider landscape surrounding the site. The configuration of the proposed buildings echoes the arrangement of surrounding existing farm buildings in this landscape. The arrangement focuses the planting design on the boundaries where the design will incorporate screening and shelter for the site.
EDO2	Design to retain, and where possible enhance, hedgerows and shelterbelts at boundaries in order to optimise screening and minimise changes in landscape character, in particular from the AONB to the west. Layout to consider root protection zones.	The planting design on the boundaries is generally of poor quality. The design proposal removes existing poor quality vegetation and replants these areas with native tree and shrub planting drawing on the selection of species, planting density and pattern of the surrounding character and that of the adjacent Anglesey AONB.
EDO3	Design to keep height of communications mast to a minimum, and design to minimise massing of the structure.	Communications mast not required.
EDO4	Buildings to be in keeping with local vernacular to integrate the development into the rural surroundings, and buildings to be kept to a similar height to the existing industrial sheds.	Buildings are to be in keeping with local vernacular (i.e. industrial agricultural type buildings). Smaller building to edge of site to be similar in height to the existing one, road side elevation proposed to be in keeping with local vernacular (i.e. stone-effect cladding).
EDO5	Design to extend southern boundary hedgerow to the west to provide filtering of views from adjacent residential property (Pencoed).	The planting design will provide screening up to 5m in height for vehicle movements and operational activities within the site. The development of the detailed design will be co-ordinated with the proposed attenuation pond of the A5025 on the southern boundary to provide greater screening and integration with the surrounding landscape.
EDO6	Design to protect and retain, wherever possible, all watercourses and boundary features.	Design protects and retains, where possible, all watercourses and boundary features.
EDO7	Design to provide 15m buffer from all waterbodies wherever possible.	A 15m buffer zone to waterbodies is not achievable due to the site levels and operational requirements of the facility, i.e. fill material will be required to the edge of the stream to the east of the site. Ecological good practice measures will be implemented such as pre-construction checks, and the works will be completed in a way that does not result in any sediment entering the stream.
EDO8	Lighting design to avoid/minimise any light spill onto adjacent buildings and onto watercourses and boundary features, including hedgerows and other habitats.	Design minimises light spill onto water bodies: no lighting proposed within 15m buffer zone of stream. High level external lighting strategy has been produced.
EDO9	Design to incorporate, where possible, hedgerow creation/tree planting with native species of local provenance.	The development of the detailed planting design will draw on the surrounding species, planting density and pattern incorporating native trees and shrubs.
EDO10	Design to consider enhancement of retained hedgerows to create species-rich hedgerows.	The existing planting on the boundaries is generally of poor quality. The design has set out to reflect the planting pattern, density and species mix evident in the wider landscape surrounding the site.
EDO11	Design to include seeding and appropriate management of any grassland creation with appropriate grassland species.	Due to the operating requirements of the site, the areas of seeding have been kept to a minimum. These areas will generally use appropriate grassland species.
EDO12	Design to re-use site soil as far as practicable to minimise requirements for off-site disposal.	The site is currently (and proposed to be) generally hardstanding. Due to the site levels and operational requirements of the facility, a significant amount of fill material will be required to the edge of the stream to the east of the site.
EDO13	Design to ensure that the site layout accommodates any likely surface water flood flow route through the site and ensure that such flooding does not impact on proposed buildings.	The layout accommodates the likely surface water flood flow through the site which has been designed to fall into a swale which runs along the southern boundary of the brownfield area.
EDO14	Design to use SuDS. SuDS should be designed to further control water quality impacts associated with storm water discharges from the site and maximise opportunities for ecological enhancement.	Design will use SuDS. The layout accommodates the likely surface water flood flow through the site which has been designed to fall into a swale which runs along the southern boundary of the brownfield area. A below-ground attenuation tank and retention separator will be required below the hardstanding to the east of the site to reduce flow and ensure quality of surface water into the existing stream. The overspill car park to the south is proposed to be of 'grasscrete' construction and self-draining due to its inherent minimal use requirement.
EDO15	Design foundations to consider groundwater depth and quality.	Foundations will take account of this. Geotechnical intrusive investigation required to enable this to be designed further.
EDO16	Design to ensure the site layout considers noise sources and receptors. This could include, but not be limited to, maximising distances between source and receptor, orientation of buildings and/or ensuring sufficient space to accommodate noise barriers or enclosing features generating noise sources.	The site layout has been developed to suit the operational needs of the facility, taking into account the local environment and surrounding land uses. As per table E2-3, the orientation of the buildings has taken into account the contours of the site to be less visible from the A5025. Areas of proposed planting have been designed to provide visual screening.

B APPENDIX B

MEETING THE DESIGN PRINCIPLES

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
General/masterplanning principles			
3.4.8	The site will be laid out to meet the operational requirements of the facility.	The operational and functional requirements are set out in section 1.6 and table 1, in accordance with the overall facility requirements and the functionality component of good design. These would be incorporated into a masterplan layout (refer to figure 17) that comprises a MEEG building, ESL building and associated infrastructure. The site layout allows vehicles and staff to circulate around the site in a safe and efficient manner.	Functionality Mitigation
3.4.9	Buildings will be positioned, designed, and orientated to reduce their effects on the surrounding areas as far as practicable within operational requirements.	To contribute to the quality of the area, buildings would be arranged such that entrances face away from nearby houses where possible. To meet the appearance component of good design, landscaping is incorporated to provide additional screening (refer to figure 17 Proposed site masterplan and figure 42 Indicative accessibility strategy).	Appearance
3.4.10	The site building design layout will seek to minimise noise at nearby noise-sensitive receptors as far as reasonably practicable within operational requirements.	The ESL building, which would have the most frequent access, would be located on the site frontage. The MEEG building would be located within the site, due to its requirement to be accessed on both sides. Noise impacts would be mitigated by landscaping and site boundary treatments, and plant would be located within screened areas.	Character Mitigation
3.4.11	The proposals will seek to minimise the overall visual impact of the site as far as practicable within operational requirements.	The building layout would mimic the existing buildings (refer to figure 17). Fencing and hedgerows to the south would screen the facility from nearby houses (refer to figure 20 Indicative landscape masterplan) to meet the appearance component of good design.	Appearance Mitigation
3.4.12	Existing greenfield land to the south of the existing bund will generally be soft landscaped to reflect the extent of the existing development.	This would be achieved through the planting scheme proposed (refer to figure 20). Also, it would be achieved through use of reinforced grass / cellular grass paving for the overspill car park (refer to figure 23 Indicative landscape palette and figure 24 Indicative material strategy).	Character Appearance
3.4.13	Development will generally create a strong building frontage to the A5025.	This would be achieved through careful use of building materials and design, with local stone being a key feature of the finishes, contributing to good aesthetics and the quality of the area (refer to section 4.3 and indicative building sketches in figures 27, 28, 31 and 32). The ESL building would be located on the site frontage, replacing the existing stone walling and existing garage building.	Appearance
3.4.14	Day-to-day staff parking will be located in close proximity to the MEEG, AECC and ESL buildings.	This has been achieved in the indicative masterplan layout (refer to figure 17) with parking adjacent to the buildings, meeting the functionality component of good design.	Functionality
3.4.15	Storage containers and temporary offices will be located away from the A5025 street frontage.	This has been achieved in the masterplan layout by locating these elements to the east of the site so they are screened by the buildings and the landscaping to the south.	Appearance
3.4.16	Turning circles will allow for vehicles, including HGVs, to enter and exit the site in forward gear.	The building arrangement has allowed for two turning areas, west and east of the MEEG/AECC building (refer to figure 42 Indicative accessibility strategy).	Functionality
3.4.17	The perimeter of the site will be secured with 2.4m high welded-mesh-type fencing within the site boundary. The precise fence line will have regard to local topography and vegetation and seek to minimise visual impact within operational requirements. The use of spikes, serrated wire or other aggressive security measures will be avoided, where practicable. Coverage by security lighting and cameras will avoid intruding on neighbouring properties.	This has been achieved and is represented on the indicative security strategy in figure 41. Note also that the ESL building forms the secure boundary with the A5025 to the north-west of the site. Also stone walling outside of the fence line is proposed for the west and north of the site. Hedgerows are proposed for the south of the site.	Appearance Functionality
3.4.18	Vehicular access to the site will be through an entrance located at the site of the existing vehicular entrance.	This has been achieved as indicated on the masterplan. Also refer to figure 41.	Functionality
3.4.19	A secure, gated access for pedestrians and cyclists will be provided.	This has been achieved as indicated on the masterplan. Also refer to figure 41. This separates pedestrians/cyclists from vehicles.	Functionality
3.4.20	Where safety and operational requirements allow, the location of plant and orientation of buildings will screen noise sources from nearby noise-sensitive receptors.	As response to 3.4.10 above.	Sustainability Mitigation Adaptability
3.4.21	The closest residential receptors (to the south of the boundary of the site) will be screened from the fixed plant area and substation by the MEEG/AECC building.	This has been incorporated into the design (per response to 3.4.10 and refer to figure 17).	Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
3.4.22	CCTV will be provided at strategic locations within the site.	This is indicated on the indicative security strategy in figure 41, demonstrating a commitment to the safety and security of the facility. CCTV cameras would be positioned about the perimeter and centre of the site on lighting columns and dedicated poles.	Functionality Mitigation
3.4.23	An external refuse area, for the storage and collection of recyclable and general waste, to be easily accessible to both building occupants and by waste management contractors to facilitate collection.	This has been worked into the masterplan by way of an area just outside the north-west pedestrian site entrance. Building occupants would be able to walk safely to this area. Waste contractors would be able to collect waste without entering the site. Refer to item G on figure 17 Proposed site masterplan. The proposal also contributes to the quality of the area in that waste vehicles would not need to enter the site.	Functionality Appearance
3.4.24	Detailed design will not prohibit the ability to obtain and comply with the Off-site Power Station Facilities Environmental Permit and the Power Station Nuclear Site Licence.	To be developed during subsequent design phases.	Functionality Adaptability
Building design principles			
3.4.25	Architectural treatment of proposed buildings and structures will seek to integrate with surrounding landscape to reduce adverse visual effects.	This has been achieved as described in section 4.3 and visualised in figures 27, 28, 31 and 32, demonstrating aesthetics and a contribution to the quality of the area.	Appearance Character Mitigation
3.4.26	The architectural design of the buildings, including scale, massing and materials, will complement the agricultural setting and location beyond the settlement boundary in the countryside, as far as practicable.	This has been achieved as described in section 4.3 and visualised in the external materials palette in figure 38, demonstrating sensitivity to the character of the landscape and agricultural setting.	Appearance Character Mitigation
3.4.27	Building forms will be simple and unimposing in the landscape to allow them to harmonise with and complement the surroundings, as far as reasonably practicable within operational requirements.	This is as visualised in figures 27, 28, 31, 32 and 38, contributing to the quality of the area.	Appearance Character Mitigation
3.4.28	A restricted natural palette of materials and colours will be used to help integrate the buildings into the surrounding environment, and the quality will reflect the permanent nature of the development.	This is as visualised in figures 27, 28, 31 and 32. Also refer to the indicative building materials palette in figure 38, responding to the appearance component of good design.	Appearance Character
3.4.29	Fixed plant will be designed, as far as practicable to reduce day-time and night-time noises, to meet specified noise level at nearest receptors.	ESL building: fixed plant would be contained in a fenced enclosure. MEEG/AECC building: fixed plant would be located on the eastern side of the building, away from the road and nearby houses, providing mitigation and enhancing the quality of the area. Refer to figure 17 Proposed site masterplan.	Mitigation
3.4.30	If required, the stack height for the standby generator will not be more than approximately three metres above the roof of the standby generator enclosure, representing a total height above ground level of not more than approximately six metres.	This would be developed during the next stages of design.	Appearance Mitigation
Landscape design principles			
3.4.31	Landscape design will ensure that the operational and security requirements of the facility can be met.	This will ensure the design meets the functionality component of good design.	Functionality
3.4.32	The planting strategy will reflect the planting patterns, density and species mix in the wider landscape surrounding the site. The strategy will: • integrate the development site with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the site; and • protect, manage and enhance the nature conservation value of the site and integrate with and protect adjacent habitats and locations containing protected species or other locally important species or habitats.	This is demonstrated in the landscape proposals in section 4.2. In particular, the planting strategy in figure 21. The proposals would contribute to the quality of the area in enhancing the local landscape character.	Character Appearance Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
3.4.33	Planting will achieve visual screening of the Off-Site Power Station Facilities during the operational phase, as far as reasonably practicable.	Refer to section 4.2 and the figures contained therein. Mitigation of adverse visual effects has been achieved, for example, with hedgerow planting within the site and to the south, native tree and shrub planting to the south and east. Sections of stone walling are proposed for the north and west.	Mitigation
3.4.34	Hard and soft landscaping will be used to help integrate the Off-Site Power Station Facilities appropriately into the surrounding landscape, to integrate the development into the local landscape and reduce adverse visual effects.	As response above.	Appearance Character
3.4.35	Horizon will undertake quarterly landscape site inspections for a 5-year period, followed by annual inspection for second 5-year period (total 10 years) in order to ensure landscaping has established appropriately. In the event that these inspections identify that planting has not established, replacement planting on a like for like basis will be undertaken at the first available planting season.	This is set out in paragraphs 4.2.29 to 4.2.31 and table 5. The strategy considers a maintenance/establishment period and maintenance of an adapting sustainable landscape through the operation of the facility.	Appearance Sustainability
3.4.36	Boundary treatments, including existing hedges and trees, will be retained where possible within operational requirements.	Retention of these key elements of the character of the landscape is achieved with hedges to the south, stone walling to the north (refer to figure 20 Indicative landscape masterplan).	Appearance Character
3.4.37	The landscape character will be enhanced along the eastern and southern boundaries.	Refer to 3.4.36 above.	Appearance Character
3.4.38	A linear belt of shrubs, trees and/or hedgerow will be planted/retained to the site boundary where appropriate and subject to operational security requirements to provide visual screening and to help integrate the development into the surrounding landscape.	Refer to 3.4.36 above.	Appearance Character Mitigation
3.4.39	The stone wall on the northern and eastern perimeter of the site will be retained and repaired where necessary to help retain the existing landscape character, and to provide some noise screening by reducing the likelihood of direct lines of sight between noise sources (e.g. fixed plant and vehicles) and nearby sensitive receptors.	Refer to 3.4.36 above.	Appearance Character Mitigation
3.4.40	The southern portion of the site surrounding the overflow parking area and adjacent to PRoW 29/008/1 will be soft landscaped in order to protect the recreational amenity of footpath users during use of the overflow car park. This landscaping will be maintained during the operational phase.	Refer to 3.4.36 above.	Appearance Mitigation
3.4.41	The planting schedule will complement the nearby A5025 Off-line Highway Improvements and the local landscape character.	This has been achieved through setting out a detailed sympathetic planting scheme, which would contribute to the overall quality of the area (refer to paragraphs 4.2.8 onwards, figure 21 Indicative planting strategy and figure 22 Indicative planting palette).	Appearance Character
3.4.42	The overspill car parking area will use sustainable drainage measures to limit the potential for increased storm water runoff.	This is planned for an area to the south of the site. Refer to figure 17 Proposed site masterplan. Permeable paving is proposed to control storm water runoff. See also response to 3.4.46 below.	Sustainability Functionality Mitigation
3.4.43	New soft landscaping areas will be provided in various locations around the perimeter of the site, including e.g. hedgerow, shrub and tree planting, where this does not conflict with operational and security requirements of the Off-Site Power Station Facilities.	Refer to 3.4.37 above.	Functionality Adaptability

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
Sustainability principles			
3.4.44	The development will avoid adverse impacts on existing habitats of low or greater value and existing habitat features will be retained where practicable, including hedgerows, boundary features and watercourses.	Refer to 3.4.37 above.	Sustainability Mitigation
3.4.45	The drainage design will provide sustainable attenuation capacity to address increased surface water runoff rates and pollution interception risks arising as a result of the development.	The surface water drainage proposals include attenuation tanks to limit the runoff rates from the proposed site. A grass swale running through the middle of the site also provides additional flood mitigation capacity. Refer to figure 40 Indicative surface water strategy. Foul drainage will be discharged to the local sewer system.	Sustainability Mitigation
3.4.46	Surface water drainage and attenuation will be designed to maintain current runoff rates up to a 1 in 100-year storm event and will not increase the risk of off-site flooding.	The storm water storage solution proposed is in the form of a surface water drainage system connecting into a below-ground geo-cellular structure discharging via a flow control chamber into an existing watercourse.	Sustainability Mitigation
3.4.47	Lighting will minimise light spill as far as reasonably practicable within operational requirements to minimise effects on sensitive ecological species such as bats, otter and water vole.	Lighting is proposed to the key areas within the site (see figure 39 Indicative lighting strategy) in accordance with facility functional requirements. Lighting would comprise down lighters and would be controlled and dimmable, mitigating adverse effects of lighting where feasible. No lighting is proposed to the overspill car park.	Functionality Sustainability Appearance Mitigation
3.4.48	Operational lighting will also be designed to control light spill, whilst providing safe levels for site use and security, to limit effects on night-time human viewers, for example local communities.	Refer to 3.4.47 above.	Sustainability Appearance
3.4.49	Measures such as restricting heights of lighting columns and using directional or down lights will be used where practicable.	Refer to 3.4.47 above.	Sustainability Appearance
3.4.49	Measures such as restricting heights of lighting columns and using directional or down lights will be used where practicable.	Refer to 3.4.47 above.	Sustainability Appearance
3.4.50	Soft landscaping on the eastern and southern boundaries of the site will reduce light spill onto sensitive ecological receptors, where this does not conflict with operational and security requirements.	The A5025 attenuation pond is located to the east of the overspill car park and hedgerow planting is proposed along the site boundary which would act as a shield to any light spill onto adjacent land. Also, this car park would not be used during normal operational hours.	Sustainability Functionality Mitigation
3.4.51	The facility will include water-efficient fittings which help reduce water consumption.	Low flush toilets would be specified.	Sustainability Functionality
3.4.52	A Class 1 full retention oil/water separator will be used for drainage from hardstanding areas.	Below-ground geo-cellular structures are proposed. Protection against pollutants and contaminants would be provided with oil separators located upstream of outfall. Refer to section 5.4 Water.	Sustainability Functionality Mitigation
3.4.53	A swale will be provided between the main part of the Off-Site Power Station Facilities and the area of additional car parking to safely convey or absorb surface water flows that may exceed the capacity of the road drainage system.	This has been worked into the design as part of the surface water strategy, see figure 40 Indicative surface water strategy.	Sustainability Functionality
3.4.54	The overflow parking area will comprise cellular grassed paving construction or similar, with sustainable drainage.	This is proposed in the design.	Sustainability Functionality
3.4.55	At least one electric vehicle charging point will be provided.	An electric vehicle charging point can be provided in the staff parking area(s); the exact best position would be determined during detailed design.	Sustainability Functionality

C APPENDIX C

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HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Design and Access Statement Volume 3

Appendix 1-2 The Site Campus

Contents

PART A: CONTEXT AND PRINCIPLES

1 INTRODUCTION

Introduction

1.1 PURPOSE OF THE DOCUMENT

1.1.1. This Design and Access Statement (DAS) sets out the process of design evolution for the proposed Site Campus.

1.1.2. The masterplanning process explained in this document has informed the parameters for the Site Campus as set out in the maximum parameters identified in the Development Consent Order (DCO) parameters tables. The DAS also sets out the 'design principles' that will control how Horizon will construct the Site Campus.

1.1.3. The DCO will require detailed design and landscape schemes to be submitted and approved in accordance with these design principles and parameters.

1.1.4. The DAS then provides a detailed illustrative example of how this could be achieved.

1.1.5. This document forms part of Volume 3 of the DAS [APP-409] and [APP-410], which is structured as follows:

- Volume 1 [APP-407] provides an overview of the entire Wylfa Newydd DCO Project including the Associated Development;
- Volume 2 [APP-408] relates to the Power Station Site; and
- Volume 3 relates to the Off-Site Power Station Facilities and Associated Development, including the Site Campus, Logistics Centre, Park and Ride facility and A5025 Off-line Highway Improvements.

1.1.6. The DAS forms part of a suite of documents which support the DCO application for the Wylfa Newydd DCO Project, as set out in Volume 1 of the DAS.

1.2 GENERAL CONTEXT

1.2.1. Horizon Nuclear Power Wylfa Ltd. (Horizon) requires a significant workforce to deliver the new Wylfa Newydd Power Station. Horizon anticipates that the peak number of workers will be approximately 8,500.

1.2.2. To ensure an appropriate level of contingency, Horizon developed a Workforce Accommodation Strategy [APP-412] for up to 9,000 workers. Based on conservative estimates of the proportion of non-home based workers, and existing sources of capacity, the anticipated requirement for purpose-built Temporary Worker Accommodation (TWA) will be a maximum of up to 4,000 bed spaces.

1.2.3. The proposals to achieve this are to build worker accommodation (the 'Site Campus') on the northern edge of the Wylfa Newydd Development Area, next to the Existing Power Station.

1.2.4. Figure 1 shows the location of the proposed Site Campus, in the context of the Wylfa Newydd DCO Project sites.

1.2.5. High-quality 'campus-style' accommodations will afford all workers who choose to stay in TWA a good environment in which to live. This would enable a greater opportunity for workers to interact, socialise and bond – all of which would improve the workers' well-being. The worker welfare and accommodation facilities on the Site Campus will be integral in attracting, caring for and retaining a high-quality, productive and safe workforce.

1.3 STRUCTURE OF THIS DOCUMENT

1.3.1. This document is set out in two parts. Part A defines the 'design principles' with which the detailed design of the Site Campus will have to accord (based on an appraisal of the site context and design brief). Part B then provides a detailed illustration of how the design could be developed in accordance with these principles and parameters (specifically addressing the key elements of good design identified in EN-1, EN-6 and TAN12).

1.3.2. Part A: Context and principles:

- Chapter 1 introduces the Site Campus, sets out the design brief, operational and functional requirements, and describes how this document relates to Volumes 1, 2 and the rest of Volume 3 of the DAS.
- Chapter 2 summarises the existing physical context of the site. The chapter also reviews design related feedback from consultation events and explains how the proposed development has evolved in response to this and Horizon's project optimisation process.
- Chapter 3 defines the 'design principles' that the detailed design of the Site Campus will adhere to (having regard to the context set in chapter 2). It also sets out the approach to flexibility sought through the DCO application for the Site Campus. The obligation to ensure the design meets the design principles will be secured through a requirement in the DCO.

1.3.3. Part B: Illustrative design proposals:

- Chapter 4 details how these design principles could be delivered by setting out illustrative design proposals.
- Chapter 5 explains how the proposed development could promote high levels of environmental sustainability.
- Chapter 6 sets out how the proposed development could demonstrate safety and security.
- Chapter 7 provides details relating to accessibility of the site including proposed details of inclusive access measures.
- Chapter 8 details proposed movement for all users, including car parking, servicing and highways.
- Chapter 9 outlines the post-operation strategy for the site.

1.3.4. Appendix A sets out the facility environmental design objectives and detailed commentary on how they may be met in the illustrative design.

1.3.5. Appendix B sets out how the design principles may be met in the illustrative design.

1.3.6. Appendix C sets out the documents referred to in this document.

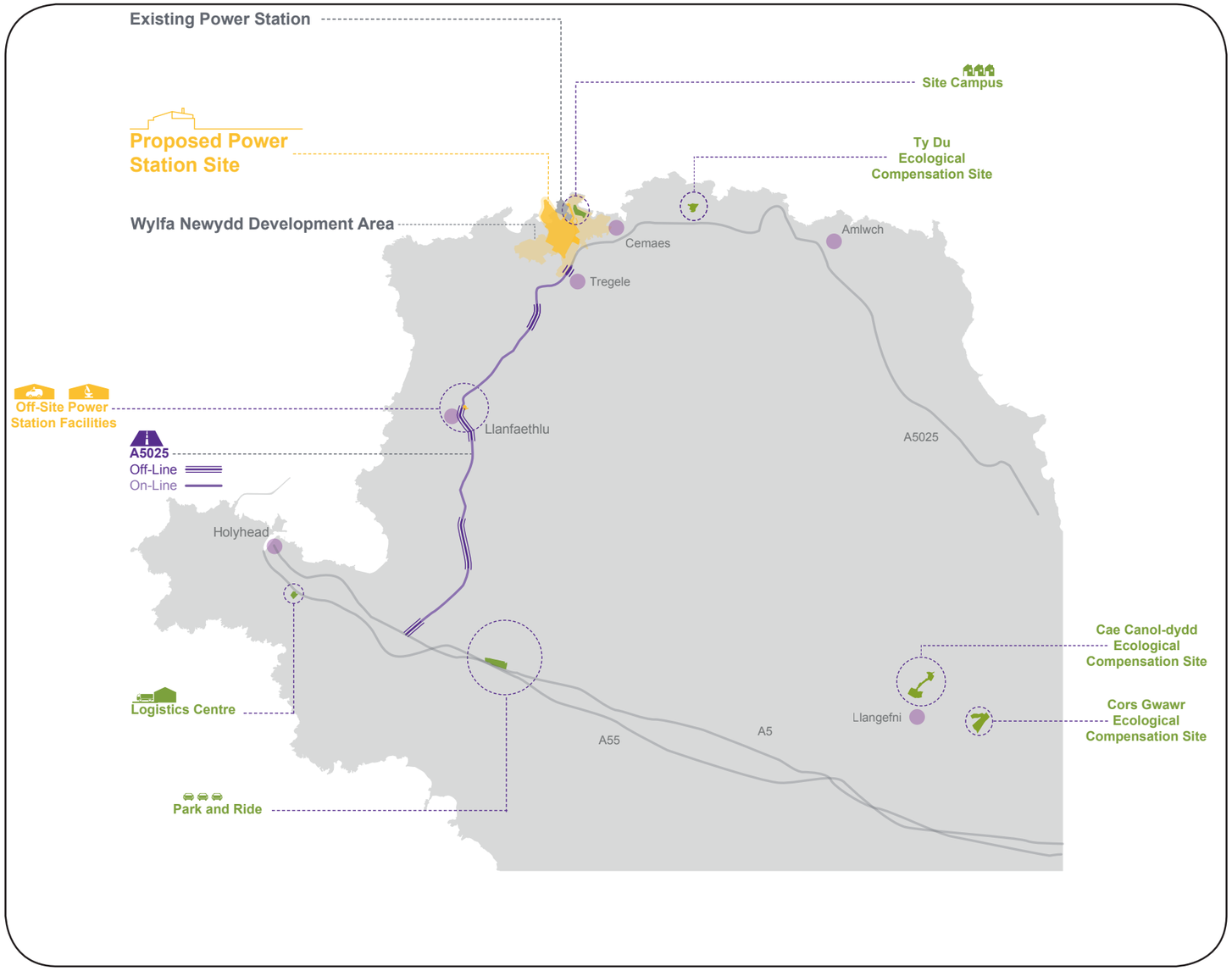


Figure 1 Site Campus within the context of the Wylfa Newydd DCO Project sites

1.4 SITE SELECTION

1.4.1. Horizon's Workforce Accommodation Strategy was produced to help shape the requirements for the accommodation of construction workers and identify how adverse effects could be managed. It identified the need to deliver TWA and measures to house people within communities.

1.4.2. Locating the Site Campus next to the Power Station Site, enabling a large proportion of the construction workforce to walk to and from work each day, has been informed by the Integrated Traffic and Transport Strategy (ITTS) (as described in Volume 1 of the DAS. The objectives of the ITTS include encouraging sustainable travel and reducing the need to travel.

1.4.3. The measures to ensure that the workers are housed in accordance with the Workforce Accommodation Strategy, split between TWA and in the community, are set out in the Workforce Management Strategy (WMS).

1.4.4. Accommodating non-home based workers in TWA on a single site ensures a critical mass necessary to provide on-site facilities. This has benefits in terms of worker management and behaviours. The environmental and social effects of the construction workforce on the existing community is best managed through locating them in a single, temporary purpose-built campus.

1.4.5. The Site Selection Report Volume 4 Temporary Workers' Accommodation [APP-439] explains the site screening and selection process for the TWA. This involved a four stage methodology, including the identification of a 'long list' of potential sites (using data sources provided by the Anglesey and Gwynedd Joint Planning Policy Unit), with broad criteria then applied to consider the suitability of the sites, such as size, environmental constraints and proximity to the local road network. These sites were then assessed in more detail using finer criteria including the operational requirements for the facility.

1.4.6. On the basis of the detailed site selection assessment, the Wylfa Newydd Development Area is considered to be the most viable location for accommodating up to 4,000 TWA bed spaces in a single campus, when considering the detailed planning and environmental criteria.

1.4.7. For details of the site selection process undertaken for the Site Campus, refer to Volume 2 and Volume 4 of the Site Selection Report [APP-437] and [APP-438]. For further detail relating to the consideration of alternatives, refer to chapter D2 Alternatives and design evolution [APP-121] of the Environmental Statement.

1.5 STRATEGIC DESIGN BRIEF

1.5.1. Horizon's overarching goals and objectives for the Wylfa Newydd DCO Project are set out in Volume 1 of the DAS.

1.5.2. For the Associated Development sites, Horizon's proposals should have regard to the temporary nature of development and:

- provide the necessary facilities to ensure the delivery of the Power Station that meets the urgent need for new nuclear power as early as possible in a safe and efficient manner;
- minimise visual impact as far as possible;
- respect local communities, and minimise impact on them as far as possible, particularly those very close to the Associated Development sites; and
- help to create a positive legacy for Anglesey, thinking about each significant investment and how it can create a positive legacy for the area, recognising that this will not always involve retaining the buildings on the Associated Development sites.

1.5.3. This section sets out the specific requirements in relation to the Site Campus based on these objectives.

SITE BRIEF

1.5.4. The following requirements have informed the approach to the design:

- a campus-style solution to accommodate up to 4,000 persons on the chosen site within the main Wylfa Newydd Development Area;
- provide a good environment in which workers want to live and will enable a greater opportunity for workers to interact, socialise and bond, to improve worker well-being;
- a solution that would be scalable with up to three phases (providing approximately 1,000 beds; up to 2,500 beds; and up to 4,000 beds per respective phase);
- a design/service life of a minimum of 10 years for all construction accommodation and facilities elements;
- standard solutions that can incorporate modular (and traditional where necessary) construction methods in order to best afford and execute scalable solutions that accord with variable short-term construction worker numbers;
- solutions that consider effective staging (ramp up / ramp down) and operational phasing;
- utilities and services that are shared from the Wylfa Newydd Power Station's infrastructure on the Wylfa Newydd Development Area;
- solutions which support a high occupancy model (i.e. allowance for room-holding, simplified check-in/check-out and careful consideration surrounding facilitation of swift changeover operations);
- solutions that offer the potential for all Wylfa Newydd DCO Project workers to use the campus facilities (i.e. not only those who are resident); and
- solutions that consider deconstruction and/or legacy handover upcycling opportunities.

1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

1.6.1. Details of finishes and colour would be developed, as appropriate to the site context that complement the Existing Power Station Site, associated substation and the surrounding landscape. The amenity building would have areas of opaque cladding and glazing to allow natural light into the building and views out. Accommodation buildings would be predominately fitted with opaque cladding, with windows for individual rooms.

1.6.2. The access road, parking, delivery and bus areas would be constructed from asphalt or concrete, with a suitable sub-base to accommodate regular vehicular traffic. The main circulation paths for pedestrians and maintenance vehicles would be constructed from asphalt, crushed aggregate or paving with a suitable sub-base to accommodate occasional vehicular traffic and emergency access vehicles. The secondary access would be constructed from crushed aggregate or a 'grasscrete' type finish with suitable sub-base to accommodate emergency access vehicles. Landform and stone bunding would be used along the circulation routes to link spaces and visually tie proposals into the surrounding landscape.

1.6.3. A soft landscape scheme would be developed for amenity areas around the campus facilities, and in the community areas at the front of the accommodation buildings. These areas would include sheltered paved and mown grass spaces, with seating for shared informal use. A suitable level of planting, appropriate to the local flora, would be provided across the site. Existing landscape features (including the areas of woodland) would be retained where possible.

1.6.4. External lighting would be a combination of pole and building wall-mounted. A central management system (CMS) would be utilised, which would be remotely accessible. Light emitting diode (LED) lighting would be used, with a detection system to provide lighting only when required for access. Accommodation rooms would include blackout blinds. The amenity building would include blinds and a controlled lighting to limit the light emitted by the building.

1.6.5. The proposal for the multi-use games area (MUGA) courts is to locate them in an area where they would be shielded by the proposed buildings and existing trees.

1.6.6. There will also be a medical centre on the Site Campus which would be similar in concept to a General Practitioner (GP) surgery. This would be accessible to all construction workers (including subcontractors), whether they live in the Site Campus, reside locally, or travel to the Wylfa Newydd Development Area from the wider area. The WMS directs all personnel (not just those residing on the Site Campus) to use the Site Campus medical centre in the first instance, before seeking to use community healthcare services.

FUNCTIONAL AND OPERATIONAL REQUIREMENTS

1.6.7. The layout of the Site Campus has been developed to meet a series of functional and operational requirements. These include:

- the number of residents;
- the number of staff and their associated responsibilities;
- catering requirements;
- the amount and type of leisure requirements;
- retail requirements;
- the number of vehicles using the site (e.g. buses, deliveries, maintenance);
- user flows around the site and buildings;
- security strategy;
- building services strategy; and
- fire strategy and emergency vehicle access.

1.6.8. The key functional and operational requirements are listed in table 1.

Table 1 Operational information

ITEM	INFORMATION	
Operational programme	Up to 10 years	
Size of operational workforce (average per day)	Up to 400 members of staff	
Shift patterns	Shift patterns below are for the construction workforce at the Power Station Site.	
	Day-shift Staggered start: 07:00, 07:30 and 08.00 Staggered end: 17:30, 18:00 and 18:30 10 ½ hour day	Night-shift Staggered start: 16:30, 17:00 and 17.30 Staggered end: 03:00, 03:30 and 04:00 10 ½ hour day
	Workers would work an 11-day fortnight with three days off. Eleven-day fortnights would be staggered, with half the workforce off one weekend and the other half off the following weekend. The operational workforce for the Site Campus will be required to work around these shift times to ensure the residents are appropriately serviced. Security staff are to be on-site 24/7.	
Operational vehicles	Provision of a turning circle for Heavy Goods Vehicles (HGVs) Provision of parking for an appropriate number of Light Goods Vehicles (LGVs)/minibuses Access for buses Golf-buggy-type vehicles for FM staff. Provision for on-site resident parking (400 spaces) to be made following completion of Phase 1 (approximately 1,000 beds). This could be constructed in the location of the proposed construction compound and removed when location is required for following phases.	
Operational traffic data for opening year	Traffic demand is a function of construction, worker and operational staff numbers and is addressed in chapter C2 of the Environmental Statement [APP-089].	
Traffic movements of residents and staff to and from site	Typically 10 airport transfer-type buses (capacity up to 150 per bus) at peak times to/from Power Station Site. Allowance for maximum 16 minibuses for ad hoc trips. Allowance made in initial construction phase for up to 400 parking spaces for Temporary Workers' Accommodation parking area for residents' and staff private vehicles. On completion of the full site, this parking is removed and 800 spaces would be provided to the south of the Site Campus in addition to spaces allowed at Dalar Hir not on the accommodation site. Transfer to and from these car parks would be by bus. Dedicated buses/minibuses from various transport nodes to transport staff, subject to shift patterns.	
Movement of residents and staff to leisure and welfare amenities	All welfare facilities are located on-campus. NB a health care/accident and emergency facility would be located within the Power Station. Leisure facilities would be within walking distance.	
Facilities/goods deliveries	Return journeys on an average day: • Eight HGVs • 45 LGVs (up to 7 tonnes) • 75 light vans and/or minibuses	
Access	The site would be accessed via an existing and upgraded access road off the road to the Power Station Site off the A5025.	
On-campus parking	16 disabled places for staff parking and 16 places for light vans/minibuses on-campus only.	

2 CONTEXTUAL ASSESSMENT

Contextual assessment

2.1 PHYSICAL ASSESSMENT

SITE LOCATION

2.1.1. The site is located within the Wylfa Newydd Development Area, and sits between the Existing Power Station and the Wales Coast Path, overlooking Cemaes Bay.

2.1.2. The site as shown in figure 2 includes the areas proposed for the Site Campus.

2.1.3. The total area of the Site Campus is approximately 16 hectares.

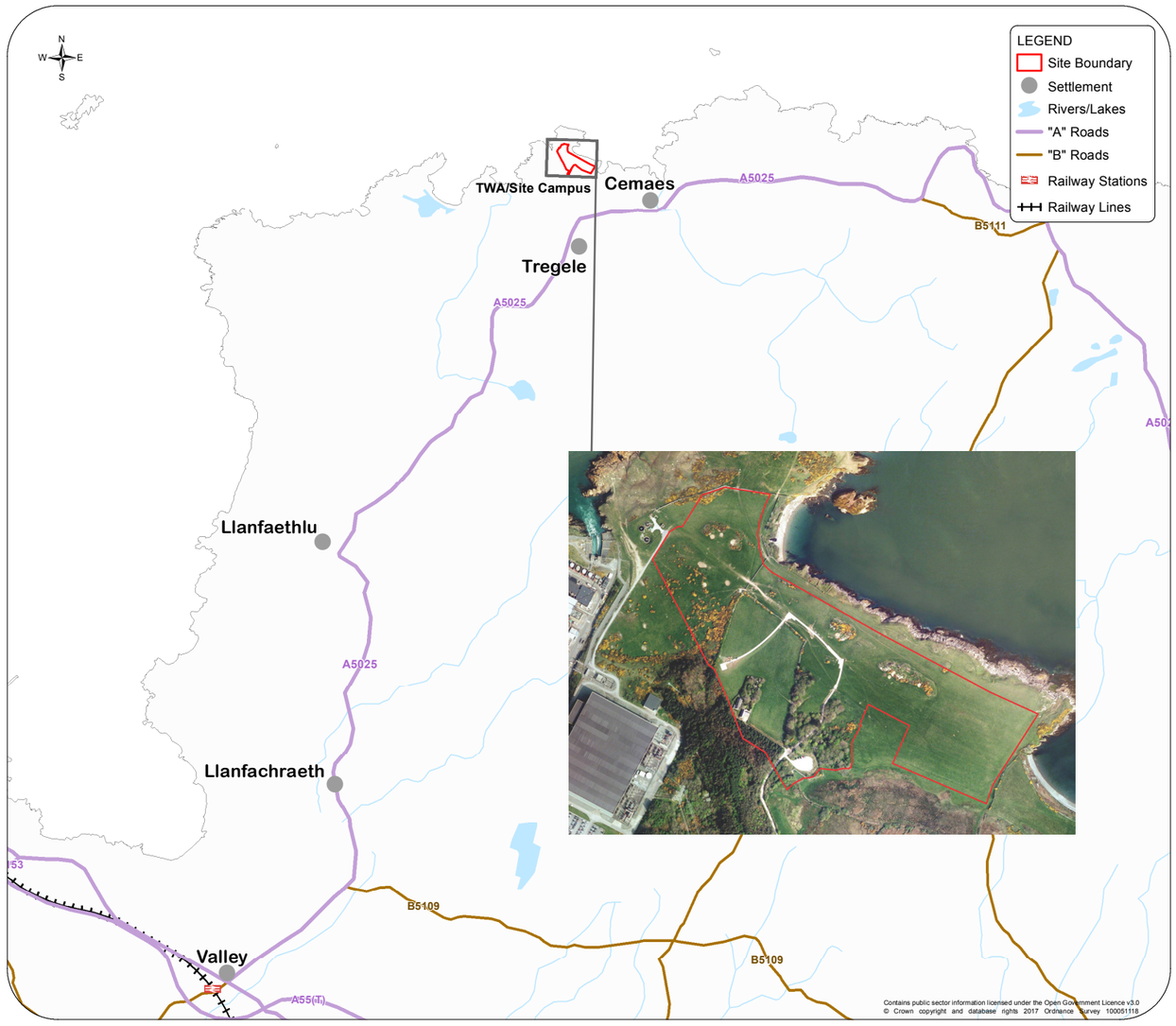


Figure 2 Site location

EXISTING LAND USE

2.1.4. The Site Campus site lies parallel to the coast straddling the approach to Wylfa Head. It is predominantly an area of coastal grassland used for sheep grazing, flanked by the coastline to the north and the Existing Power Station, associated wooded slopes designed by Dame Sylvia Crowe and the more deciduous parkland tree planting associated with the former Wylfa Hall to the south. Large rock outcrops run through the site surrounded with hardy gorse planting; these distinct features reflect the close proximity of the bedrock to the surface that would influence the design of the temporary land use of the site.

2.1.5. The Tre'r Gof Site of Special Scientific Interest (SSSI), a small basin mire, is located south-east of the site.

2.1.6. The cluster of buildings called Haul Y Gwynt to the west of the site has recently been demolished; however, the car park (known locally as 'Fisherman's car park') is still present. There is an area of ancient woodland within the eastern boundary. A track road runs up from the south and comes to a junction within the site boundary where it goes north through the woodland, west down to the bat barn and east into the Fisherman's car park.

2.1.7. There are no records of active or historic landfills within the site boundary.

2.1.8. Figure 3 shows an aerial view of the site with the boundary.

PUBLIC RIGHTS OF WAY

2.1.9. The site has a number of Public Rights of Way that run through and adjacent to the site. These are shown on Figure 9 Landscape features. The Wales Coast Path runs along the eastern and northern boundaries and connects to a Public Right of Way that leads though the wooded slopes to a lookout point that overlooks the site to the north.

HERITAGE

2.1.10. The site comprises a coastal strip and agricultural land. A cluster of buildings was present on the site but these have been demolished. The northern end of the site was used during the construction of the Existing Power Station before being returned to agricultural use. The boundary of the site skirts a burial ground adjacent to the ancient woodland.

TOPOGRAPHY

2.1.11. The overarching appearance of the site topography is a combination of undulating curves as the form generally rises to the promontory at Wylfa Head. The contours vary in direction and gradient defining a crest line in the central part of the site. The crest runs north-west to south-east across the proposed site, parallel to the Wales Coast Path. From this crest the land falls steeply north towards the coast, to the cliff face, where it falls down to Cemaes Bay. To the south of the crest line are three distinct areas of landform. In the western part of the site the landform slopes gently to the south, across the site curving towards the Existing Power Station and the wooded mounds. The central part of the site is defined by a section of woodland, including a portion of ancient woodland. This area includes a comparatively level area of grassland between the woodland and crest line. The eastern section of the site has rounded slopes, which fall southwards, through the ancient burial ground, down towards the Tre'r Gof SSSI.

GEOLOGY

2.1.12. The majority of the site is underlain by bedrock at shallow depth comprising mica schists and psammites from the late Pre-Cambrian low grade metamorphic New Harbour Group in the western area, and undifferentiated interbedded Ordovician sandstone and conglomerate in the eastern area. The New Harbour Group is shown locally to become a fine grained lava within the central portion of the site.

SOILS

2.1.13. The sub-strata are bedrock at shallow levels with generally natural ground and in areas made ground above. Made ground consists of natural ground intermixed with made ground or waste or topsoil.

SURFACE/GROUND WATER

2.1.14. Underlying the majority of the site is an unproductive aquifer within the superficial geology. This is described as having low permeability and negligible significance. In the southern area of the site there is a secondary aquifer with permeable layers within the superficial geology. Within the bedrock there is a secondary aquifer across the entirety of the site. There is a water network to the south of the site generally consisting of tertiary rivers with a small section of secondary river.

FLOOD RISK

2.1.15. The site is indicated as having no risk from flooding from rivers and seas. There are two small localised areas within the site boundary which are indicated as having low to high surface water flood risk. The remainder of the site is indicated as having no risk from surface water flooding.

Work Area No. 3A

Figure 3 Site boundary

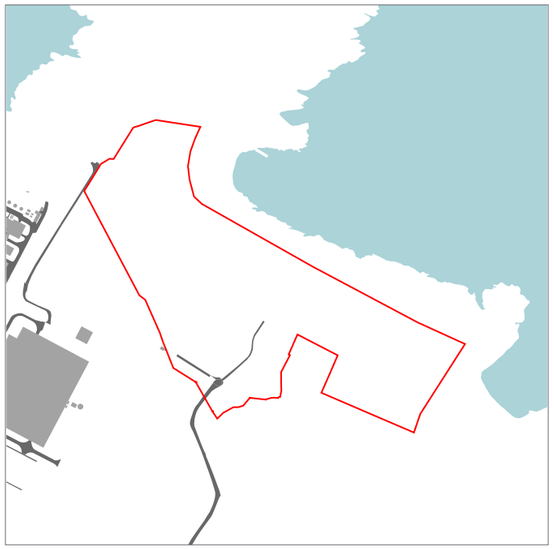


Figure 4 Landscape designations

No designation

Work Area No. 3A (all figs)

LANDSCAPE DESIGNATIONS

2.1.16. The majority of the coastline of the Isle of Anglesey where the site is situated is classed as an Area of Outstanding Natural Beauty (AONB). This includes a small part of the Wylfa Newydd Development Area, although the Site Campus is located outside the AONB boundary.

2.1.17. The site was located within the North Anglesey Special Landscape Area (SLA) as identified in the Ynys Môn Local Plan (the Isle of Anglesey County Council (IACC), 1996). This was, however, reviewed in 2012 and six specific SLA designations proposed rather than the island-wide designation. This is reflected in the Joint Local Development Plan (JLDP) replacing the Ynys Môn Local Plan. The Site Campus is not located in one of these six new SLA designations.

2.1.18. Figure 4 shows the site has no current landscape designation. The site is currently in agricultural use, predominantly as sheep grazing, broadly following the natural boundary parallel to the coastline.

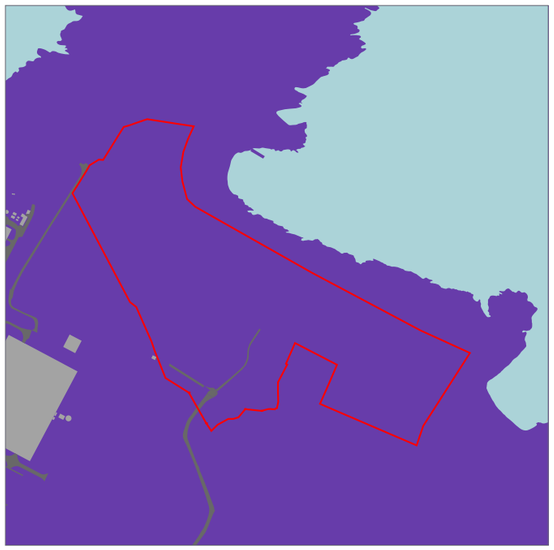


Figure 5 Landscape character

LCA4

LANDSCAPE CHARACTER

2.1.19. The site is located within Landscape Character Area LCA4: North West Coast, as defined in the Anglesey Landscape Strategy Update 2011 (IACC, 2011), refer to figure 5. The area covers the coast of Anglesey between the Alaw estuary and Bull Bay. The western coast comprises sandy bays and coves separated by rocky cliffs and headlands. The landscape character of this site is typical of that of the north-west coast with exposed coastal grasslands, which in this particular location is viewed against the backdrop of dense coniferous woodland. The overarching appearance of the landform is of an open landscape, generally rising up to the promontory at Wylfa Head.

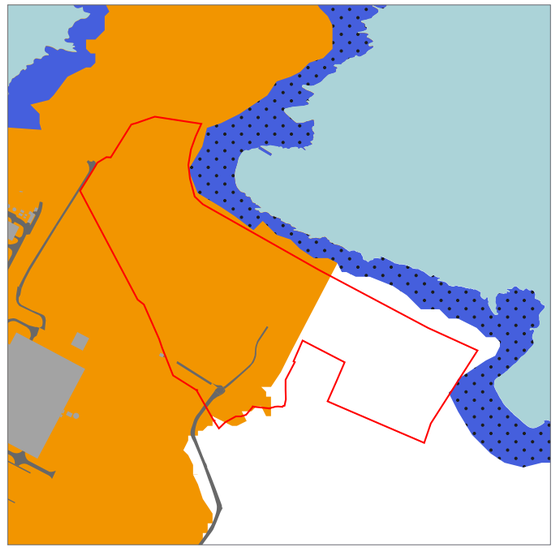


Figure 6 LANDMAP classifications

LANDMAP

2.1.20. The site is identified within LANDMAP, the Natural Resources Wales (NRW) landscape baseline: Historic Landscape Area – Wylfa/Fieldscape: North West Môn; Landscape Habitats Area – Coast - Wylfa - Hell's Mouth; and Visual and Sensory – North Coast. Figure 6 shows the classifications across the site.

Visual and Sensory – North Coast: Steep, rugged, rocky headlands frame numerous shingle bays and coves around the Existing Power Station. Its buildings are uncompromising on the skyline and conspicuous against the backdrop of the sea.

Landscape Habitats – Coast - Wylfa - Hell's Mouth: An area of coastal habitat consisting of intertidal rocks, with hard cliffs that rise up above this area and coastal grassland on the cliff tops. Areas of coniferous planting, amenity grassland and semi-improved grassland.

Historic Landscape – Wylfa: Nuclear Power Station of national significance as a striking and dominant landscape of brutalism.

Fieldscape – North West Mon: Elongated strip of small field systems south of Existing Power Station.

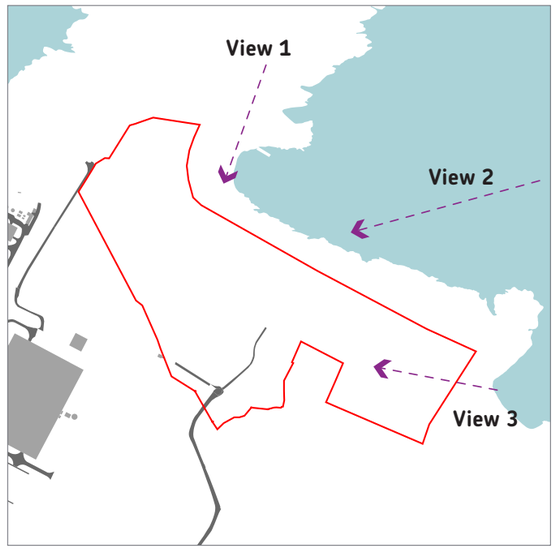


Figure 7 Key views

KEY VIEWS

2.1.21. Visually, the site is mostly hidden from the south, screened by the Existing Power Station and the Dame Sylvia Crowe woodland. This sense of enclosure is in contrast to the north of the site, where the open landscape affords both distant and close views across Cemaes Bay from Llanbadrig Point, from the Wales Coast Path as it runs parallel to the site, and from Wylfa Head looking south towards the site. In addition, there are key views from the lookout on the wooded slopes, north over the site to the coastal landscape beyond. Figure 7 shows the directions of the key views and figure 8 depicts photographs.

2.1.22. The existing views from Cemaes of the Existing Power Station illustrate the context that would prevail for the operational life of the Site Campus and the importance of the position and height of the accommodation buildings in relation to both the wooded slopes and to the Existing Power Station.

View 1 Looking south from Public Right of Way at Wylfa Head

View 2 Looking west from Llanbadrig Point

View 3 Looking west from Wales Coast Path at Porth Wylfa

View 1: Looking south from Public Right of Way at Wylfa Head

View 2: Looking west to Llanbadrig Point across Cemaes Bay

View 3: Looking west from Wales Coast Path at Porth Wylfa

Figure 8 Panorama photographs

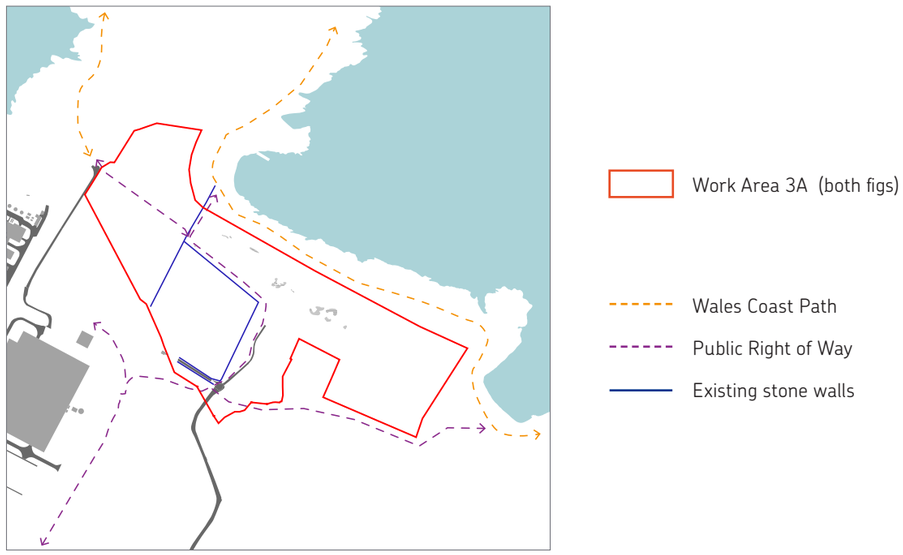


Figure 9 Landscape features

LANDSCAPE FEATURES

2.1.23. Figure 9 depicts applicable landscape features. The stone walling which surrounds the field boundaries is generally in poor condition. The bat barn is the only remaining building structure as a result of the agricultural buildings of Haul Y Gwynt being demolished. The track that runs to and from the barn features cloddiau stone walls which are a distinctive feature of the Anglesey landscape. The cloddiau / natural stone and hedgerows are important landscape features; good quality examples provide important wildlife habitat and serve as important wildlife corridors. Distinctive features along this length of the Anglesey coast are rock outcrops. Dense gorse and coast vegetation cling to these outcrops and combine with the rock to visually breaking up the expanse of grassland.

2.1.24. The Wales Coast Path runs along the eastern and northern boundaries and connects to a Public Right of Way that leads though the wooded slopes to a lookout point that overlooks the site to the north.

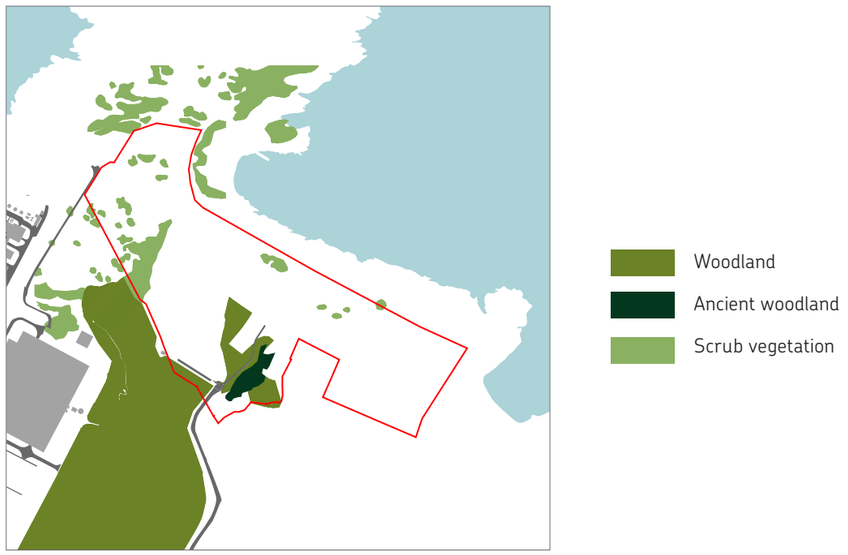


Figure 10 Woodland and vegetation

WOODLAND AND VEGETATION

2.1.25. A series of ecology and arboriculture surveys have been undertaken for the site and the surrounding areas (see Environmental Statement chapter D9 Terrestrial and freshwater ecology [APP-128]; these surveys have informed the analysis of the existing vegetation of the area and the development of the design options.

2.1.26. The site is dominated by the contrasting coniferous wooded slopes designed by Dame Sylvia Crowe and the open semi-improved coastal grasslands that connect with the more ecologically valuable grasslands along the cliff edge.

2.1.27. The Dame Sylvia Crowe-designed wooded slopes are to the south-west, there is an area of ancient woodland associated with the now demolished Wylfa Hall in the centre of the site.

2.1.28. Whilst not designated, the Dame Sylvia Crowe-designed wooded slopes are a distinct feature in the landscape and are synonymous with the landscape of the Existing Power Station.

2.1.29. More established wooded areas including a section of ancient woodland lie in the centre of the site. The woodland, a remnant of the planting associated with Wylfa Hall, surrounds the Fisherman's car park with fingers of planting extending up the slope towards the coast. This area of woodland provides shelter and screening between the site and the Tre'r Gof SSSI.

2.1.30. Figure 10 depicts current woodland and vegetation present.

SURROUNDING AREA

2.1.31. There are two areas of potential contamination in the area surrounding the site, both associated with the construction of the Existing Power Station: one area to the north-west of the site is expected to have 'made ground' present and one area to the south-west of the site is a screening mound constructed as part of the landscaping for the Existing Power Station. There are no records of active or historic landfills within the area surrounding the site.

2.1.32. In 2005, British Nuclear Fuels Ltd. identified Areas for Potential Concern for contamination in the area around the Existing Power Station. One identified Area for Potential Concern is located adjacent to the site on the west boundary and overlapping with the northern part of the site. This Area for Potential Concern is associated with the construction of the Existing Power Station and includes offices, parking, site plant, stores, workshops and a cement mixing plant.

2.1.33. There is one record of ancient woodland within the Site Campus boundary. There are also three SSSIs in the immediate vicinity (Tre'r Gof, Cae Gwyn and Cemlyn Bay). Closest is the Tre'r Gof SSSI which is located within the Wylfa Newydd Development Area, but approximately 50m outside of the southern extent of the Site Campus boundary. Nearby marine receptors include Cemlyn Bay Special Area of Conservation (SAC), North Anglesey Marine candidate Special Area of Conservation (cSAC), Aberdaron Coast and Bardsey Island Special Protection Area (SPA) and Anglesey Terns SPA.

2.1.34. The majority of the coastline of the Isle of Anglesey is classed as an AONB. The Wylfa Newydd Development Area largely sits outside the AONB boundary with the exception of a small margin along its western boundary. The whole of the proposed Site Campus site sits within the Wylfa Newydd Development Area, but is outside of the AONB.

2.1.35. There is a burial ground to the south of the site.

2.1.36. Figure 11 shows a view of the surrounding area.

View from the proposed Site Campus looking south towards the Dame Sylvia Crowe-designed wooded slopes

Figure 11 Surrounding area

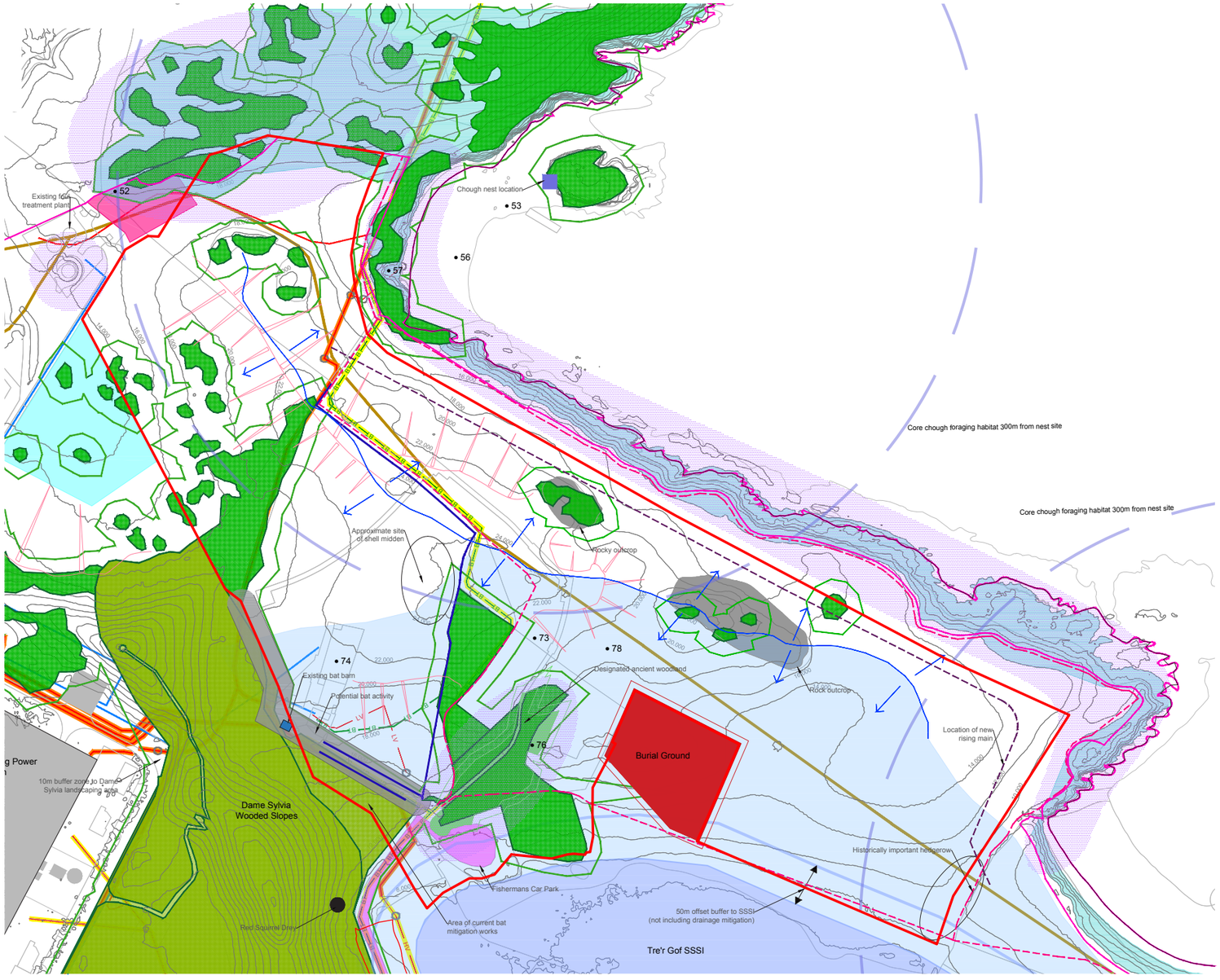
ENVIRONMENTAL DESIGN OBJECTIVES

2.1.37. As a result of environmental assessment work and associated surveys, a list of environmental design objectives (EDOs) have been developed for the Site Campus which have informed the design principles. Appendix A lists the EDOs and provides detailed commentary on how the EDOs could be met through the design process, by the illustrative design, during the construction, operation and decommissioning phases as applicable. The EDOs have been informed by the environmental constraints outlined below.

ENVIRONMENTAL CONSTRAINTS

2.1.38. There are a number of environmental constraints (figure 12) on the site which are relevant to the development of a masterplan for the Site Campus. These constraints include:

- Tre'r Gof SSSI to the south: site works should be a minimum 50m from SSSI with exception of drainage mitigation. The drainage design needs to consider surface water catchment of SSSI and minimise the impact on the existing hydrology.
- Cemaes Bay Regionally Important Geodiversity Site (RIGS): the Site Campus boundary needs to be located away from the RIGS with allowance made for the Wales Coast Path to be retained.
- Public footpaths: there is an opportunity to retain the Fisherman's car park, the path from Fisherman's car park to Dame Sylvia Crowe's mound, from car park to Porth Wylfa (to the north of Tre'r Gof), routes from the car park to Wylfa Head and Wales Coast Path. With the exception of the Wales Coast Path, all the above noted paths are not to be designated as Public Rights of Way (PRoW) during construction or operation of the facility; however, there is an opportunity to return and enhance post-operation.
- Dame Sylvia Crowe landscape design (woodland): design to retain Dame Sylvia Crowe landscape design (woodland).
- Existing hedgerows, trees and walls around Site Campus boundary: design to retain boundary hedgerows, trees and walls. Those within Site Campus boundary may be removed.
- Existing topography and ground: the design should minimise the amount of cut and fill required to allow existing topography to be easily reinstated, and avoid large amounts of off-site disposal.
- Existing burial ground: not located within Site Campus boundary.
- Existing bat barn: retain the existing bat barn to south-west of the site.
- Ancient woodland: the Site Campus boundary should exclude the ancient woodland.
- Existing rock outcrops: the design should retain the two rock outcrops to the eastern side of the site.



Legend

- Site Campus boundary
- Stone outcrop
- Stone wall
- Visually prominent sloping land
- Bat barn

Environmental Constraints

- Potential bat activity - 20m buffer
- Woodland, trees & scrub
- Woodland, trees & scrub - 10m buffer
- Ancient woodland
- Dame Sylvia Crowe Woodland
- Ceamaes Bay regionally important geodiversity site
- Potential extension of treatment works
- Area allocated for potential cooling water outlet compound
- Area of dust & odor sensitivity
- Tre'r Gof surface water catchment
- Tre'r Gof SSSI
- Arfordir Mynydd y Wylfa - Trwyn Penrhyn Wildlife Site outline

Services Constraints

- Services - underground constraints
- Services - overhead constraints
- BT - Telecoms
- Electrical HV
- Gas
- Water
- Proposed Foul water rising main
- Existing Foul water rising main
- Pole
- Joint box

Other Constraints

- Public right of way
- Fisherman's car park & access track
- Existing buildings
- Water shed line / ridge line

Historical References:
52 - Site of WWII transmitter mast
53&56 - Site of former lifeboat station
57 - Boat house
73 - Site of Wylfa House
74 - Site of Tyn y Maes (demolished)
76 - Site of structures chain home guard, Cemaes Bay
78 - Cropmark

Figure 12 Environmental constraints

2.2 POLICY ASSESSMENT

2.2.1. Planning policy provides a key component of the context for the Wylfa Newydd DCO Project and its constituent parts. Volume 1 of the DAS provides an overview of national, regional and local planning policy, where they are relevant to the determination of the DCO.

2.2.2. Policy that is specifically relevant to the Site Campus is contained within the JLDP and the New Nuclear Build at Wylfa Supplementary Planning Guidance (SPG) (July 2014). A draft Wylfa Newydd SPG 2018 is, at the time of writing, being consulted on by the IACC.

3 PRINCIPLES OF PROPOSED DEVELOPMENT

Principles of the proposed development

3.1 OBJECTIVES

3.1.1. This chapter outlines the process of design evolution, having regard to the site brief, functional and operational requirements, contextual assessment and pre-application consultation. This has informed a series of 'design principles' which will control the detailed design of the Site Campus, alongside the parameters set in the DCO parameters tables.

3.1.2. The Site Campus would be in operation only for the duration of the construction of the Power Station and then restored to its current use in accordance with the objectives set out in the Ynys Môn Landscape Strategy and the LANDMAP classifications.

3.1.3. The overarching concept for the facility is to place the various buildings sensitively into the landscape, with minimum disturbance to the key landscape and environmental features (refer to chapter 2) that reflect the distinctiveness of the local character. These key attributes would remain throughout the operation of the site and would provide a mature structure around which the site would be reinstated.

3.1.4. The proposed layout of the Site Campus has been developed to:

- respond to the site brief, functional and operational requirements;
- respond to the context of the site;
- maximise the retention of key site characteristics;
- meet the EDOs, where feasible;
- meet the requirement for the provision of accommodation;
- provide suitable amenity space to attract and retain a high standard construction workforce;
- provide a bus transfer service to and from the Power Station;
- provide safe circulation space for all users;
- break down the scale and potential impact of the buildings;
- consider the visual impact of the massing and design of the buildings when viewed from the surrounding landscape; and
- provide an environment to meet the needs of the workers during their stay on the Site Campus.

3.1.5. To meet these objectives, the design approach identifies the key areas of ecological and hydrological value and incorporates measures to retain, protect and enhance these valuable assets, embedding them seamlessly within the design. A constraints drawing has been produced and is shown in figure 12.

3.2 CONSULTATION AND DESIGN EVOLUTION

CONSULTATION

3.2.1. Volume 1 of the DAS provides an introduction to the consultation process for the Wylfa Newydd DCO Project, which is set out in detail in the Main Consultation Report [APP-037].

3.2.2. The three main stages of the consultation process, between 2014 and 2017 are explained in the Main Consultation Report. With regard to the Site Campus the key design changes were progressed between the Stage Two and Stage Three Pre-Application Consultation. This followed an important period of review, which included the appointment of a joint venture partner and consultants to take forward its proposals for project design and deliverability (as well as the feedback from the Stage Two Pre-Application Consultation and other engagement with local stakeholders).

3.2.3. Following Stage Two Pre-Application Consultation, the Wylfa Newydd DCO Project went through an important period of review. This review included Horizon's appointment of a joint venture partner and various consultants to take forward its proposals for project design and deliverability and, secondly, the consideration of the feedback from the Stage Two Pre-Application Consultation and other engagement with local stakeholders.

3.2.4. The Stage Two process generated a significant amount of feedback in respect of the intended strategy for the accommodation of temporary workers. The response to the proposals to distribute Temporary Workers' Accommodation in various parts of Anglesey was mixed, with some concern raised about the housing market and other socio-economic impacts.

3.2.5. The social, cultural and language implications of the strategy were also widely raised, as well as the potential impacts on public services such as schools and healthcare provision. There were various opinions expressed about the sites proposed for Temporary Workers' Accommodation at Holyhead, Amlwch and Rhosgoch, with generally equal support and objection for each site, largely depending on where respondents lived. There was no one site which received strong support.

3.2.6. In response to the differing views (about whether it is better to disperse workers across Anglesey or locate them in a single location), Horizon amended the Workforce Accommodation Strategy to propose all required purpose-built Temporary Workers' Accommodation in a single location on the Wylfa Newydd Development Area. This strategy was presented at Stage Three Pre-Application Consultation. This Temporary Workers Accommodation, to accommodate up to 4,000 workers, is in addition to the 2,000 home based workers and 3,000 in existing accommodation sources.

3.2.7. A number of responses were received with regard to this revised approach to purpose-built Temporary Workers' Accommodation. This included comments with regard to the scale of development, potential for impact on local environment and communities and control and management of workers.

3.2.8. Horizon's view is that on balance, the environmental and social effects of up to 4,000 Temporary Workers' Accommodation bed spaces on the existing community is best managed through locating them in a single, purpose-built campus as close as possible to the Power Station Site. This reduces daily vehicle trips on the local road network as much as possible and also has the benefit of being able to provide a single, managed site which itself provides all of the facilities required by workers, including leisure and healthcare (located adjacent within the Power Station), in one place.

STAKEHOLDER ENGAGEMENT

3.2.9. The design of the facility has been developed in consultation with a number of stakeholders including, but not limited to, the following.

- The IACC: the local authority and planning authority.
- Design Commission for Wales (DCfW): established by the National Assembly for Wales to promote good design; they support the local planning authority to "capture the value of high-quality design for better outcomes and a better return on investment".
- Natural Resources Wales (NRW): principal advisor to the Welsh Government about issues relating to the environment and its natural resources. Regulator to protect people and the environment including marine, forest and waste industries, and prosecute those who breach the regulations that NRW are responsible for. Designator for SSSIs, areas of particular value for their wildlife or geology, Areas of Outstanding Natural Beauty and National Parks, as well as declaring National Nature Reserves.
- Scottish Power Energy Networks: principal electricity power supplier in the area. Provides advice on existing and proposed power supply requirements.
- Welsh Water: principal water supplier in the area. Provides advice on incoming water supplies and outgoing foul and surface water sewerage.
- Wales & West Utilities: principal gas supplier in the area. Provides advice on gas supply and connections.
- Crime Prevention Design Advisor (North Wales Police): provides crime prevention and security advice with particular emphasis on 'Secured by Design' principles.
- Fire Safety Officer (North Wales Fire and Rescue Service): provides fire prevention and strategy advice.
- Various mobile phone operators.

3.2.10. Engagement with these bodies is ongoing as the statutory consultation has finished.

SUMMARY OF DESIGN EVOLUTION

3.2.11. This section provides an overview of the overall design development of the site on the northern edge of the Wylfa Newydd Development Area to create the Site Campus.

3.2.12. The design evolution started with a requirement to provide living accommodation for up to 500 workers in close proximity to the Power Station Site.

3.2.13. Early studies were undertaken to look at space requirements for the buildings and infrastructure on the land available. Environmental and site data was also gathered to inform the design. From the environmental data and site analysis, a set of EDOs were developed and a layout evolved to meet the EDOs and the requirements of the facility. Sketches showing the evolution of the site design are shown in figure 13a for the option for 500 units. This design only required part of the land available on the northern edge of the Wylfa Newydd Development Area.

3.2.14. Following a review of project requirements, and in response to pre-application consultation feedback, Horizon reviewed the options for the provision of TWA and decided to look at the potential to accommodate up to 4,000 workers on the site on the northern edge of the Wylfa Newydd Development Area.

3.2.15. From the environmental data and site analysis, the EDOs were reviewed and revised to take account of the additional area required for the increased numbers of workers to be accommodated. The new EDOs are outlined in chapter 2 and listed in Appendix A.

3.2.16. To support the project optimisation, a high-level concept to accommodate up to 4,000 workers was developed for the site on the northern edge of the Wylfa Newydd Development Area. This review considered a number of locations to locate the Site Campus. The site to the east of the Existing Power Station was chosen over other locations within the Wylfa Newydd Development Area as it maximises the distance of the accommodation from the active construction site while avoiding constraints on construction activities. It is also located away from neighbouring communities and in a location which will be partially screened by the landscaping proposals to the south and the east.

3.2.17. With the selection of the site for the Site Campus, this high-level concept was developed into the proposals presented within this DAS.

3.2.18. The extent of the site available for the Site Campus was discussed with NRW due to its proximity to Wylfa Head, the Dame Sylvia Crowe mounds and the Tre'r Gof SSSI. These discussions helped to identify the area available for the Site Campus.

3.2.19. The initial concept for the site looked at using an accommodation building layout that provided the maximum number of beds within an individual building, while limiting the storey height using rectangular and L-shaped blocks.

3.2.20. The amenity building was located in a central location within the campus. This limited the walking distance of the furthest block from the amenity buildings. The location on a flat area also provides a view from the building over the bay while allowing bus access to be limited to a central road into the site.

3.2.21. The layout developed is shown in figure 13b and comprised 20 accommodation blocks and the central amenity buildings. The layout provides a clear pedestrian circulation routes around the site and created courtyard layouts which help to introduce a sense of community within the campus.

3.2.22. This layout met the functional requirements for the 4,000 bed accommodation facility, but the block layout required extensive re-profiling of the site to provide flat platforms to fit the various accommodation blocks.

3.2.23. An alternative layout was then investigated. This used a standard accommodation block that met the functional accommodation requirements, but had a main entrance at one end, with the overall length fixed by fire escape distances between the main entrance and a secondary fire escape.

3.2.24. As the site is to be returned to its existing state and in view of looking to keep the impact of any re-profiling within the boundary of the site, the accommodation blocks were positioned to align with the topography of the site. Using this basic concept, a new layout was developed as shown in figure 13c. Although this new layout did not achieve a regular plan layout as shown in figure 13b, it did succeed in limiting re-profiling of the site, and keeping the re-profiling within the boundaries of the site. This reduction in re-profiling and allowing earth works to be kept within the Site Campus was a major driver in the adoption of this layout for the site.

3.2.25. The desire to limit the visual impact of the Site Campus influenced the choice of the maximum number of accommodation blocks. The number of storeys was dictated by the need to provide 4,000 beds, with the variation of the topography of the site allowing different storey heights to be selected, while keeping the overall height of the Site Campus below the top of Dame Sylvia Crowe mound.

3.2.26. The amenity building was retained in a central location within the campus. This keeps it central for all the accommodation blocks, and allows a simple access road into the site for bus drop-off and facility management operations.

3.2.27. Using the revised layout, the concept was further refined to develop a community arrangement with clear pedestrian routes and servicing access routes around the facility and locating sports areas within the campus.

3.2.28. A Phasing Strategy [APP-447] was also developed to allow the build-out of the accommodation blocks and the amenity area to meet the build-up of the demand for accommodation on the Site Campus.

3.2.29. Due to the site area constraints, parking for residents is allowed within the campus during the initial phase, but as the accommodation buildings are developed, this is moved to south of the Tre'r Gof SSSI.

3.2.30. The illustrative design can achieve a balance between meeting the functional requirements of a 4,000 bed accommodation site as outlined in the strategic design brief and EDOs for the site.

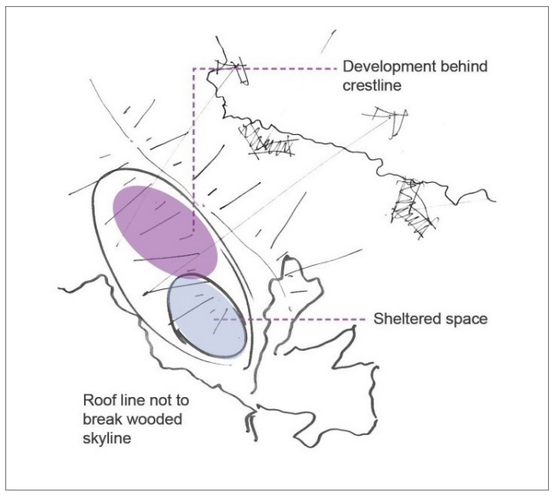
- Maintains buffers to the Tre'r Gof SSSI.
- Minimises the extent of site re-profiling and keeps the re-profiling within the site boundary.
- Considers the visual impact of the development with storey heights limited to keep the blocks below the existing skyline provided by Dame Sylvia Crowe mound.
- Visual appearance of the development selected to blend into the existing landscape.
- Retains access to Wylfa Head.
- Retains the rock outcrops in prominent areas with the RIGS.
- Drainage replicates the current flows into the Tre'r Gof SSSI using current catchment areas.
- Legacy site retains the existing topography and allows incorporation of additional footpaths.
- Campus boundaries respect the adjacent area.
- The layout works around the ancient wood land and the existing trees and incorporates them within the recreational area of the site.

3.2.31. Sketches showing the evolution of the site design are shown in figure 13a, b and c, which commenced with an option for 500 units at Pre-Application Consultation Stage 2 before the change in the Workforce Accommodation Strategy.

1) **Capacity study 01:** A site test fit to determine the optimum accommodation in conjunction with the requirement for 500 beds. Two three-storey and two two-storey buildings were considered with associated supporting amenity buildings. The building footprints were established at this stage to meet the following criteria:

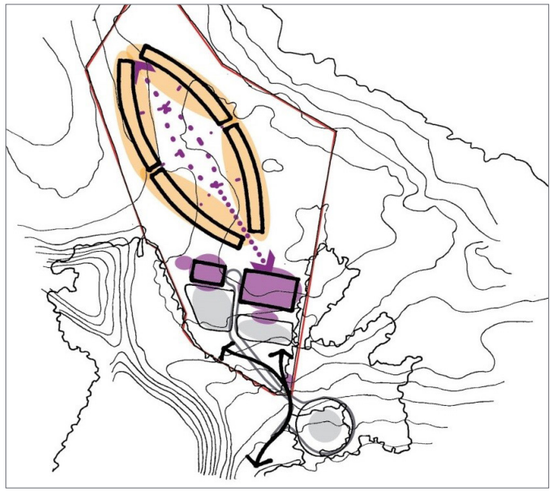
- optimum no. beds per floor;
- slim line form to maximise natural light and views out;
- +20m distance to neighbouring buildings / windows for appropriate privacy;
- central communal zone and vertical circulation;
- accessibility distances; and
- required escape distances.

An access road was proposed to service the site from the west, running adjacent to the Wales Coast Path. Parking spaces were provided on site at a ratio of one room to one space.



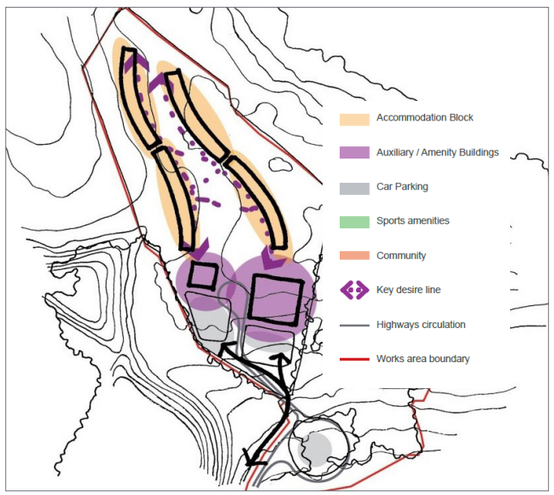
2) **Design evolution 01**: Input from the landscape and visual assessment indicated that, there were three main key features that the design needed to maximise in order to respond to the local character area:

- open nature of the coastal location – the scale of the landscape and the exposed location of the site;
- the crest line that is offset from the coastline – the development needed to be set back behind the crest line to retain and protect the wooded skyline views from impeding proposed rooflines when viewed from the north and east; and
- the visual backdrop and shelter provided by the Dame Sylvia Crowe wooded slopes and the woodland planting to the east.



3) **Design evolution 02-A:** The proposed crescent arrangement of the four accommodation buildings specified for 500 beds was rearranged and enclosed a courtyard/amenity area for contained behind the crest line and to maximise the screening and shelter provided by the surrounding woodland. The key environmental constraints for the site are associated with these wooded edges and the design evolution had to balance using the lowest and most sheltered part of the site with these constraints.

The building heights were reduced to three storeys, to keep the rooflines below the Existing Power Station and wooded slopes on the horizon, when viewed from the west. Site access was relocated to the south via the existing road to the Fisherman's car park, and away from the coastline.



4) **Design evolution 02-B**: The proposed site boundary was extended further to the east to include the ancient woodland area within the operation of the site to protect and enhance the woodland. A factor in preserving the woodland was the relocation of the bus transfer area from the Fisherman's Car Park and incorporating a reduced facility within the site.

Vehicular and pedestrian connectivity within the central spaces between the accommodation buildings was rationalised with vehicular/pedestrian access enhanced and improved. The building footprints and layouts were developed to follow the natural contours and settle into the downslope away from the coastline. Environmental buffer zones, ecological objectives and a surface drainage strategy based on SUDS principles were embedded into the scheme.

Accommodation Block
Auxiliary / Amenity Buildings
Car Parking
Sports amenities
Community
Key desire line
Highways circulation
Works area boundary

Figure 13a Evolution of site design

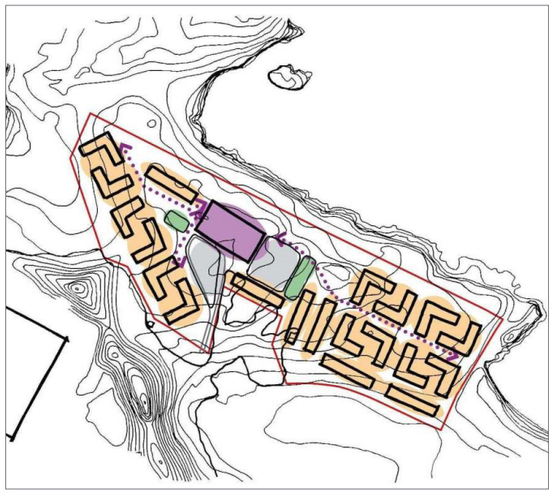


Figure 13b Evolution of site design

5) **Site Suitability Study 01:** As part of the Horizon project optimisation exercise the on-site accommodations' location, capacity and design was reviewed:

- a minimum spacing of 20m between accommodation buildings / bedroom windows for appropriate privacy;
- accommodation block sizes and shapes (rectangular and L-shape) used to ensure realistic and reliable masterplan options were developed;
- site facilities included in the design:

  Amenity building with facility for bus drop-off and delivery access.

  Communal and amenity areas (including a minimum of two MUGAs).
- clear and accessible footpath circulation; and
- avoidance of environmental constraints including Tre'r Gof SSSI and ancient woodland.

6) **Capacity Study 03 (Layout Development)**: Horizon confirmed capacity study required for up to 4,000 beds. Designs developed for 1,000, 2,500 and 4,000 bed options were developed. The options considered on-site included concentrating 4,000 beds to the west of the site, away from the SSSI.

Site landform and subterranean bedrock level data was utilised during the placement of accommodation blocks; minimising cut and fill requirements whilst achieving efficient use of site space. Environmental constraints integrated into design including SSSI, ancient woodland, bat barn, protected coastline, rock outcrops, burial ground and Dame Silvia Crowe woodland.

Amenity building and associated facilities centralised and placed on ridge line, design criteria and reasoning for this include;

- minimising cut and fill by locating amenity building (building with the largest footprint) in the area of least level change;
- provides views for workers across Cemaes Bay during use;
- minimising maximum distance for workers to walk from accommodation blocks;
- amenity building has the lowest roof level, placing it on the ridgeline minimises visual impact of site; and
- provides direct and unrestricted highway access for buses and delivery vehicles from site access road.

Accommodation blocks design and placement on developed, including:

- building height strategies developed to maximise bed capacity whilst minimising visual impact from surrounding area. Including the placement of tallest buildings behind ridgeline and lower accommodation blocks being placed at the more prominent eastern end of the site; and
- rectangular block shapes used across site, reducing the need for extensive cut and fill operations associated with L-shaped blocks.

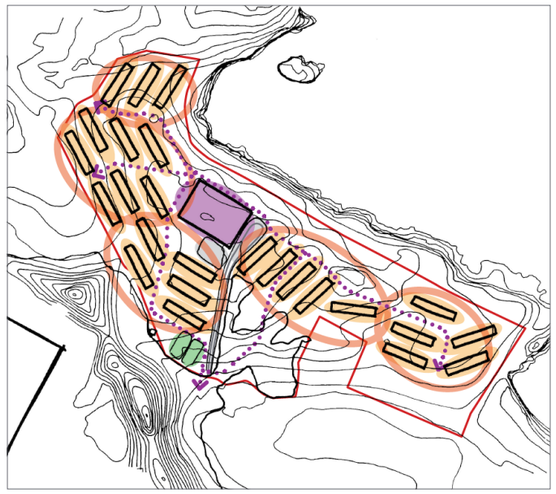


Figure 13c Evolution of site design

7) **Design evolution 03-A:** (Development of a community) Following the successful creation of a 4,000 bed capacity scheme the design was developed to create a campus-style facility with a series of five community zones, each of which having their own identity and communal spaces. Building floor levels were reviewed and altered across the site to provide accessible routes to all accommodation blocks and amenity building. Bus drop-off and pick-up area developed and path network rationalised to reflect natural pedestrian desire lines.

Amenity and recreational spaces strategy developed across the site, including; informal amenity grass areas, viewing and seating spaces, MUGAs and external exercise zones.

Site boundary and fence line altered to reduce impact on environmental constraints and provide emergency/ pedestrian access onto site.

8) **Design evolution 03-B**: (Development leading to consent) A number of design alterations were made, to incorporate operational requirements of the site, including the addition of:

- lighting and drainage proposals,
- emergency and maintenance access tracks; and
- substation compounds and bin stores.

The communal spaces and way finding were also strengthened, reinforcing the legibility of key circulation routes around the site. The evolution of the design led to a number of boundary and fence line alterations to reduce impact to the exiting bat barn mitigation planting and ancient woodland. The fence alterations also facilitated space for sustainable drainage proposals, with the aim to minimise impact to the SSSI to the south.

The DCO parameters tables are based on this layout (figure 13c), building in flexibility in the precise location of the buildings within defined parameter zones.

3.3 PARAMETERS FOR IMPLEMENTATION

3.3.1. The 'parameters approach' adopted by Horizon identifies defined envelopes for the construction the Wylfa Newydd DCO Project within which future development will be undertaken.

3.3.2. The reason for adopting this approach is to ensure that Horizon has sufficient flexibility to accommodate any design changes that may be required between the DCO being granted and construction commencing.

3.3.3. The parameters approach is adopted across the Wylfa Newydd DCO Project. The parameters for the Site Campus are generally more limited than those for the Power Station Site, though an amount of flexibility is, however, required for the proposed buildings and structures to allow for changes that may arise from variances in subsequent design and manufacture.

3.3.4. Details of design (including size, external appearance, siting and samples of materials) for the Site Campus will therefore be submitted to, and approved in writing by, the local planning authority, within the approved maximum dimensions set in the DCO parameters tables and the design principles set out in section 3.4 of this DAS.

3.3.5. This section, explains the rationale for this level of flexibility for the Site Campus.

POSITIONS OF BUILDINGS AND STRUCTURES

3.3.6. The masterplanning process has determined the general layout for the Site Campus. The exact position of buildings and structures would, however, be flexible within the zones set out in the DCO parameters tables. This is because the detailed design and construction would be sensitive to topography and rock levels, pending detailed surveys and further environmental impact assessment work.

BUILDING WIDTHS AND LENGTHS

3.3.7. The length and width of buildings would have a tolerance to pre-empt differences in manufacturers' module details and cladding extent. This is reflected in the maximum dimensions set out in the DCO parameters tables.

HEIGHT OF ACCOMMODATION BUILDINGS

3.3.8. The accommodation buildings have been designed with a storey height of 3.5m, based on a standard module. It is proposed to allow flexibility in storey height to allow for use of different manufacturers. This is reflected in the maximum dimensions set out in the DCO parameters tables.

3.3.9. The scheme as drawn shows an illustrative layout for up to 4,000 residents. In this case, the maximum number of storeys for any building would be seven, and no more than four buildings would be seven storeys in height. The minimum number of storeys for 4,000 residents would be four.

3.3.10. DELETED

3.4 DESIGN PRINCIPLES

3.4.1. The DCO parameters tables and maximum building dimensions (as described in section 3.3) provide the 'envelope' for the built form of the Site Campus, within which alternative schemes could be brought forward.

3.4.2. Where details of design are to be pursuant to a DCO Requirement, these must be in accordance with the following series of design principles.

3.4.3. The operational and functional requirements for the facility, as described in section 1.5 Strategic design brief, and more concisely listed in table 1, underpin the development of these design principles.

3.4.4. Appendix B sets out how the design principles may be met in the illustrative design, and how the facility meets the principles of 'good design' in accordance with EN-1 and EN-6. Good design criteria outlined in the aforementioned National Policy Statements (NPSs) are described in table 2.

3.4.5. As set out in Volume 1 of the DAS, the Planning Act (2008) places importance on good design. Policy relating to good design for energy infrastructure is set out in NPS EN-1 and policy relating to good design specifically for nuclear power generation is set out in NPS EN-6. These policies are set out in detail in the Planning Statement [APP-406].

3.4.6. While there is no hierarchy in the principles of good design, both NPS EN-1 and EN-6 recognise that the nature of energy infrastructure developments can limit the choice an applicant may have in respect of the visual appearance of buildings. For these reasons, the policies recognise that the achievement of good design goes beyond visual aesthetics and that the functionality of infrastructure is just as important. In this respect, the Planning Inspectorate needs to be satisfied that energy developments are functional and sustainable, and having regarding to regulatory and other constraints, are as attractive, durable and adaptable as possible. In making this assessment, paragraph 2.8.1 of EN-6 confirms that the need to ensure the safety and security of a nuclear station and to control the impacts of its operation, should be given substantial weight in determining whether or not the principles of 'good design' under EN-1 have been achieved.

3.4.7. For the purposes of this DAS, policy relating to good design has been grouped into the six themes set out in table 2. Grouping them in this way does not seek to alter the meaning of policy and is applied to help demonstrate how the design principles in this chapter underpin the delivery of good design.

Table 2 Good design

GOOD DESIGN	CORRESPONDING THEME
The applicant should take into account functionality including fitness for purpose (NPS EN-1, Para 4.5.1). The need to ensure the safety and security of the power station, and the need to control the impacts of its operations, must be given substantial weight given the importance of these factors to the operation of a nuclear power station (NPS EN-6, Para 2.8.1). The GDA, site licensing and environmental permitting processes will consider certain aspects of design, which the IPC should not replicate (NPS EN-6, Para 2.8.4).	Functionality
Applying good design to nuclear power stations means giving substantial weight to the need to control the impacts of its operations (NPS EN-6, Para 2.8.3). Good design can act to mitigate the impacts of nuclear power stations, such as landscape and visual impacts (NPS EN-6 Para 2.8.3). Good design can help mitigate adverse impacts through use of appropriate technologies. (NPS EN-1, Para 4.5.2).	Mitigation
The appearance should demonstrate good aesthetic as far as possible (NPS EN-1, Para 4.5.3) Energy infrastructure developments should be sustainable and, having regard to regulatory and other constraints, should be as attractive, durable and adaptable as they can be (NPS EN-1, Para 4.5.3). The applicant should take into account aesthetics, including its contribution to the quality of the area in which it would be located (NPS EN-1, Para 4.5.3). The applicant may not have any or very limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3).	Appearance
Applying good design to energy projects should produce sustainable infrastructure that is sensitive to place (NPS EN-1, Para 4.5.3). There may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3).	Character
Applying good design to energy projects should produce sustainable infrastructure that is efficient in the use of natural resources and energy used in their construction and appearance. (NPS EN-1, Para 4.5.3).	Sustainability
For some structures where the functional requirements may change over the lifetime of the structure, such as sea defences, they should be capable of being adapted if the need were to arise in future without major re-design or significant physical disruption (NPS EN-6, Para 2.8.2).	Adaptability

This table should be read in conjunction with Appendix B, which sets out how the design principles may be met in the illustrative design, and how it meets the principles of 'good design'.

KEY DESIGN PRINCIPLES

3.4.8. The Site Campus will provide safe and good quality single bedroom accommodation to meet accommodation standards for single living accommodation with good access to the construction site.

3.4.9. The amenity building will provide facilities that meet workers' needs, including facilities for good quality food and relaxation on-site.

3.4.10. The Site Campus density will provide the required number of beds to meet the forecast demand.

3.4.11. The proposed development will limit the potential impact of the buildings and connect the site visually and physically to the scale and pattern of the surrounding landscape.

3.4.12. The proposals will seek to reduce the overall visual impact of the site, using the site contours and natural levels of the site to locate the accommodation buildings.

3.4.13. The development will make use of simple building forms, with off-site modular construction adopted as appropriate.

3.4.14. Accommodation and amenity buildings will be designed to provide scalability and to allow its construction and decommissioning in phases.

3.4.15. The development will include an internal pedestrian network connecting the facilities, allowing safe circulation.

3.4.16. A simple and natural palette of materials and colours will be adopted.

3.4.17. The Site Campus will provide accommodation and facilities of sufficient quality to attract the temporary workers to stay on the site.

3.4.18. As many existing features will be retained as possible, including mature trees and woodland, the bat barn, hedges, hedgerows, boundary features, stone walls and rock outcrops.

GENERAL / MASTERPLANNING PRINCIPLES

3.4.19. The precise position of the buildings within the parameters, will maximise the retention of key site characteristics.

3.4.20. The accommodation buildings will be designed to the optimum size requirements to reduce services demand.

3.4.21. Buildings will be organised into communities to aid wayfinding and orientation.

3.4.22. Buildings will maintain a separation distance of at least 20m.

3.4.23. The development will minimise the vehicle traffic areas within the site.

3.4.24. The development will include a network of internal roads and footpaths to support the safe operation of the accommodation, and provide recreational areas within the site.

3.4.25. Highways design will make provision for buses and delivery vehicles, drop-off parking by the amenity building and emergency access.

3.4.26. The main vehicular site access will be located in the proposed position to the west of the existing Fisherman's car park. This entrance will have gated access monitored by security personnel.

3.4.27. The proposals will exclude the provision of any car parking on-site for residents beyond an initial allowance for the initial phases. Appropriate levels of disabled and light goods vehicle parking spaces will be provided on-site.

3.4.28. The perimeter of the site will be secured with fencing. The precise line of the fence line will have regard to security requirements, local topography and vegetation.

3.4.29. Direct access from the Site Campus to Wylfa Head will be prohibited except in emergency events. A minimum of two pedestrian emergency access points will be provided along the Site Campus boundary with Wylfa Head to facilitate access to this area during an emergency. Indirect pedestrian access to Wylfa Head and the Wales Coast Path from the Site Campus for recreational purposes will only be provided via the main access road in non-emergency situations.

3.4.30. Recreational facilities will be included as part of the Site Campus.

3.4.31. The development will include coordinated street lighting, street furniture and signage.

BUILDING DESIGN PRINCIPLES

3.4.32. Visually recessive natural colours and materials will be used to minimise the sense of scale and massing of the accommodation buildings and to help integrate them into the landscape using a similar approach to colours found within the surrounding landscape and on the Existing Power Station. The colour scheme design will be formulated taking account of visual analysis from the AONB and other key views, the new and Existing Power Station and the collective appearance of all buildings proposed in this application.

3.4.33. An external window (or roof light) will be provided to all bedrooms and where possible offices and meeting rooms.

3.4.34. All regularly occupied spaces within the buildings, including the amenity building, will be fitted with user-operated glare control, such as blinds, to also prevent light spill onto the surrounding area.

3.4.35. The development will include communal and social spaces for workers including external amenity and fitness areas.

3.4.36. Communal cycle storage will be provided on-site.

3.4.37. The Site Campus will provide safe facilities that meet all current requirements for fire safety, including fire sprinklers for all living accommodation in accordance with Welsh building regulations.

3.4.38. The Site Campus will include water-efficient fittings which help reduce water consumption.

3.4.39. The accommodation buildings to the west end of the site (within 70m of the centre of the Cemaes Wastewater Treatment Works (WwTW)) will be designed to reduce the exposure of residents to odour emissions.

3.4.40. Acoustic mitigation measures will be provided as part of the building design of the Site Campus to achieve the requirements and guidance provided in BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of practice', World Health Organisation Guidelines (1999) (for LAmax levels), Approved Document E of the Building Regulations and CIBSE Guide B4 Noise and vibration control for building services systems.

LANDSCAPE DESIGN PRINCIPLES

3.4.41. New native tree and shrub planting will be incorporated, using species of local provenance to reinforce and enhance the existing woodland and habitats within the Site Campus boundary with particular reference to the wooded slopes design by Dame Sylvia Crowe, providing shelter and aid wayfinding during operation and integrate the site with the surrounding landscape.

3.4.42. Hard landscaping will reflect local vernacular and complement the architectural design.

3.4.43. Accessible footways and viewing areas will be retained as part of the restoration proposals.

3.4.44. The lighting designs for operation will be developed to meet operational, safety and security purposes; limit reduce light spill onto sensitive receptors to below thresholds where significant adverse effects are predicted; maintain a uniform lighting solution to reduce dark and light spots; and limit visibility of new lighting at distant receptors. Best available technologies would include: sympathetic design, automatic sensors for street lights, and use of LED lighting to achieve lower lighting levels whilst maintaining the same level of effective lighting.

3.4.45. Closed circuit television (CCTV) will be provided at strategic locations within the site, externally and within buildings.

SUSTAINABILITY PRINCIPLES

3.4.46. The Site Campus development will adopt a generally low energy design, based on the hierarchy of minimising use, reducing waste, recycling and on-site generation.

3.4.47. The drainage strategy will use swales to help with management of surface water runoff.

3.4.48. The amenity building will be designed to provide natural light into the building as far as reasonably practicable.

3.4.49. Off-site modular construction will be used where practicable.

3.4.50. All surface water during construction of the Site Campus will run into a drainage channel to the east and west and discharge into attenuation ponds, to allow appropriate sedimentation control.

3.4.51. After each phase of Site Campus construction, surface water drainage from the completed elements of the Site Campus will either run into the ground around the site, or into surface water channels to the east of the site. Discharges to the west will be taken to the outfall currently used by the foul water treatment plant.

3.4.52. Drainage design for the operation of the Site Campus will include attenuation of discharge to surface water (e.g. geocellular attenuation tank), and recharge of storm water runoff (e.g. via infiltration trenches, reno mattress, swales), in order to minimise potential hydrological effects on the SSSI arising from surface water flows from the Site Campus site.

PART B: ILLUSTRATIVE DESIGN PROPOSALS

4 ILLUSTRATIVE PROPOSALS

Illustrative proposals

4.1 THE OVERALL SITE SCALE

4.1.1. This chapter demonstrates how the detailed design for the Site Campus could be developed in accordance with the parameters and design principles set in the DCO Requirements and in chapter 3 of this DAS.

4.1.2. Chapters 5, 6, 7 and 8 specifically set out how the design could addess the key design issues of environmental sustainability, community safety, accessibility and movement, which link back to the fixed design principles.

4.1.3. The scale of the development has been determined by the amount of purpose build TWA required for the construction of the Wylfa Newydd DCO Project, and the strategy to accommodate all of this within the Wylfa Newydd Development Area.

4.1.4. The general layout of the Site Campus has been developed to minimise disturbance to the landform and to retain the key features and characteristics of the site. This illustrative example is within the parameters set out in the DCO parameters tables.

4.1.5. The massing has been organised to create 'communities' of buildings connected to each other and the central amenity building by 4m wide pedestrian 'streets'. These streets would contain communal external spaces with seating and shelters and are envisaged to become key social places within the temporary development.

4.1.6. The main circulation streets are further supported by a network of secondary paths that would connect the buildings with the on-site amenities.

4.1.7. The existing and proposed massing can be seen in figure 14. This is within the dimensions set by the maximum building heights set in the DCO Requirements.

4.1.8. The indicative general arrangement plan for the operational phase is shown in figure 15.

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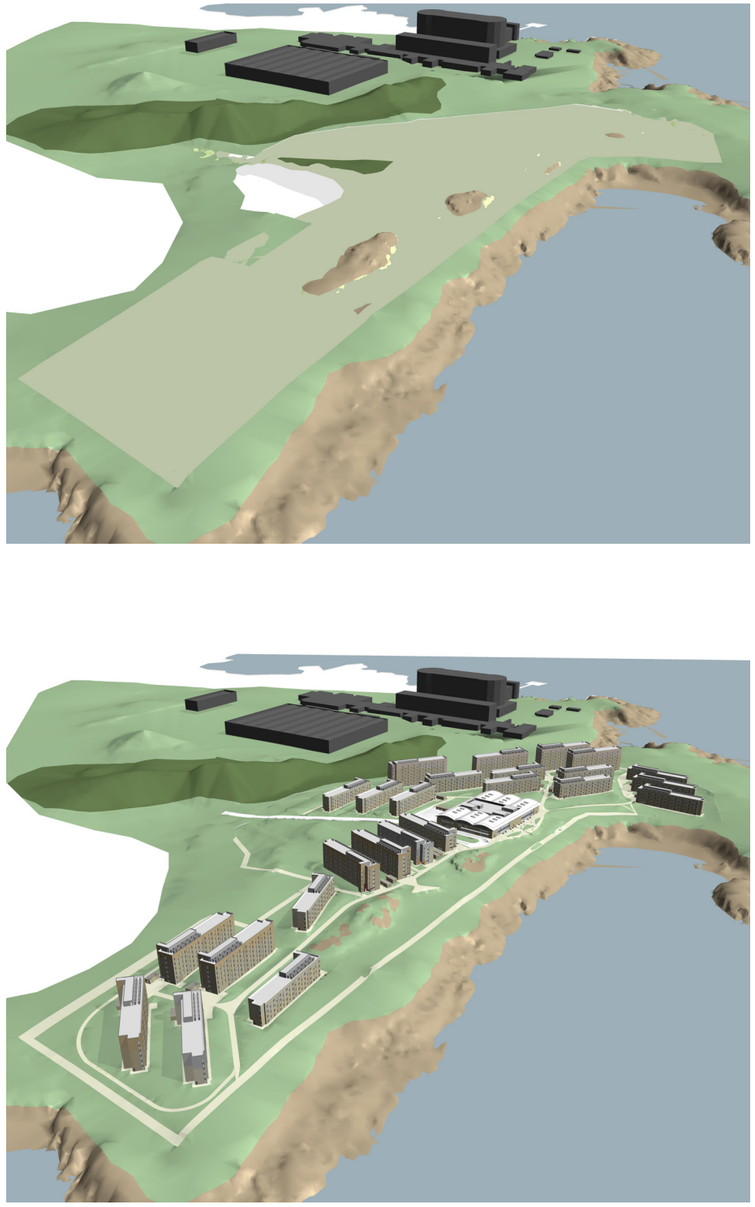


Figure 14 Aerial model image (existing context and proposed massing diagram)

Legend

- Wylfa Newydd Development Area Boundary
- Road surface
- Footway / pedestrian route surface
- Soft landscaping
- Existing vegetation retained
- Existing rock outcrop retained
- Proposed building footprint
- Building access point / entrance
- Proposed drainage
- Fenceline (2.4m paladin type)
- Fenceline (1.8m timber close board type)
- Fenceline (3m MUGA sports type)
- Existing stone walling retained
- Vehicle access barrier
- Pedestrian access barrier
- Pedestrian crossing - white line markings
- Area required for sustainable drainage

Buildings - Maximum storeys

TYPE A 4 Storeys + Rooftop Plantroom
TYPE B 5 Storeys + Rooftop Plantroom
TYPE C 6 Storeys + Rooftop Plantroom
TYPE D 7 Storeys + Rooftop Plantroom
TYPE E Substation and bin enclosure
TYPE F Amenity building
TYPE G Existing bat barn
TYPE H Security building
TYPE I Sprinkler pumphouse, compactor and external bin store for amenity building
TYPE J HV Switchroom
TYPE K Cycle store
TYPE L Equipment compound for MUGAs

Car parking legend

P1 Parking (16No. accessible spaces and 16No. delivery vehicles / minibuses or 1 HGV)

Amenity legend

S1 Multi use games area suitable for five-a-side football

Figure 15 General arrangement plan

4.2 LANDSCAPE PROPOSALS

INTRODUCTION

4.2.1. The long-term landscape strategy for the Site Campus would fully consider the placement of the temporary facilities efficiently and sensitively into the landscape, with minimum disturbance to the landform and the key landscape and environmental features that reflect the distinctiveness of the local character. Central to the strategy is the identification and retention of the features that would remain throughout the operation of the site and its restoration.

4.2.2. As part of the wider environmental assessment process, a detailed landscape and visual baseline assessment has been carried out and has identified these key landscape and ecology features (see chapter D9 Terrestrial and freshwater ecology [APP-128], and chapter D10 landscape and visual [APP-129], of the Environmental Statement). They are shown visually on figure 16 and include:

- the Tre'r Gof SSSI;
- ancient woodland;
- rock outcrops;
- the wooded slopes design by Dame Sylvia Crowe;
- semi-improved coastal grassland; and
- bat foraging flight paths.

4.2.3. In addition, nesting and feeding choughs were noted north of the site.

Figure 16 Key findings from the environmental surveys

LANDSCAPE DESIGN

4.2.4. In line with the design principles set out in Section 3.4, the illustrative layout of the Site Campus has been developed around 'communities' of buildings connected via a hierarchy of 'streets' reinforced with associated planting. The arrangement illustrated minimises disturbance to the landform and retains the key features identified in chapter 2. The clusters of buildings have been grouped to take full advantage of the coastal location, centring the communal amenity building at its heart, where those using it can enjoy expansive views north over the sea.

4.2.5. The indicative layout includes a series of streets linking the residential communities with the amenity facilities. These streets would be intended to act as communal spaces, providing opportunities to linger, meet and mingle with a varied scale of spaces and seating distributed along their length.

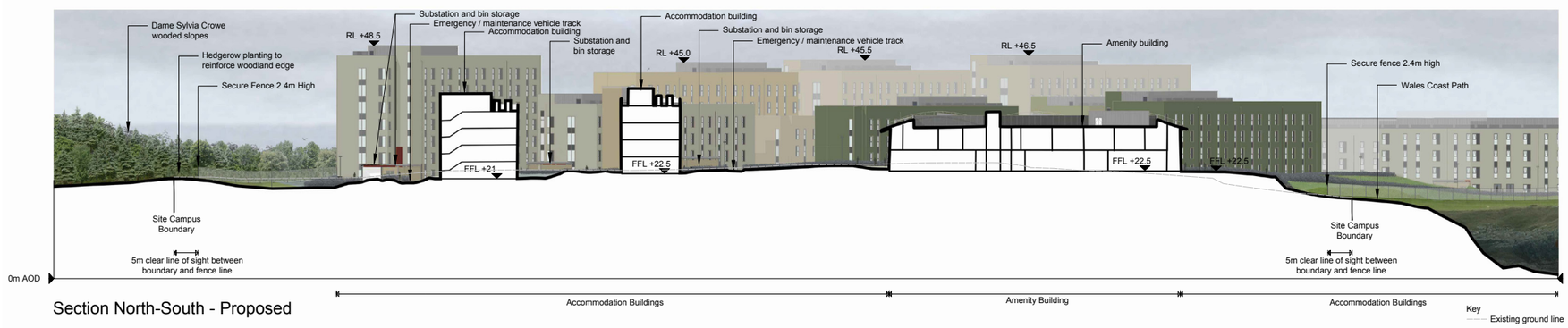
4.2.6. This system of informal interaction would be further supported with a structure of more formal facilities with potential MUGAs and informal recreational spaces with access to Anglesey's network of cycle and footpaths.

4.2.7. The landscape design could further embrace the surrounding context using the temporary storage of stone material as loose stone bunding to help with wayfinding and provide shelter along the streets.

4.2.8. A planting strategy would focus on retaining and reinforcing the key features, concentrating areas new planting where it could be to retain it and incorporate it into the site's restoration.

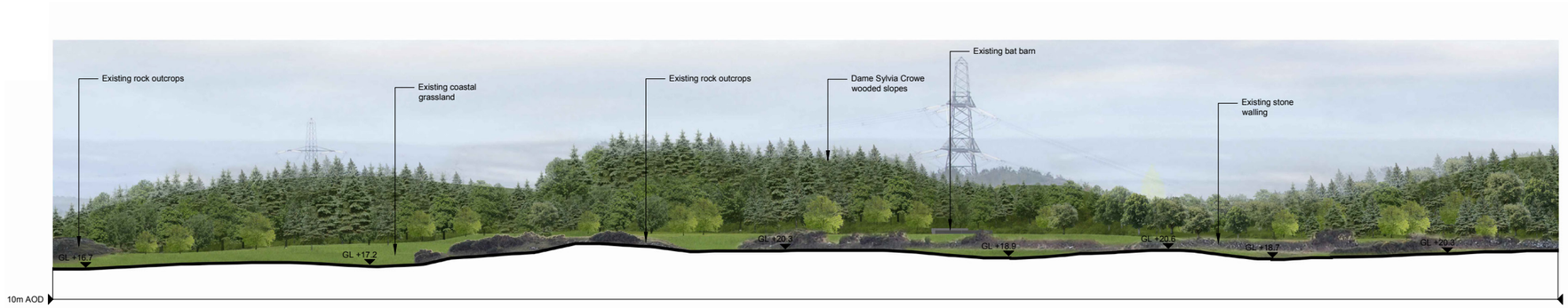
4.2.9. See figure 17 and figure 18 for illustrative cross-sections and figure 19 for an illustrative landscape masterplan for the operational phase of the Site Campus.

Section North-South - Existing

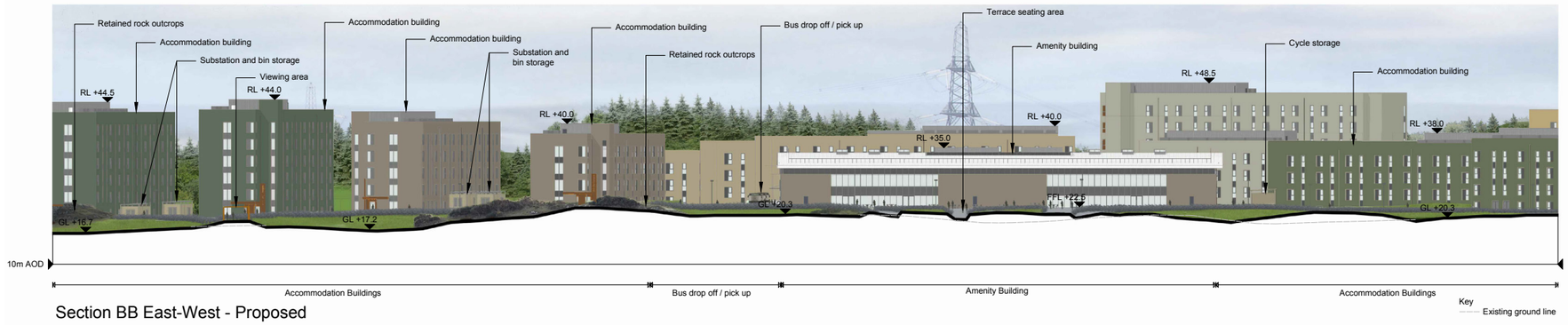


Section North-South - Proposed

Figure 17 Existing and proposed cross-sections AA north-south



Section BB East-West - Existing



Section BB East-West - Proposed

Figure 18 Existing and proposed cross-sections BB east-west

Figure 19 Indicative landscape masterplan

PLANTING STRATEGY

4.2.10. The planting strategy would establish a structure in the landscape for the operation of the Site Campus and its reinstatement based on the existing field pattern and the landscape character of the site and those areas immediately adjacent. The strategy has identified, protected, enhanced and incorporated the key existing features into the design of the site during operation and decommissioning.

4.2.11. The planting design strategy is:

- integration with the surrounding landscape character;
- carry out advanced planting to establish the legacy structure at the earliest opportunity; and
- select native and local provenance species based on the surrounding planting pattern and species make-up.

4.2.12. The landscape elements that support the design principles are divided into broad classification types. The landscape elements proposed for the site are as listed in table 3.

LANDSCAPE FUNCTIONS

4.2.13. Each landscape element has been assigned one or more landscape functions. The landscape function defines the long-term design and maintenance objective of each landscape element.

4.2.14. A description of the landscape environmental functions is provided in table 4.

4.2.15. The planting strategy is shown in figure 20.

Table 3 Landscape elements

LANDSCAPE ELEMENT	DESCRIPTION
Coastal grassland	To retain and reinstate areas of grass and herb species appropriate to the location, with a species composition and diversity capable of being maintained through appropriate management, which would be encouraged to naturally develop biodiversity interest over time, including valuable habitat for invertebrates.
Linear belts of shrubs and trees along woodland edges	To ensure the successful establishment of tree and shrub belts dominated by tree species appropriate to the location. Composition, age and structural diversity to perform the intended function (i.e. screening/ landscape integration) through ensuring sufficient density, height and widths are maintained, and that areas are managed in sympathy with nearby tree belts/woodland.
Temporary native and local provenance planting within the site	Selected local species planted formally within the external spaces to provide structure, shelter, colour and seasonal interest to these spaces. The planting would be designed to be removed from the site at the decommissioning phase.

Table 4 Landscape functions

LANDSCAPE FUNCTION	DESCRIPTION
Landscape integration	Integrate the development site with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the development site.
Nature conservation and biodiversity	Protect, manage and enhance the nature conservation value of the development site and integrate with and protect adjacent habitats and locations containing protected species or other locally important species or habitats.
Temporary visual amenity	Provide structure and form to the internal spaces within the development for the duration of the temporary site occupation.

Figure 20 Planting strategy

PLANT SELECTION

4.2.16. The plant species should complement and integrate with the existing landscape character. The indicative selection of plant species has been informed by habitat surveys (which are detailed in chapter D9 of the Environmental Statement) and are represented in figure 21.

RETENTION OF EXISTING ECOLOGICAL ASSETS

4.2.17. The ecology surveys have identified existing areas of habitat value. The existing wildlife corridors and areas of plantation identified would be protected and where appropriate bolstered to gap up hedgerows, replace areas of unsuccessful plantation and improve biodiversity throughout the site. These key assets would be incorporated into the layout and would provide a structure to the reinstatement proposals.

COASTAL GRASSLAND

4.2.18. The grassland disturbed would be sown with a grass mix appropriate to the current use and surrounding context.

NATIVE HEDGEROW WITH TREES

4.2.19. Shrub and occasional tree species would be selected that are appropriate to the location and are representative of hedgerows in the surrounding area.

4.2.20. Typical species could include:

4.2.21. Tree species

- *Betula pendula* (birch)
- *Quercus robur* (pendunculate oak)
- *Sorbus aucuparia* (rowan)

4.2.22. Hedgerow species

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)
- *Rosa arvensis* (field rose)
- *Rosa canina* (dog rose)

WOODLAND EDGE PLANTING TO WOODED SLOPES

4.2.23. Tree and shrub species selected to reinforce and protect the edge of the wooded slopes and support the long-term management.

4.2.24. Typical species could include:

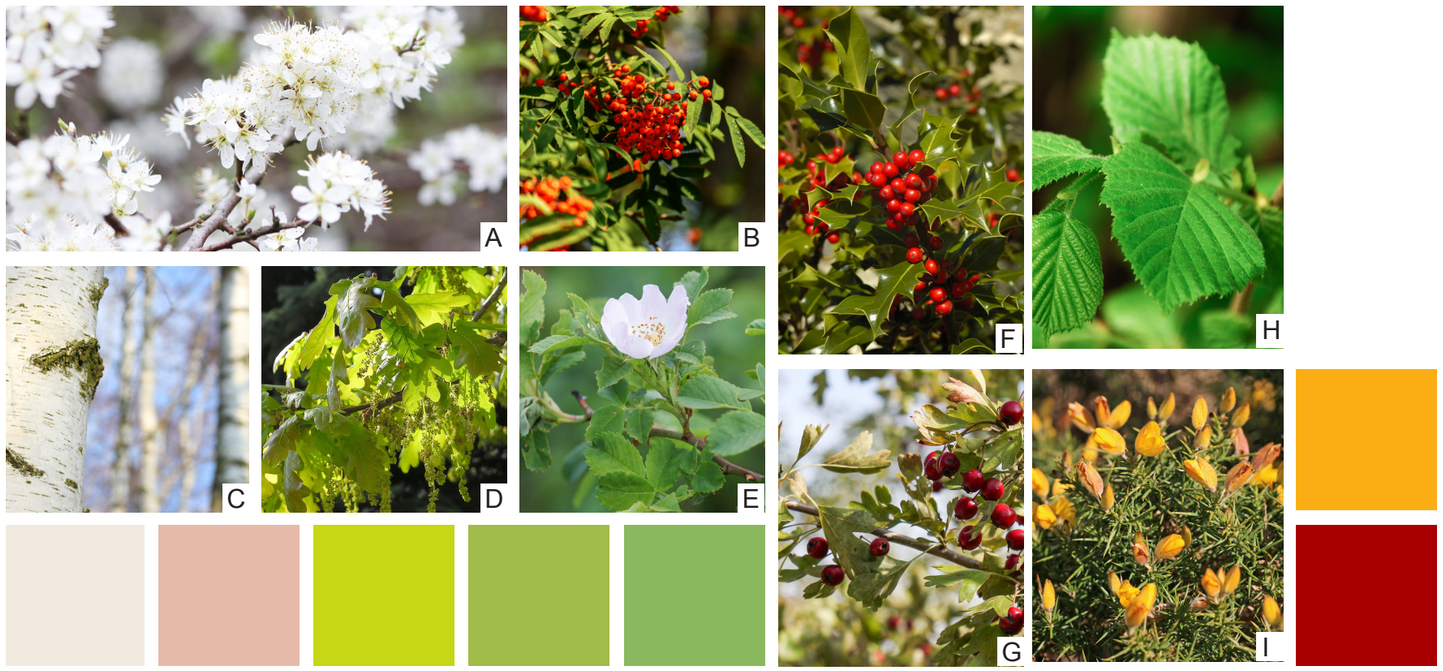
- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)

TEMPORARY SHRUB PLANTING ALONG STREETS

4.2.25. Temporary planting would be provided during the operation of the Site Campus to create local interest, shelter, and colour and help aid circulation and wayfinding. Plant selection would be developed from the native palette.

4.2.26. Typical species could include:

- *Ulex europaeus* (gorse)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)



Planting palette

A Prunus spinosa
B Sorbus aucuparia
C Betula pendula
D Quercus robur
E Rosa canina
F Ilex aquifolium
G Crataegus monogyna
H Corylus avellana
I Ulex europaeus

Images A, D & E © by 2.0 Image courtesy of Maja Dumat on Flickr.

Images B, C, F, G H & I, used under licence from Shutterstock.com.

Figure 21 Planting palette

LANDSCAPE MATERIALS STRATEGY

4.2.27. The hard landscape scheme design concepts are as follows:

- use a clear approach to material selection to respond to the site's operational requirements, orientation and wayfinding;
- draw on local vernacular and complement architectural building materials; and
- fully consider whole-life cost, decommissioning and site reinstatement.

4.2.28. A typical hard landscape palette has been developed to fulfil the functional requirements of the Site Campus whilst being sufficiently robust to respond to the site's additional functional requirements.

4.2.29. Materials would create a safe and pleasant environment for pedestrians moving throughout the site, employing a variety of materials to aid wayfinding.

4.2.30. The typical elements of the palette are as follows, with visuals of the palette in figure 22 and a layout of the strategy in figure 23.

Area 1 – Amenity building, primary access and bus transfer:

- asphalt or concrete carriageway on main vehicle circulation route and bus transfer stops, asphalt pedestrian surface around transfer building;
- co-ordinated site furniture, fencing, benches, signage;
- sensitive and appropriate security measures;
- stone bunding – loosely piled stone, assembled to provide protection and shelter and aid wayfinding along key routes; and
- sensitive lighting scheme.

Area 2 – Main streets and building entrances:

- asphalt paving in combination with reinforced gravel tracks to accommodate emergency vehicles;
- permeable surfaces for parking:
- co-ordinated site furniture, fencing, benches, signage;
- incorporate colour coding and graphics for 'building communities' to aid wayfinding;
- sensitive and appropriate security measures; and
- sensitive lighting scheme.

Area 3 – Secondary and emergency vehicle routes:

- reinforced gravel paths;
- co-ordinated signage; and
- sensitive and appropriate security measures.

Area 4 – Formal amenity space

- Multi-purpose sports surface.

Images A, C, D & F used under licence from Shutterstock.com.

Image of G used by permission from CLD Fencing Systems.

Figure 22 Indicative hard landscape palette

Figure 23 Material strategy

LANDSCAPE MAINTENANCE

4.2.31. On completion of the landscape scheme, all planted and seeded areas would be maintained by Horizon for the lifetime of the development. To ensure the successful establishment and long-term health/vitality, two phases would be followed:

a) A landscape maintenance/establishment period. This would commence immediately after the landscaping areas are completed and be carried out in accordance with a detailed specification by Horizon. The planting would be inspected regularly to check the condition of the plants and maintain surrounding grassed areas.

b) After completion of the establishment period and after the original site had fulfilled its operation use, the site would be reinstated to its current agricultural use.

c) Maintenance by Horizon will be up to the end of the operational period. Replacement planting has been proposed as part of the reinstatement post-operation (see chapter 9); however, its long-term maintenance would need to be agreed between Horizon and whoever will manage the land.

4.2.32. The long-term objective is to create a sustainable landscape that would see this temporary site return to its natural state and distinguished character area. To achieve this long-term objective, the continued delivery of the environmental functions for each landscape element is key. The general management recommendations for the landscape elements are shown in table 5.

4.2.33. Table 4 reflects the typical management activities that could be provided during the temporary period of the scheme. Management thereafter would be carried out by the new landowner/tenant once the site has been reinstated.

Table 5 Landscape management table

LANDSCAPE	LANDSCAPE MANAGEMENT RECOMMENDATION	GENERIC MANAGEMENT
Coastal grassland	Allow a diversity of grasses and wildflower species that are appropriate to the site, to enhance and incorporate existing species allowing a stronger integration when the site is reinstated. Manage a variety of wildflower species to provide colour, form, texture, scale and variety. Manage in sympathy with adjoining species-rich habitats.	Grass cutting Weed control
Native hedgerow / with trees	Use same form of local hedgerow management to integrate with local landscape. Allow framing of views across to wider landscapes. Encourage a variety of species to enhance wildlife corridors. Ensure links between adjacent habitats.	Pruning Hedge cut Weed control Treatment of arisings Replant gaps Accommodate trees when cutting
Temporary native/local provenance shrub planting	Retain and replenish where required to keep cover. Mix of species to reflect local landscape character.	Pruning Weed control Replant gaps

4.3 ARCHITECTURAL BUILDING DESIGN PROPOSALS

INTRODUCTION

4.3.1. The general design philosophy and approach has been to create a masterplan for the Site Campus which follows the natural contours of the landscape. The proposed site masterplan layout has been designed to meet the functional and operational requirements for 4,000 accommodation units/bed spaces.

4.3.2. The masterplan focuses on the balance in meeting the operational requirements and using the site contours of the site in order to reduce the overall visual impact. The design recognises the important setting of the accommodation on the headland and visual impact of the site. The design and grouping of the accommodation facilities reduces the overall impact of the scheme on the existing landscape and would enable the remediation at the end of the construction period.

4.3.3. Whilst the massing of the buildings is dictated by the accommodation requirements, it also carefully considers known environmental constraints. The specific site constraints include associated buffer areas around the SSSI to the south-east of the site, the rocky outcrops within the site, and existing woodland and trees on the edge of the site.

4.3.4. The masterplan has been developed around a phasing strategy, which allows the phased development of the scheme, in accordance with fluctuating accommodation requirements. See 4.3.6, 4.3.7 and figure 26 overleaf. Also see the Phasing Strategy.

4.3.5. Although temporary in nature, the facility can be seen from a distance (across Cemaes Bay) and locally from the Wales Coast Path. The site is situated to the east of the Existing Power Station and the accommodation blocks would sit in full view of the mass of the Power Station. Different options were reviewed before the design solution was adopted.

4.3.6. Aesthetically, the design intention has been to respect the surrounding environment which includes both the Existing Power Station and plantation woodland areas to the west, and the rock shore of Cemaes Bay. A restricted natural palette is adopted for all the buildings, helping to link them visually with their surroundings, with the character of a coastal location. The views of the site in both daylight and night-time have been considered.

4.3.7. The accommodation would be served by an amenity building with catering, relaxation, leisure and first-aid/medical facilities along with management and general support functions. This would be a key facility for the site providing a range of functions that would encourage residents to stay on-site. The provision of catering facilities for all residents and staff would reduce the space requirements for each individual accommodation unit.

4.3.8. An inclusivity access audit has been undertaken in order to achieve the necessary access requirements to and within the site (see section 7.1). Feedback from the audit has been incorporated in the design.

4.3.9. Sketches of the proposed overall site are shown in figure 24 and figure 25.

Figure 24 Architectural site sketch looking west

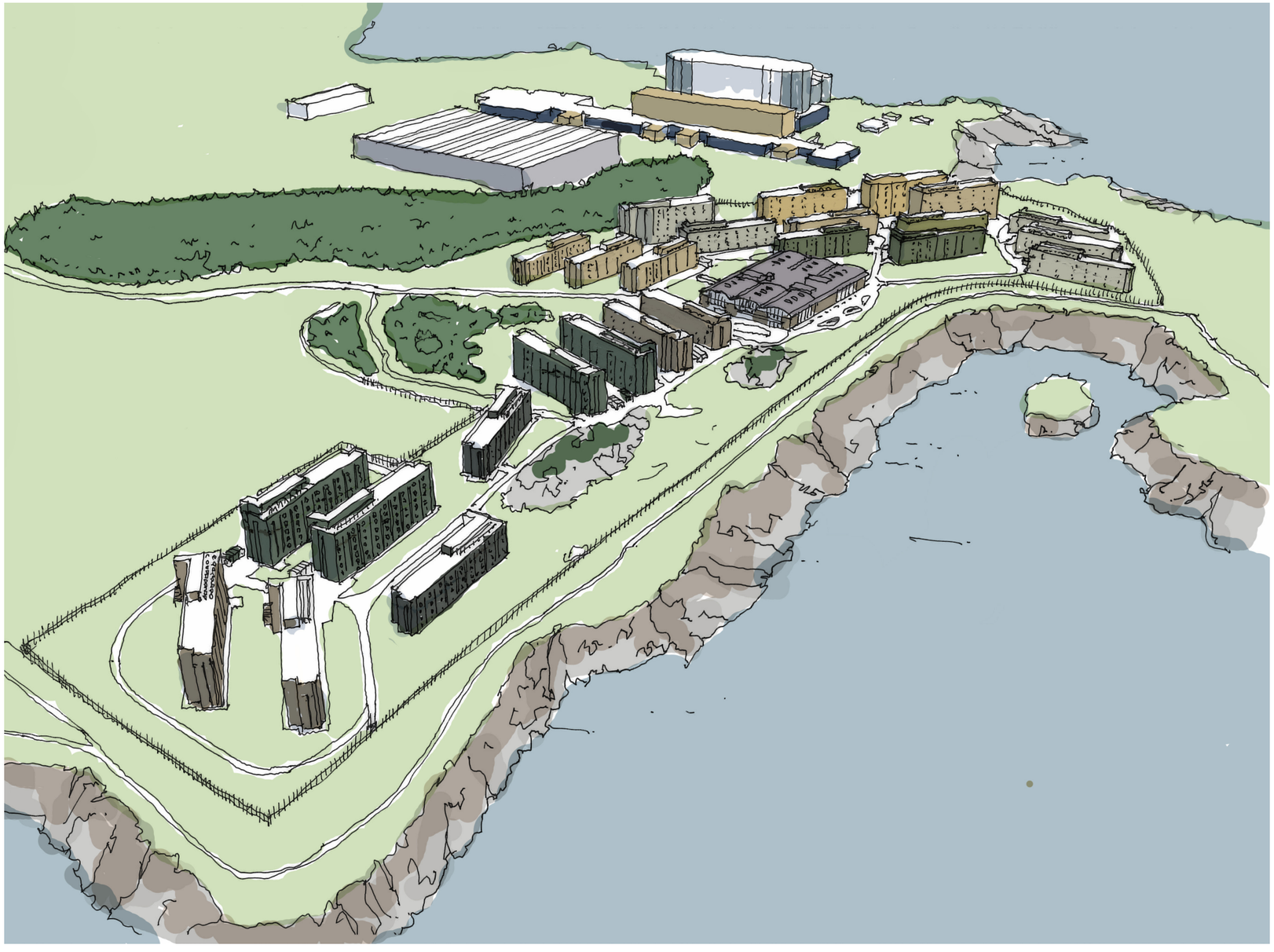


Figure 25 Architectural aerial sketch of Site Campus

BUILDING DESIGN CONCEPT

4.3.10. In line with the 'design principles' set out in Section 3.4, the buildings are designed with simplicity and efficiency of construction and removal as a priority, reducing the environmental impact. The buildings on the site would be temporary and are intended to be dismantled once the construction of the Power Station is complete.

4.3.11. The buildings have been co-ordinated together in an overall site masterplan that reflects the requirements of the access to the site, the requirements of the residents and the servicing requirements of the site. The site has been developed in accordance with statutory requirements for habitable accommodation and minimum 20-metre separation distances have been applied between the blocks. This allows the spacing of the blocks in a grassland setting. Access and service roads have been carefully considered to link each block. All blocks would be accessible for servicing and emergency vehicle access in accordance with fire regulations.

4.3.12. The design of the buildings has been considered in the context of its setting. The nature of the site requires a sensitive approach to the key buildings on the site. The illustrative design, in its location, adheres to the following concepts:

1) Reducing the site impact. The building uses the contours and slope of the site to nestle in the surrounding landscape. The context has been carefully considered to reduce the visual impact and to shelter the buildings.

2) Use of simple forms. The building uses simple forms, providing an unobtrusive appearance on the skyline.

3) A simple and natural palette of materials and colours. A limited palette of natural materials and neutral colours is used to blend the building into its setting in the landscape.

4.3.13. The buildings would be clad to reflect the overall colour palette strategy with timber-effect cladding panels. The overall scheme design proposes timber-effect cladding panels.

4.3.14. The proposed site masterplan layout has been designed to meet functional and operational requirements for up to 4,000 accommodation units.

4.3.15. A single large amenity building is proposed to service the majority of the amenity and service requirements, located centrally in the site. This building is proposed to be scalable as accommodation is added. The amenity building would be constructed with cladding to follow the same palette of materials as the accommodation buildings.

CONSTRUCTION PHASING

4.3.16. It is proposed that the site would be developed in phases to meet the accommodation demand. The layout proposed will facilitate the delivery of the scheme in phases of at least 500 bed spaces at a time, with the key phases being:

- Phase 1: 1,000 beds.
- Phase 2: next 1,000 beds.
- Phase 3: final 2,000 beds to a final provision of 4,000 bed spaces.

4.3.17. The general concepts of the proposed approach to phasing are as follows.

- Building locations are as indicated on the masterplan.
- Full site area would be fenced in the initial phase.
- Maximum number of accommodation blocks would be 25.
- Accommodation buildings are as indicated with each building being constructed to its full length and storeys/heights not to exceed the maximum indicated on the drawings.
- Site infrastructure would be phased to support the build-out of the accommodation buildings.
- Amenity building will be phased to accommodate the demand.

ACCOMMODATION BUILDINGS

4.3.18. The accommodation buildings would be constructed in the western half of the site first and, as demand increases, the blocks would be added to the east.

4.3.19. Infrastructure associated with each accommodation building would be installed local to each block.

AMENITY BUILDING

4.3.20. The amenity building would be constructed in three phases to match the accommodation demand.

4.3.21. Initial phase would be adjacent to the bus boarding area with future phases working west and then south.

SITE INFRASTRUCTURE

4.3.22. The main access route would be constructed first and would provide the primary route for construction access.

4.3.23. The MUGAs would both be constructed in the initial phasing.

4.3.24. The infrastructure associated with each accommodation building would be installed with each block.

4.3.25. Core site infrastructure would be installed to allow the build-out of the full development.

4.3.26. Drainage outlets to the west of the site and by Fisherman's car park will be constructed in the initial phase with the outlets for the eastern end completed as the development moves to the east of the amenity building.

4.3.27. Parking would be provided to the east of the amenity building for the initial phases. When the area is needed for accommodation blocks for expansion of the site, this parking and additional parking would be provided outside the Site Campus to the south between the Existing Power Station access road and the SSSI, within the Wylfa Newydd Development Area.

DECOMMISSIONING PHASING

4.3.28. Decommissioning would also be undertaken in phases to meet the reduction in accommodation demand as the Power Station construction works are completed.

ACCOMMODATION BUILDINGS

4.3.29. The accommodation buildings will be removed in the reverse of the construction sequence starting at the east end and working towards the west.

4.3.30. As each block is removed the infrastructure associated with that block will be removed.

AMENITY BUILDING

4.3.31. The amenity building would be decommissioned internally in phases with the final removal of the complete building when accommodation is no longer needed.

SITE INFRASTRUCTURE

4.3.32. The infrastructure associated with each accommodation building would be removed with the associated accommodation building.

4.3.33. Core site infrastructure would be removed last with the final removal of the drainage outfalls and the site fence.

SITE REINSTATEMENT

4.3.34. Reinstatement of areas will commence when an area has been cleared of the blocks and the associated infrastructure.

4.3.35. Final reinstatement will include re-opening up for public access the Fisherman's car park and the existing and proposed footpaths.

4.3.36. Figure 26 gives a visual representation of the construction phasing concepts.

Figure 26 Indicative phasing plan

COLOUR OPTIONS

4.3.37. A series of design studies have been undertaken to investigate the options for massing and colour of the accommodation on Wylfa Head. These have looked at options for colour palettes which follow on from the inspiration set by Dame Sylvia Crowe in her design for the colour and massing of the Existing Power Station. The exercises have been undertaken with 3D modelling which reflects the views from different settings, and enables the visual impact of different colour options to be shown.

4.3.38. The design studies have focused on a series of colour options which reflect the natural landscape setting, the coastal landscape and the colours from the Existing Power Station, which will be in place for much longer than the lifespan of the Site Campus.

4.3.39. The cladding for the buildings would be timber-effect which can be provided in a range of colour options, which match those of natural timber or potentially colours reflecting the natural landscape and the Existing Power Station.

4.3.40. Examples from the design studies are contained in the illustrations in figure 27a opposite. These include investigation into massing and materials and include four options of colour palettes:

1) Shades of timber colours reflecting an organic design.

2) Colours reflecting the natural landscape and the Existing Power Station.

3) Pastel colour shades drawn from traditional coastal buildings in Welsh fishing villages and towns.

4) Combined: a development of the timber option and natural tones.

1) Shades of timber colours reflecting an organic design

2) Colours reflecting the natural landscape and the Existing Power Station

3) Pastel colour shades drawn from traditional coastal buildings in Welsh fishing villages and towns

4) Combined: a development of the timber option and natural tones

Figure 27a Building colour options 1 to 4

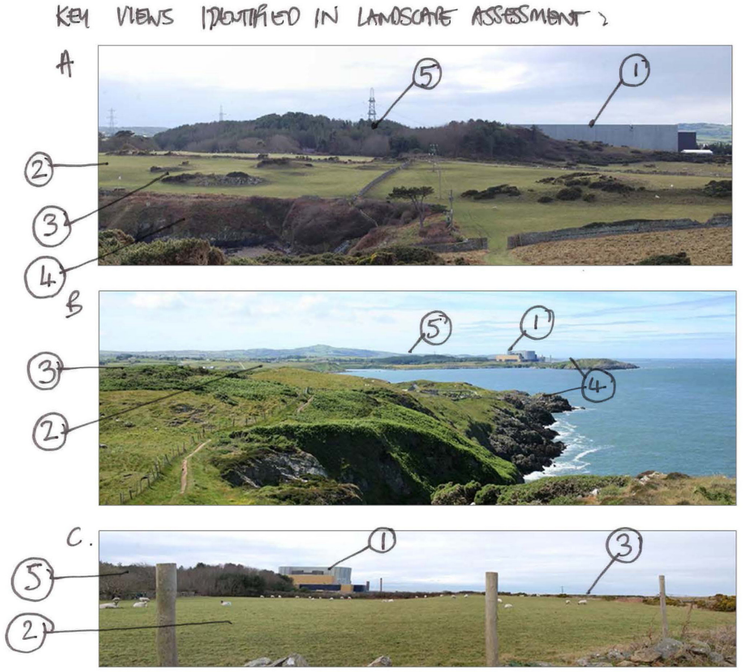
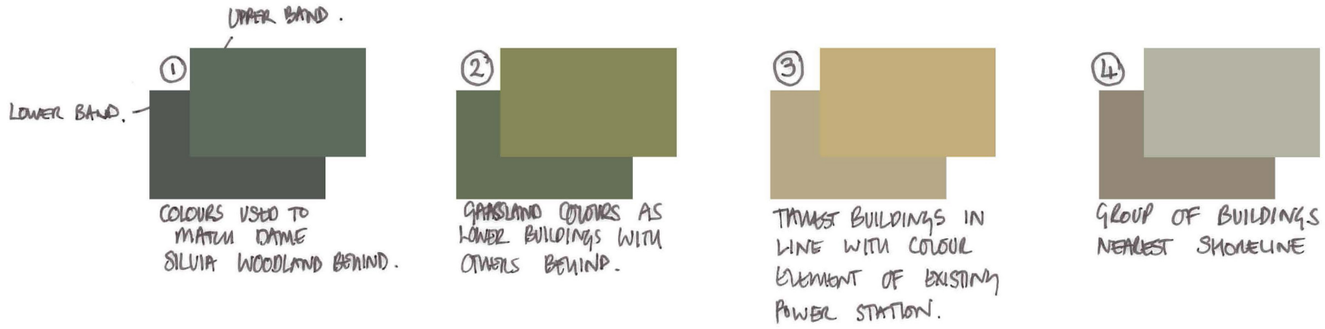


Figure 27b Colour palette design and assessment: landscape analysis



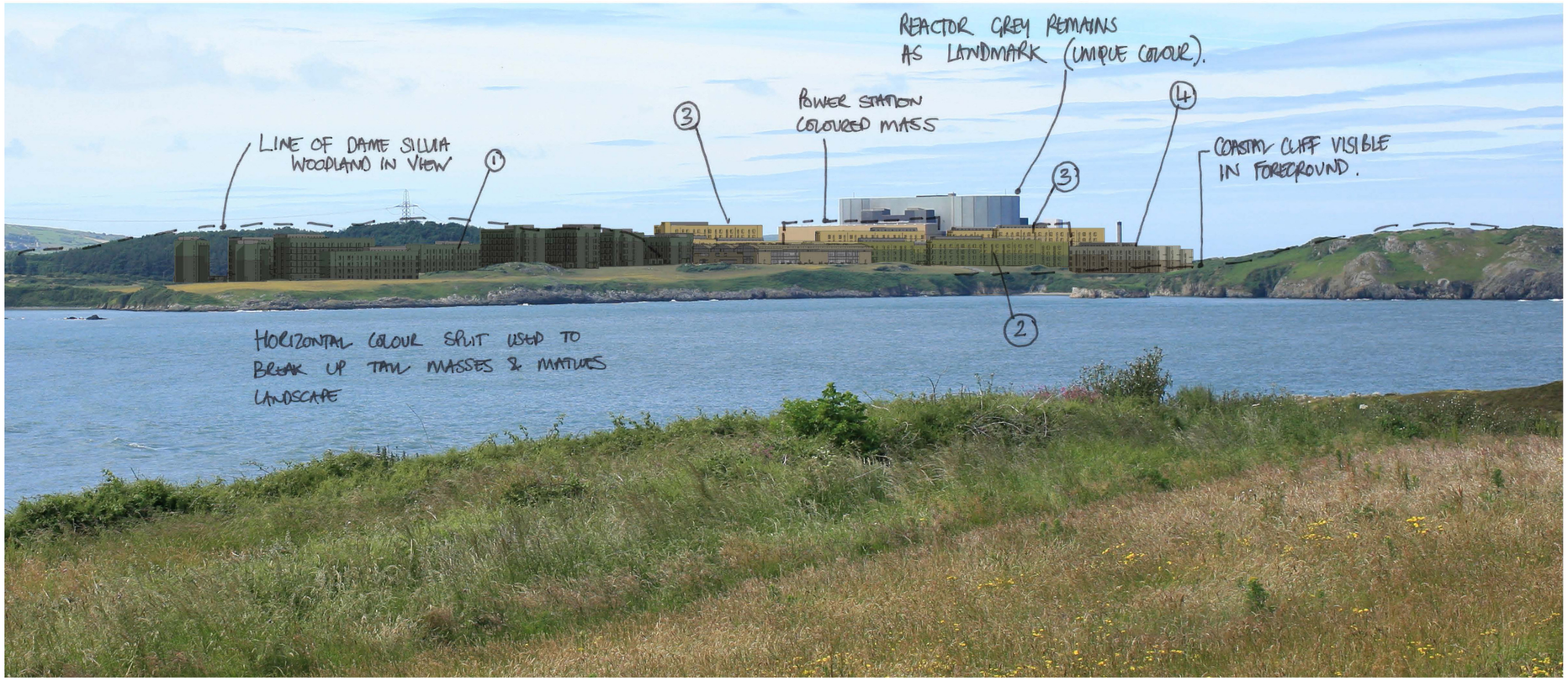


Figure 27c Colour palette design and assessment: proposed palette

4.3.41. The investigation has focused on maintaining a simple pattern of colours, with the impact of the overall setting and colour being examined to provide a coherent setting in both views from the distance and from close up, so the users of the Site Campus see a consistent and logical site development. These have been developed into a final development model as shown in the sketches in figure 27b and c, and as depicted in figure 28 below.

4.3.42. The final development model, building on the earlier options, brings elements together into an overall design which relates to the predominant background colour of the coastal setting, the Existing Power Station in the background, the pine woodland and the sky at the edges of the site. Each building has been allocated a single predominate colour as part of groups which reflect the overall setting.

4.3.43. This preferred development model offers the most natural visual effect for the buildings, reducing and softening their visual impact. In this option, the timber-effect is broken into more natural blocks of colour, reflecting the landscape and the colours of the Power Station. The blocks are broken into segments, with a variation of colours across the blocks.

4.3.44. It expected that the final colours will be subject to review with the planning authority as part of the approval process under the DCO Requirements.

Figure 28 Preferred building colour development model

TYPES OF CONSTRUCTION AND STRUCTURAL SOLUTIONS

4.3.45. The buildings would be designed to complement and fit into the environment of the site with the simple palette of materials. The accommodation buildings would be constructed from pre-fabricated modular units, delivered to site for rapid assembly, which would minimise the disruption of a long on-site construction programme. Additionally, the modular construction would enable units to be removed from the site at the end of the programme with minimal environmental disruption and would offer the opportunity to re-use the units on other projects. The cladding would either be applied in the factory with fine details (e.g. joints between modules) applied on-site, or, installed on-site in a continuous process.

4.3.46. The amenity building would be constructed as a long span steel-framed building with cladding to follow the same palette of materials as the accommodation buildings. There would be opportunity for pre-fabricated modules to be used within the building (e.g. for kitchens and plant) which would reduce time on-site for construction and removal.

BUILDING STANDARDS

4.3.47. The buildings would be designed based on the following requirements:

- Category 3 structures per EN 1990 with an operational indicative lifespan of 10 years;
- general external building materials (e.g. cladding, roof) would have a 10-year lifespan by nature of the proprietary ecological products;
- building systems, such as light fittings or partition walls, would have a shorter lifespan – the building would be designed to allow straightforward upgrade and refurbishment as part of the maintenance cycle (notwithstanding, major elements such as primary plant would be designed for a minimum of 10 years with only routine maintenance required);
- hardstanding areas would be designed for a minimum design life of 10 years;
- maximising use of sustainable materials (e.g. retaining and reusing on-site material during construction, A and A+ Green Guide rated and/or BES6001-certified materials, responsible local sourcing of goods and services); and
- buildings would be designed for appropriate durability and resilience with due note of their temporary lifespan as applicable:
  - buildings need to be designed for a harsh coastal environment; and
  - internal fixtures and fittings need to be constructed to a robust standard to accommodate the turnover of construction workers using the facility; a benchmark would be an army barrack level of robustness.

WELFARE COMPLIANCE

4.3.48. Welfare facilities would be provided in compliance with the requirements of the Workplace (Health, Safety and Welfare) Regulations 1992. In particular, that there would be:

- an objective in the building design to promote well-being through e.g. maximising natural daylight and views, good air quality and good thermal comfort;
- enough toilets and washbasins in line with the number of occupants;
- accessible toilets (per Building Regulations, Part M and BS (British Standard) 8300:2001 compliant);
- provision of first-aid and medical facilities;
- consideration for a proportion of accommodation for disabled persons i.e. accessible en-suite bedrooms; and
- a multi-faith quiet room for the observance of religious duties or meditative contemplation, located adjacent to an ablution room with a connecting door with a low-level sink and wash hand basin.

4.3.49. The overall site scheme is shown in a set of visualisations in figure 29, figure 30 and figure 31.

4.3.50. An illustrative masterplan for 4,000 bed spaces is shown in figure 15.

Figure 29 Aerial impression of the site

Figure 30 View of proposed site from Wylfa Head

Figure 31 Site sectional view from Wylfa Head

ACCOMMODATION BUILDINGS

4.3.51. The accommodation buildings would be constructed from modular units that follow the contours of the site. This is important because it would reduce the requirement for extensive excavation and movement of material to create platforms for the buildings.

4.3.52. The buildings would efficiently utilise the modular construction in a design approach which is created around the requirements for access and for means of escape in case of fire. The building design approach is to create a main entrance core comprising stairs, lifts and service facilities. An alternative means of escape for all accommodation would be provided at the other end of the block.

4.3.53. Each floor would contain bedroom units, along with service riser space which is shared between pairs of units. The ground floor would additionally contain a lounge and plant rooms (containing a pump room and electrical switchboard).

4.3.54. In general, mechanical services would be served from a rooftop plant room, providing the services to each of the bedroom units. The plant room would be accessible from the main stair, which would access the roof level. Design option exercises have confirmed that the impact of external plant located at ground level, as well as being less efficient operationally, would not comply with the aspiration of the masterplan to create a grassland setting for the accommodation.

4.3.55. The accommodation blocks would be served by electrical service substations positioned near to the blocks in accessible locations.

4.3.56. Each of the accommodation units would be fully fitted with sprinklers in accordance with the requirements of the Building Regulations in Wales and the site would be fully served by fire mains.

4.3.57. Each accommodation building would contain the following:

- bedrooms/units used for sleeping/resting;
- each room would be independent and contain a single bed, desk, chair, wardrobe, toilet, sink and shower;
- a lounge area at ground floor level;
- basic lounge/self-catering facilities (kitchenette) on upper floor levels (e.g. microwave, kettle, toaster and fridge);
- one disabled-accessible/executive room on each floor level;
- a linen store at each floor level;
- a lift adjacent to the entrance;
- a stair core adjacent to the entrance;
- an emergency stair at the opposite end of the building to the entrance;
- a rooftop plant area; and
- an adjacent substation compound (with potential for cycle storage) – a single substation may serve several accommodation blocks.

4.3.58. There are additional requirements for the seven- storey accommodation blocks:

- additional lift at the opposite end of the building from the entrance;
- additional lobby at each floor level at the opposite end of the building from the entrance; and
- fire requirements commensurate with the height of the building.

4.3.59. The accommodation buildings would vary in height/storeys in accordance with the maximums shown on the masterplan, locating the taller blocks to the lower parts of the site to minimise their visual impact. Each block would have a distinct landscaped entrance area, which would create a sense of identity for the residents. The blocks would be interspersed with grassland and the links between blocks would be protected from prevailing winds by stone walls. The following points explain the reasoning behind the massing and layout:

- Use of the existing land form provides for variable heights of the blocks, with taller blocks located on lower areas of the site, below the crest of the ridge running along the site.
- Distances and views between accommodation rooms would be optimised in accordance with amenity considerations to allow natural lighting by providing 20m distance between the habitable rooms.
- Accommodation blocks located around a central amenity building.
- Residents' parking is not proposed on the site (other than during the initial phases). Other than in the initial phases, residents would arrive on buses and be dropped off outside the amenity building.
- Planned renewal of the site after the end of construction activities, to return the site to coastal grassland.
- Maximise the retention of existing landscape grassland and site levels.

4.3.60. Figure 32 shows some of the development that has taken place in terms of the variations in the cladding and colours for the accommodation blocks and figures 33, 34, 35 and 36 are indicative of the designs for these buildings.

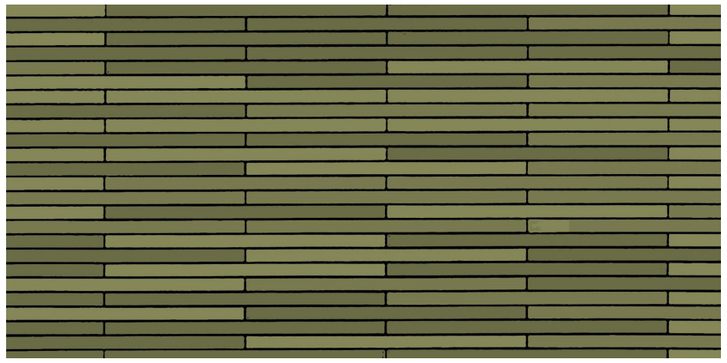
4.3.61. The Site Campus medical centre would include appropriately equipped space and facilities for:

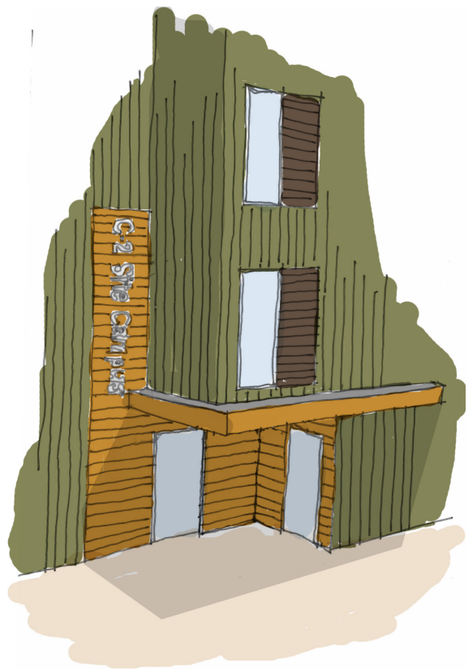
- primary care services, including GP services, specialised clinics, out-of-hours care and pharmaceutical services;
- occupational health services, including medicals and screening of workers where required;
- administrative functions, including medical records and health surveillance systems; and
- occupational hygiene facilities and resources, which would then be deployed across the Wylfa Newydd Development Area.

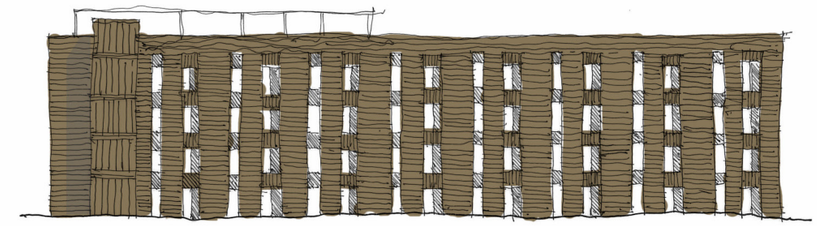
4.3.62. The Site Campus medical centre would be located in close proximity to the amenity block, within the ground floor of the first accommodation block to be constructed at the Site Campus (ensuring services are in place before the non-home-based workforce arrives).

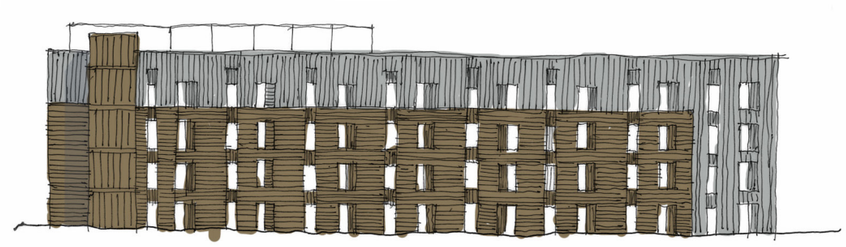
4.3.63. At the peak of construction, the Site Campus medical centre could, if required, encompass the entire ground floor of the accommodation block. The size of the Site Campus medical centre, and the services provided therein, would be commensurate with the size and medical needs of the construction workforce.

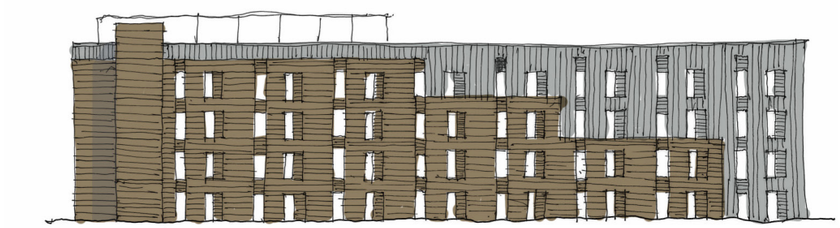
4.3.64. The final design of the Site Campus medical centre will be prepared in consultation with the local healthcare authorities/representatives and would be operated by a suitable healthcare service provider. Further information is provided in the Health Impact Assessment Report [APP-429].

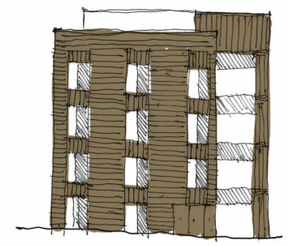


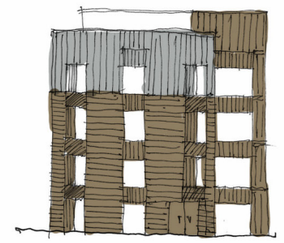












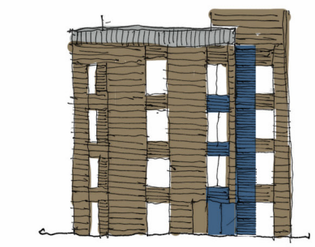


Figure 32 Accommodation buildings development sketches

Figure 33 Accommodation buildings visualisation

Figure 34 Accommodation building floor plan

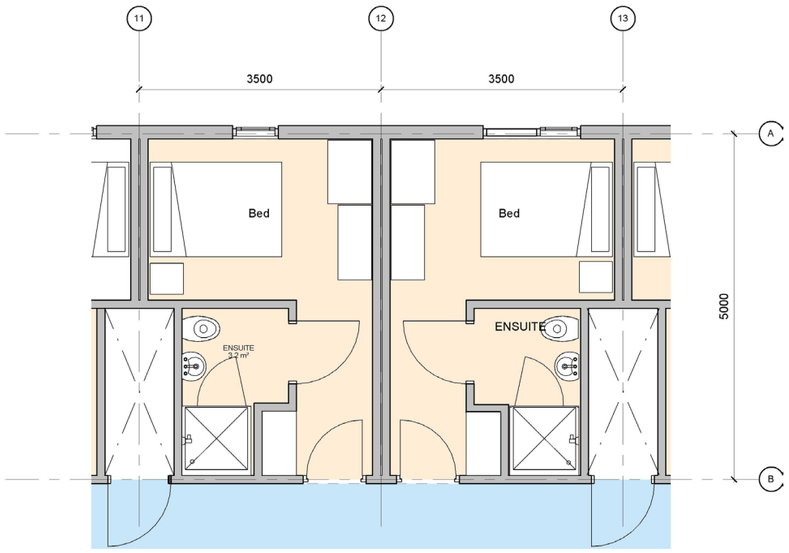


Figure 35a Typical bedroom floor plan

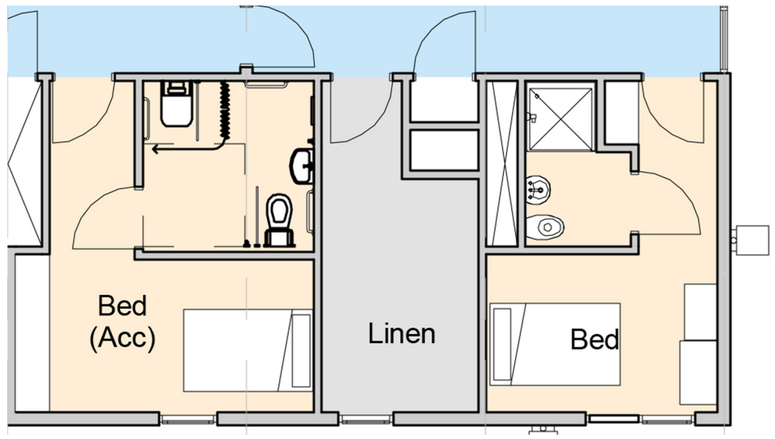


Figure 35b Accessible bedroom floor plan

1 FRONT FACING ELEVATION

2 REAR FACING ELEVATION

3 SIDE ELEVATION 1

4 SIDE ELEVATION 2

5 SHORT SECTION

Figure 36 Accommodation buildings sections and elevations

INDICATIVE AREA SCHEDULE

4.3.65. Typical area allocations within the footprint for the accommodation buildings are as follows, based on the described numbers of residents and staff, and anticipated throughput of workers. These figures are subject to refinement within the overall envelope.

4.3.66. This information should be read in conjunction with the DCO parameters tables.

Table 6 Building dimensions

ITEM	DIMENSION
Length	67m
Width	12.5m

Table 7 Accommodation buildings area schedule

ITEM	AREA
Bedroom size gross internal floor area + en-suite (net habitable area)	14.6m²
Linen store	10m² per 100 beds
Bin store at ground floor level (external)	12m² per 100 beds
Kitchenette at each floor level	15m²
Lounge at ground floor level	15m²

Table 8 Room totals

TYPE A – 4-STOREY		TYPE B – 5-STOREY		TYPE C – 6-STOREY		TYPE D – 7-STOREY	
						Sixth floor	33
				Fifth floor	33	Fifth floor	33
		Fourth floor	33	Fourth floor	33	Fourth floor	33
Third floor	33	Third floor	33	Third floor	33	Third floor	33
Second floor	33	Second floor	33	Second floor	33	Second floor	33
First floor	33	First floor	33	First floor	33	First floor	33
Ground floor	30	Ground floor	30	Ground floor	30	Ground floor	30
Total	**129**	**Total**	**162**	**Total**	**195**	**Total**	**228**

Table 9 Accommodation gross internal floor area

TYPE A – 4-STOREY		TYPE B – 5-STOREY		TYPE C – 6-STOREY		TYPE D – 7-STOREY	
						Sixth floor	777m²
				Fifth floor	777m²	Fifth floor	777m²
		Fourth floor	777m²	Fourth floor	777m²	Fourth floor	777m²
Third floor	777m²	Third floor	777m²	Third floor	777m²	Third floor	777m²
Second floor	777m²	Second floor	777m²	Second floor	777m²	Second floor	777m²
First floor	777m²	First floor	777m²	First floor	777m²	First floor	777m²
Ground floor	768m²	Ground floor	768m²	Ground floor	768m²	Ground floor	768m²
Total	**3,099m²**	**Total**	**3,876m²**	**Total**	**4,653m²**	**Total**	**5,430m²**

AMENITY BUILDING

4.3.67. The amenity building would be located approximately at the centre of the site, surrounded by the accommodation blocks and next to the main bus access point to the site. The amenity building would play a significant role, providing an area for workers to eat, socialise, relax and keep fit. Additionally, it would be used as the main muster point during an on-site emergency and, when required, a gathering point for large-scale communications.

4.3.68. The approach and design philosophy for the amenity building has been to create floor layouts that maximise the location of the site overlooking Cemaes Bay. The amenity building would be the main entrance to the site, providing the initial booking-in and reception and then the ongoing catering, leisure and support facilities for the residents of the site. Clear visual markers would aid the flow of occupants, with entrances on the main thoroughfare, and would encourage interaction of people.

4.3.69. The building has been designed as an overarching simple structure that can accommodate a range of uses. It has also been designed to be constructed in phases, to mirror the planned phasing of the accommodation requirements for construction workers. The building would have a clear entrance that would be visible from the bus drop-off with a large reception to allow for milling space for new arrivals. Off this central reception area would be a coffee shop, retail, toilets and first-aid facilities. A large stair and lift would provide access to the first floor.

4.3.70. A number of options have been considered for the roof form, varying from north lights, flat, sloping and curved options. It was concluded from this study that a curved roof provided the most sympatric profile for the context of the building. The chosen direction of the sloping roof was driven by the construction sequence for the phasing of the buildings.

4.3.71. The canteen areas are designed as flexible spaces at ground floor level, within the overall structure of the building, allowing a view out to the sea from the main front of the building.

4.3.72. The initial phase of the scheme would provide a single restaurant/canteen and kitchen; the later phases would provide two restaurant areas. The associated kitchens and back-of-house areas would provide flexibility in delivery and allow for fluctuating numbers of workers.

4.3.73. The amenity building would have a large circulation area leading to a vertical core to access the upper floor coffee area bar and gym facilities.

4.3.74. The first floor level would provide accommodation for bars and seating areas, which would provide a community hub to the site. The leisure facilities would generally be located at first floor level including the gym and a series of flexible spaces that could be used for various purposes (e.g. games rooms, TV lounges)

4.3.75. The administration areas would be located on the first floor; these would provide office space and changing and toilet facilities for facilities management (FM) support staff across the overall site, alongside specific changing areas for the kitchen staff.

4.3.76. The indicative architectural design of the buildings, based on the design principles, has been developed to provide an inclusive environment whilst being sympathetic to the existing habitat and topography.

4.3.77. The amenity building would provide the following:

- the main access to the site from the bus drop-off area adjacent to the building;
- accessible restaurant and gym;
- licensed bars with seating areas and storage area;
- coffee bars for franchised retailers;
- facilities sized to accommodate maximum number of occupants;
- multi-purpose rooms/TV/cinema/lounge areas;
- accessible changing for external sports facilities;
- inclusive well-being room;
- sited close to the bus pick-up area with level access;
- catering and dining facilities, including kitchen and stores area;
- an area allocated for administration and FM;
- small medical treatment/first-aid room;
- space for security/control office;
- laundry drop-off and collection area (external delivery and collection);
- retail shop outlets providing basic toiletries and snacks;
- reception of deliveries of items such as food, beverages, IT equipment and furniture;
- toilet facilities; and
- a recycling point with waste bins for paper, plastics, metal and glass.

4.3.78. The development of the roof of the amenity building has considered flat, 'factory' and curved options. Some of these are represented in figure 37. A curved option has been proposed as its gentle form would provide a less obtrusive skyline. Furthermore, it would provide benefits in ease of manufacture, erection and maintenance. Refer to figures 38, 39, 40, 41 and 42 for the amenity building design proposals.

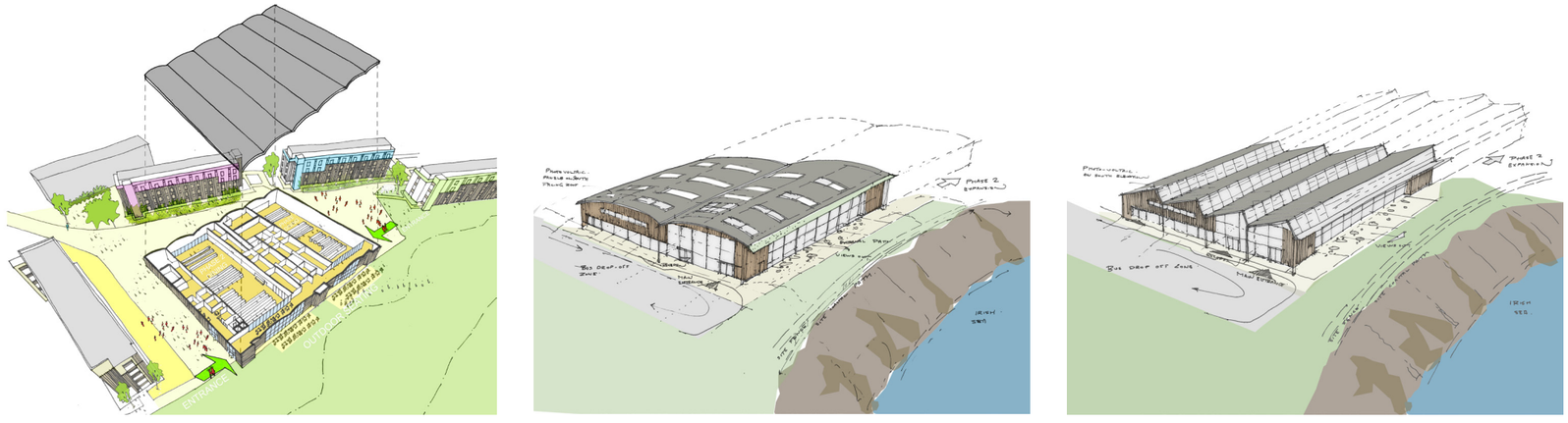


Figure 37 Development of amenity building

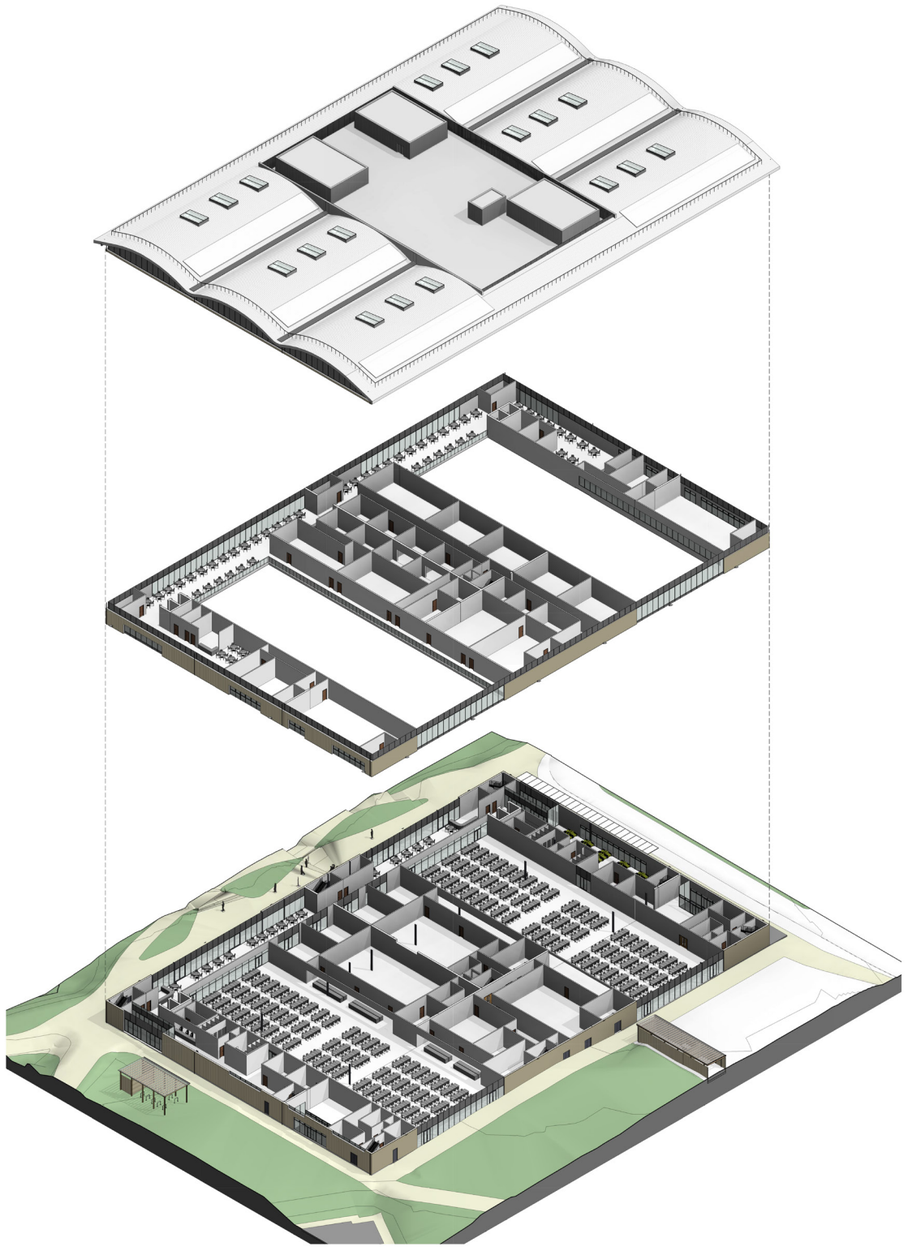


Figure 38 Amenity building functional sketch

Figure 39 Amenity building visualisation

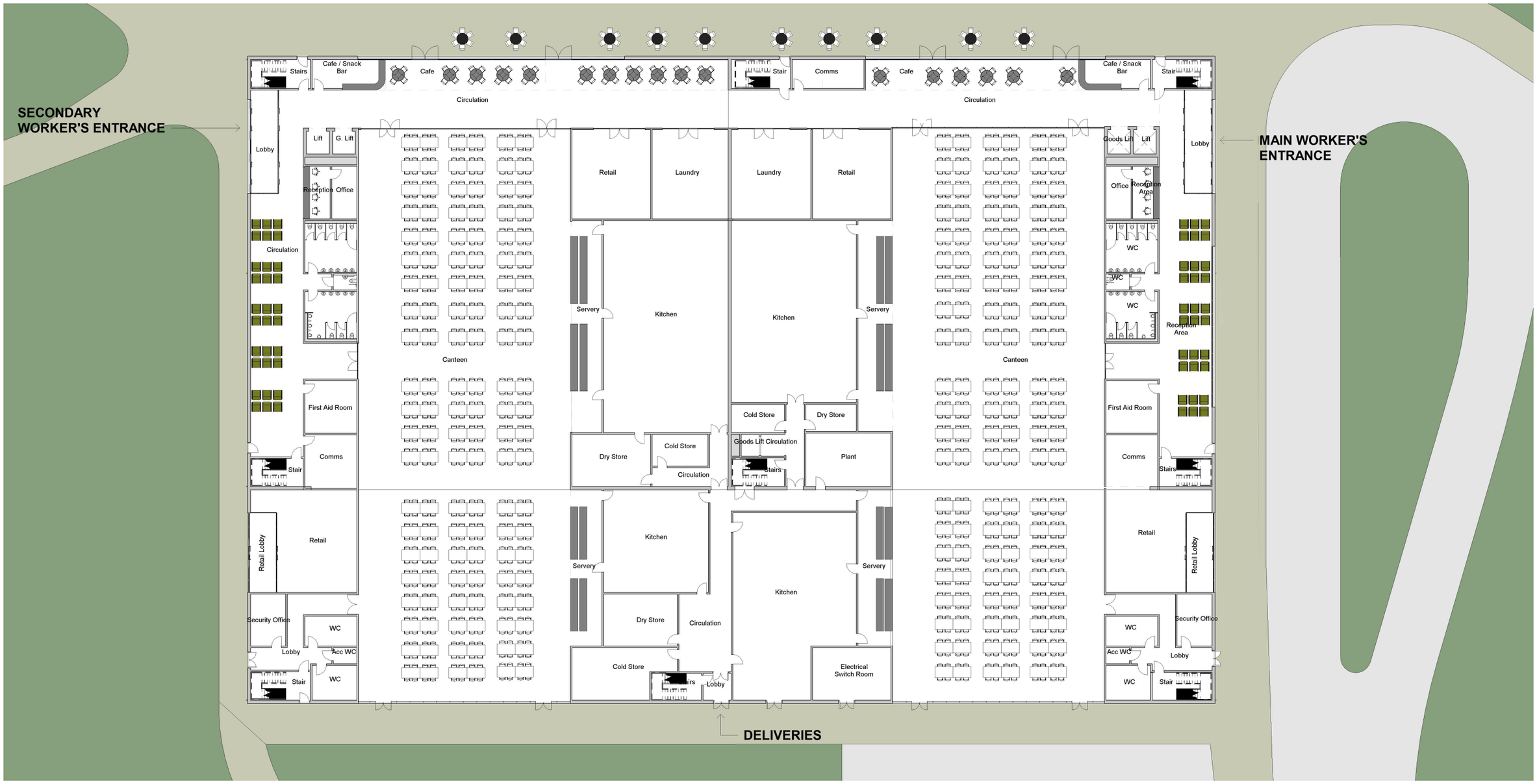


Figure 40a Amenity building ground floor plan

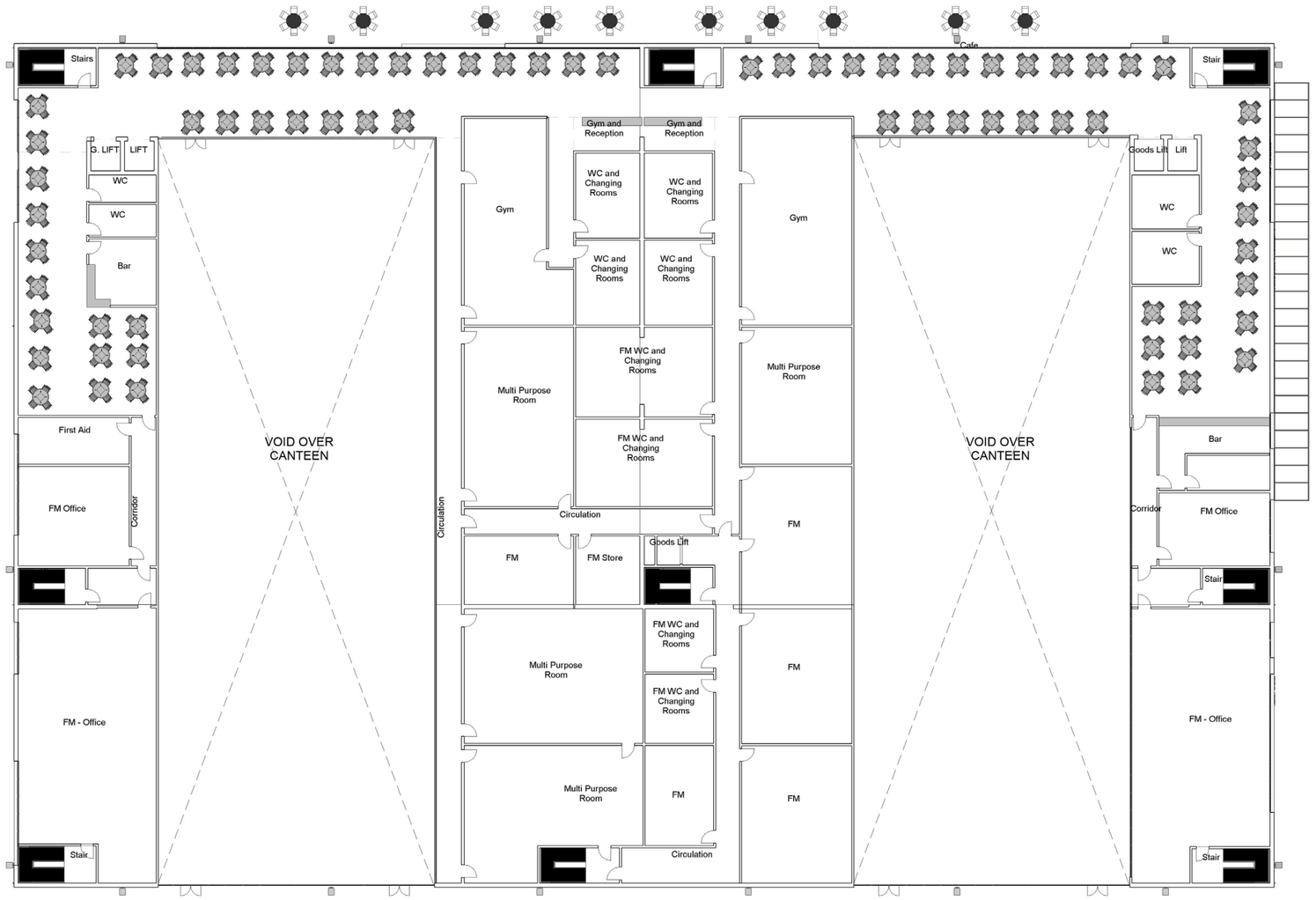
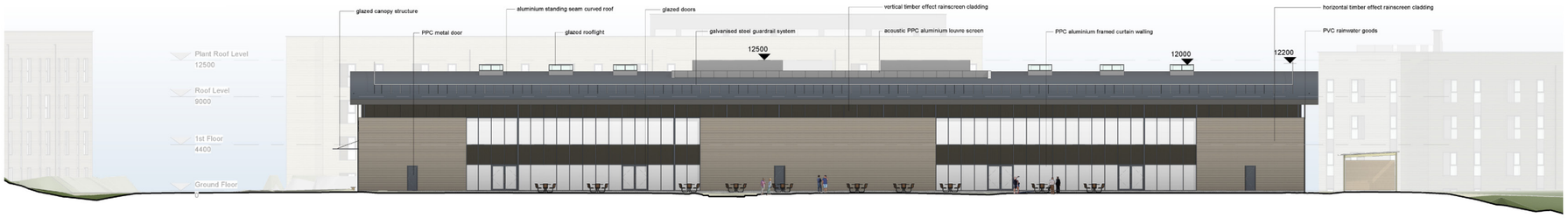
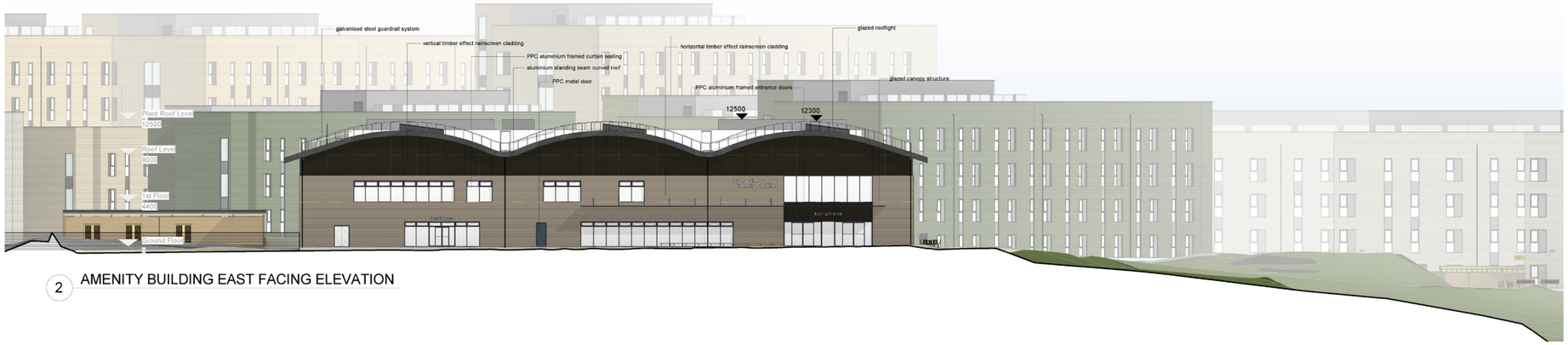


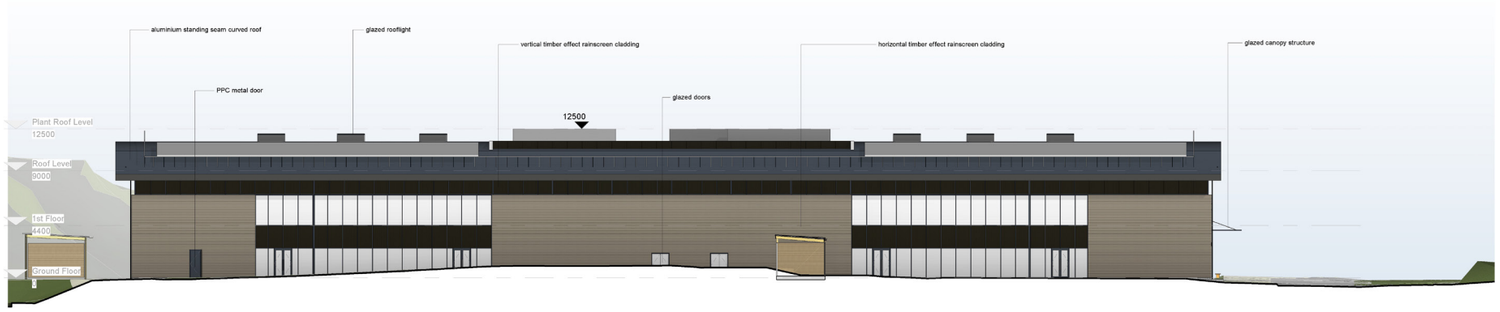
Figure 40b Amenity building first floor plan



1 AMENITY BUILDING NORTH FACING ELEVATION



2 AMENITY BUILDING EAST FACING ELEVATION



3 AMENITY BUILDING SOUTH FACING ELEVATION

Figure 41 Amenity building elevations

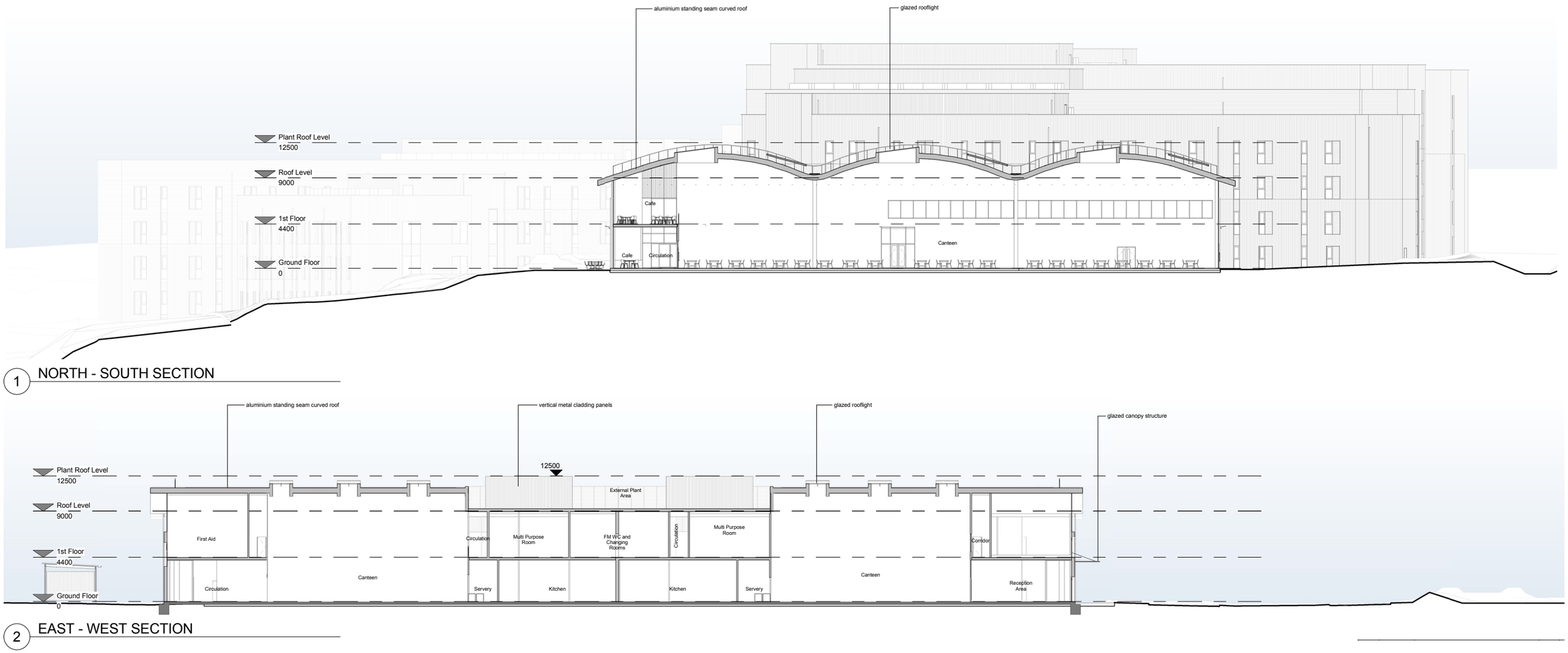


Figure 42 Amenity building sections

INDICATIVE AREA SCHEDULE

4.3.79. Typical area allocations within the footprint for the amenity building are as follows, based on the described numbers of residents and staff, and anticipated throughput of workers. These figures are subject to refinement within the overall envelope.

4.3.80. This information should be read in conjunction with section 3.3 and the DCO parameters tables.

Table 10 Building dimensions

ITEM	DIMENSION
Length	91m
Width	61m

Table 11 Amenity building area allowances

ITEM	AREA
Kitchen areas (2 no. minimum) including allowance for kitchen staff changing, lockers and toilets (Area based on three shifts, and then split sittings per shift. Published allowance for catering)	910m²
Catering and eating area (allowance) (Seating allowance based on three-shift system, then split sittings per shift)	2,080m² up to 1,500 seats
Food storage area (allowance)[1] (Food storage to be confirmed with operators)	140m²
Toilet areas (allowance)	180m²
Administration area (allowance for serving kitchen, reception, FM, storage, staff lockers, toilets)	650m²
Security office	For up to 3 staff
Bar (including bar store, TV room and lounge area)	900m²
Multi-purpose rooms (allowance) to Accommodate 20 people each (2 no. for 1,000 and 2,500 beds, 4 no. for 4,000 beds)	420m²
Café (allowance)	500m²
Gym (allowance)	380m²
Changing facilities with showers (allowance)	116m²
Grocery shop with cash point (allowance)	240m²
Multi-faith room (allowance)	15m²
Central laundry facility (allowance)	150m²
First-aid rooms (allowance each)	100m²
FM store	100m²
General storage	As appropriate
Circulation space	As appropriate
Communications/Server room (allowance)	100m²

[1] Toilet areas: assume an 80/20 male-female ratio for residents and 50/50 male-female ratio for FM staff.

BUS TRANSFER AREA

4.3.81. A bus pick-up and drop-off area would be provided adjacent to the amenity building with:

- loop road arrangement such that buses drive into the site, round the loop and out again;
- parking of four buses close to the amenity building, canopy and seating area provided on pedestrian walkway; and
- parking of six additional buses on the approach road to the amenity building within the site.

ANCILLARY BUILDINGS

4.3.82. Various ancillary buildings are shown on the scheme to include:

- bin and substation enclosures: adjacent to each accommodation block;
- security building/kiosk: by the site entrance;
- sprinkler pump house, compactor and external bin store: adjacent to the amenity building;
- high voltage switch room; near the site entrance;
- main cycle store: adjacent to the amenity building; and
- an equipment compound for storing sports equipment: adjacent to the MUGAs.

OUTDOOR SOCIAL AREAS

4.3.83. Scalable 'active' open space areas would be provided comprising:

- two adjacent MUGAs (five-a-side football, tennis, basketball, badminton, volleyball with synthetic grass, complete with markings and nets);
- provision of outdoor seating area including smoking areas (including close to the bar area); and
- two storage areas/containers for sports equipment.

4.3.84. 'Passive' open space areas would be provided comprising:

- public informal gathering/recreational spaces;
- opportunity to include additional MUGAs and a full-sized football pitch just south of the site entrance alongside the proposed parking for Phase 2 and Phase 3; and
- other open spaces as applicable.

INDICATIVE AREA SCHEDULE

Table 12 External areas

ITEM	DIMENSION
MUGAs (2 no.)	40m x 20m ea.
Seating area (allowance, linked to bar or café from amenity building)	100m^2
Refuse area adjacent to amenity building (allowance)	150m^2
Utility/FM area required adjacent to amenity building (allowance)	150m^2
Secondary substations adjacent to each accommodation building (allowance)	25m^2

EXTERNAL BUILDING MATERIALS

4.3.85. The rural setting and temporary nature of the Site Campus dictates a sensitive response to the appearance and massing of the scheme. The finishes and cladding materials have been considered by the design team in relation to series of considerations, which would apply to all the Associated Development for the Wylfa Newydd DCO Project.

4.3.86. The common types of finish/cladding have been assessed by the design team in relation to the considerations below, which are key for the operation of the facilities.

- Appropriate presence in the landscape, located in its Welsh setting as part of the overall landscape strategy for the scheme.
- The facilities are to be provided for the construction phase of the Power Station only; they would be temporary and would be removed at the end of this phase and the land returned to its original state.
- A robust and low maintenance approach would be adopted with consideration for life-cycle costs.
- A cost-effective solution is required, that could be delivered quickly and effectively and removed at the end of its lifespan.

4.3.87. The proposed building materials palette is shown in figure 43.

Figure 43 Building materials palette

4.4 BUILDING SERVICES ENGINEERING PROPOSALS

GENERAL REQUIREMENTS

4.4.1. The general requirements for the mechanical and electrical building services installations would be in accordance with the latest applicable technical guides. The development would be required to pass Part L2A 2014 Building Regulations for Wales and would utilise a host of sustainable measures in order to do so.

4.4.2. The building design has been developed using both traditional and modular construction methods to assist with the speed of construction, utilising off-site manufacturing techniques to reduce the amount of on-site fabrication.

INCOMING SERVICES

WATER

4.4.3. A new incoming cold water supply and fire main connection to the site would be taken from Welsh Water's existing infrastructure network as part of the site-wide infrastructure works. The point of connection/connections for this submission is the fence line of the site.

ELECTRICITY

4.4.4. The Site Campus would be supplied via new 11kV rings supplied from the existing 11kV Scottish Power Energy Networks network. Each building, or group of buildings, would be provided with a secondary substation enclosed within a glass reinforced plastic containerised unit mounted on a suitable concrete base.

4.4.5. The incoming electrical supply for each building would be metered.

COMMUNICATIONS

4.4.6. A key aspect of the design will be the provision of high-speed internet broadband to all residents within the site. It is proposed that the site will be designed to have full wireless coverage within each of the buildings.

MECHANICAL SERVICES

4.4.7. Heating and cooling would be provided via variable refrigerant flow (VRF) all-electric reversible heat pumps with heat recovery. Fan coil units would be provided generally within the rooms and these would provide either heating or cooling.

4.4.8. Mechanical ventilation would be provided via air handling units located either in the rooftop plant room or within ceiling voids. These would generally consist of motorised dampers, panel/bag filters, supply and extract fans, heat exchanger and DX (direct expansion) coils. Kitchens would be provided with supply and extract sections separated due to the potential of grease build-up.

4.4.9. Sufficient ceiling voids would be provided for all ductwork/pipework to be routed.

4.4.10. VRF systems would generally comprise externally mounted air-cooled units and a number of internally mounted units linked with each other by refrigerant-carrying pipework and control cabling. The system would be capable of simultaneously heating and cooling.

4.4.11. Rooftop plant room would be screened with acoustic and air-permitting louvres reducing the noise from plant items to levels in line with the acoustics requirements.

4.4.12. All externally mounted plant would be compatible with a corrosive salt-laden environment.

4.4.13. All equipment would be located in an easily accessible location where it could be installed and maintained throughout its design life.

4.4.14. In the accommodation blocks, each bedroom unit would be provided with a localised mechanical ventilation heat recovery (MVHR) unit located in an accessible cupboard. Each bedroom would also be provided with a fan coil providing heating or cooling as required.

4.4.15. Roof-mounted photovoltaic panels would be provided on the amenity building to reduce the energy use and contribute to energy targets.

4.4.16. The new premises would have a building management system (BMS) to monitor and control the operation of the mechanical services installation. In addition, metering would be provided and connected to the BMS.

PUBLIC HEALTH SERVICES

4.4.17. An external potable cold water supply would be distributed from the site boundary entry location, to run throughout the site, to provide a potable cold water supply to each accommodation block and the amenity building.

4.4.18. The internal domestic hot and cold water systems would comprise a mains-fed system to serve the ground and first floors, and a tank-fed boosted system to serve the higher floors. The domestic hot water systems would comprise an unvented system complete with a semi-storage calorifier. Hot water would be provided via an efficient heat pump arrangement.

4.4.19. The whole system would comply with the requirements of BS EN 806 and BS 8558, the Water Supply (Water Fittings) Regulations 1999 and the latest guidance relating to minimise the risk of Legionnaires' disease (Legionella).

EXTERNAL FIRE HYDRANTS

4.4.20. The site will be provided with a private fire main, in accordance with BS 9990.

4.4.21. A separate unmetered underground fire main would be provided throughout the site to ensure an adequate capacity and coverage would be available using underground fire hydrants to BS 750.

ABOVE GROUND FOUL DRAINAGE SERVICES

4.4.22. A system of gravity soil and waste pipework would be installed within the new premises to convey the flow of foul water discharge from the toilets, wash hand basins, showers and sink units. It would connect to the below ground foul drainage network.

RAIN WATER SERVICES

4.4.23. A rain water drainage system connection would be provided for the buildings, and would drain into the sustainable drainage system.

ELECTRICAL SERVICES

4.4.24. The incoming electrical supply for each building would enter a new low voltage (LV) switch room situated on the ground floor. A new LV panel would be provided for each building. The LV panel would be wall/floor-standing and manufactured to meet British Standards.

4.4.25. A photovoltaic system is proposed for the amenity building. This would be in the form of a roof-mounted installation on the amenity building and connected to the main LV panel in this building.

4.4.26. Lighting would be installed throughout the facility. It is intended generally that LED luminaires would be provided for the installation to meet the requirements of Part L of the Building Regulations.

4.4.27. The lighting system would generally be controlled via the use of lighting control modules which can be configured for a variety of control scenarios for different areas.

4.4.28. External lighting would be provided with power from MCB distribution boards generally located within the LV switch room of an adjacent building.

4.4.29. An emergency lighting system, in accordance with BS 5266-1, would be installed throughout the facility. Emergency luminaries would generally take the form of emergency versions of the general luminaires. Exit signs would be of the non-maintained type. Non-maintained emergency bulkheads would be installed outside each emergency exit from the building.

4.4.30. 'Small power' would be installed throughout the facility. The small power installation would be designed, installed, tested and commissioned in accordance with BS 7671 IEE (Institution of Electrical Engineers) wiring regulations.

4.4.31. A fire alarm system would be provided throughout the facility. The category of coverage (as outlined in BS 5839-1:2013) for the new fire alarm system would be L1.

4.4.32. Lightning protection would comprise air terminations, roof tapes, down conductors and earth pits. Where possible, and in accord with BS EN 62305, the building structure and fabric would be considered for use as an integral part of the lightning protection system. Consideration would be given to the use of structural steel columns for down conductors and metallic roof surfaces for air terminations. Particular consideration would be given to the thickness of any metallic roof structure and its suitability for use as an air termination conductor.

4.4.33. It is anticipated that the LV installation would incorporate surge protection device(s), which would be co-ordinated with the lightning protection system in accordance with BS EN 62305.

ACOUSTICS

4.4.34. The accommodation building ventilation strategy would be System 4 (as defined within Approved Document F of the Building Regulations), i.e. MVHR. This generally provides the best resistance to external noise, since no trickle vents are required.

4.4.35. The constructions for all other elements of the building fabric (external walls, roofs) would provide adequate sound insulation of external noise.

FIRE STRATEGY

4.4.36. An analysis of the fire safety infrastructure has been undertaken. It is a legal requirement that the Wylfa Newydd DCO Project meets the functional requirements of the Building Regulations 2010. The buildings have been evaluated to meet 'Welsh' Approved Document B Volume 2:

- B1 Means of Warning and Escape:
  - Pre-fabricated modular accommodation units are designated as purpose group 2(b).
  - The amenity building is considered as having areas within purpose groups 3, 4, 5 and 7, and includes places of special fire hazard e.g. kitchens.
  - Fire detection shall be provided to BS 5839-1:2013, category L1 coverage in the accommodation blocks and amenity building. Individual fire alarm panels will be located in the main entrance to each accommodation unit, linked to the main fire alarm panel located in the main entrance to the amenity building.
  - The maximum travel distance of 9m in one direction within bedrooms is achieved.
  - Within the amenity building canteen areas, the maximum travel distance of 45m in more than one direction is achieved.
  - Sleeping accommodation requires sprinklers to meet new Welsh regulations.
  - Natural ventilation is required to accommodation units, common corridors and lobbies to protect common stairs.
  - The bedroom corridor is designated as a protected corridor, the enclosing walls will be carried up to the soffit, and be one-hour fire rated. As travel is possible in two directions, the maximum travel distance of 35m is met.
  - All fire doors subdividing corridors will be provided with vision panels and be 30-minute fire rated self-closing doors, fitted with automatic release mechanisms in accordance with BS 7273-4.
  - Two escape routes from each storey are provided, which meets the minimum requirements.
  - Each escape stair is protected within a fire resisting enclosure, located against the external envelope of the building, with each stair discharging directly via a final exit to open air and a place of ultimate safety.
  - Within the amenity building, there are nine staircases from first floor to ground floor; the central staircase linking to the kitchens' circulation route, (which will be designated as a protected corridor) leading to the final exit.
  - The minimum escape route width per storey is achieved within the current design.
  - The minimum stair width is achieved within the current design, except for the 7-storey accommodation units which, as there are anticipated to be 228 bedrooms, should be increased to 1100mm, to comply with Table 6 of 'Welsh' Approved Document B Volume 2 and the requirements for firefighting stairs.
  - Escape lighting is to be provided in accordance with BS 5266-1:2016, to a minimum of 15lux in sleeping areas.
  - Smoke control is provided at the head of stairways, using natural smoke and heat exhaust ventilators designed to BS EN 12101-2.
  - Atria are present within the amenity building. 'Welsh' Approved Document B Volume 2, cross references BS 5588-7:1997 which has been superseded by BS 9999:2017. Therefore, BS 9999 Annex B has been considered for the design and Annex C, with regards to smoke ventilation of atria. Clause B.3.2 defines the maximum travel distance from a balcony level in two directions as 18m. A smoke and heat exhaust ventilation system will be provided and designed in accordance with BS 7346, to ensure the smoke layer is confined to no less than 2.5m above the canteen level, and to ensure the smoke layer temperature does not exceed 200°C.
- B2 Internal Fire Spread - Linings:
  - Linings to comply with Appendix A of 'Welsh' Approved Document B Volume 2, and be Class 0 or 1 to BS-476 or similar throughout.
  - All furniture will meet the requirements of the Furniture and Furnishings (Fire Safety) Regulations 1988 (as amended in 1989, 1993 and 2010).
  - All drapes, curtains and window blinds will meet the requirements of BS 5867-2.
- B3 Internal Fire Spread - Structure:
  - Fire performance of the structure will comply with Appendix A of 'Welsh' Approved Document B Volume 2
  - Each sleeping room to be a one-hour fire rated enclosure.
  - Firefighting shafts, lift well, kitchenettes, linen stores and plant rooms all to have one-hour fire rated separation.
  - Within the amenity building, catering facilities, retail areas, electrical switch room, lift wells, and plant room will be within a one-hour fire rated enclosure.
- B4 External Fire Spread:
  - External fire spread will comply with Section 14 and Appendix A of 'Welsh' Approved Document B Volume 2
  - As compartment floors are provided, the enclosing rectangle method in BR187 is easily demonstrated.
- B5 Access and Facilities for the Fire & Rescue Service:
  - The site fire infrastructure provides for sprinklers and hydrants.
  - In accordance with The Domestic Fire Safety (Wales) Measure 2011, sprinkler systems shall be in accordance with LPC Rules for Automatic Sprinkler Installations 2015 incorporating BS EN 12845 have been proposed within all accommodation buildings.
  - The amenity building will meet 'Welsh' Approved Document B Volume 2, with an Ordinary Hazard OH1 sprinkler system covering, as a minimum, the bars, kitchens, electrical switch room, plant room and retail areas.
  - The amenity building cooking facilities shall have LPS 1223 suppression systems installed (e.g. Ansul) wet chemical systems, and shall be subject to TR 19 audit compliance (High System Quality Class) in terms of BS EN 15780.
  - Fire water will be collected from the amenity building cooking facilities via an interceptor and treated to remove contaminants e.g. oils, greases, or building materials.
  - The 7-storey accommodation units have a highest occupied level greater than 18m above Fire & Rescue Service vehicle access level and should be provided with a firefighting shaft at either end of the building, containing dry riser fire mains with outlet connections and valves at every storey, in accordance with BS 9990.

4.4.37. Given the remote location, the site will be provided with a private fire mains sourced from a dedicated supply, to feed fire hydrants located within 90m of the building entry point, and not more than 90m apart in accordance with BS 9990. Each fire hydrant shall be provided with an indicator plate in accordance with BS 3251.

4.5 EXTERNAL LIGHTING PROPOSALS

DESIGN ASSESSMENT

4.5.1. An assessment of external lighting requirements has been undertaken. The assessment has ascertained the lighting levels required for the facility to be compliant in accordance with BS 5489-1:2013 – Code of practice for the design of road lighting.

4.5.2. The lighting design would focus on the following areas:

- pedestrian areas (around accommodation blocks);
- perimeter access;
- sports area; and
- general traffic area (i.e. the space between car parks, to and from the main entrance).

4.5.3. The design would work under the 'broad consideration' that the Isle of Anglesey is working towards a Dark Sky Reserve Status. As such:

- luminaires would be chosen with no lantern uplift, to reduce light pollution;
- lighting design would be carefully planned to minimise light spill onto adjacent areas and environmentally sensitive zones; and
- a CMS would be specified, enabling the lighting to be zoned and dimmed.

4.5.4. Due to the coastline and natural beauty of this site, a very sensitive lighting approach has been taken.

PEDESTRIAN AREAS

4.5.5. The external lighting has been designed to meet lighting Class P4 per BS 5489-1:2013, subsection A.3.3.1. The majority of lighting would be switched off at a curfew time to be agreed and lighting would be activated by proximity sensors. These sensors would be zoned so only the path that required lighting would be lit. Furthermore, lighting after curfew would be at a dimmed level; this would be managed by a CMS. This would allow a fully flexible system which could tailor individual lighting units to suit the environment and would also help the residents get to and from their accommodation safely. The above lighting class has been used due to the rural nature of this site, an environmental zone classification of E2, and the area's proposed usage. In accordance with this standard, it is proposed to light this area at an average 8.5 lux with a minimum of 2 lux. Luminaires would be required to have no tilt and be mounted at a height of 6m. An LED light source would be provided with a colour temperature of 4,000K.

EMERGENCY ACCESS ROADS

4.5.6. The emergency access roads would consist of a paved area running around the back of the accommodation buildings. The purpose of these roads is to allow emergency vehicles access to the buildings. It is not intended to light these roads; vehicles would have their own lighting to light their way. If lit, it may encourage staff to use this road for access to the accommodation blocks, which is not the intention of the road. Clear lit routes within the site would be marked for staff to safely enter and exit their accommodation.

BUS TERMINAL

4.5.7. Lighting at the bus terminal would be required to ensure safe passage to and from the accommodation blocks. This lighting would be controlled by sensors and the CMS during the evening. The area has been designed to the minimum required lighting levels. As this area would be generally dark in nature, it may be possible to take the lighting levels to less than the recommended lighting standards as eyes would adjust to the darkness. Once these lights have been installed, a lighting trial would take place to determine how low the lighting levels could go and still be safe. The lighting design has been accomplished using a selection of 6m poles, with single and double luminaire fixtures. These areas would be lit to the Outdoor Car Park classes in BS 5489-1:2013 subsection 7.4.8.3. They have therefore been kept to an average of 7.5 lux.

SPORTS AREA

4.5.8. The lighting in this area is proposed to have an average of 200 lux and a minimum of 120 lux with a uniformity of 60%.

ECOLOGICAL

4.5.9. Due to the sensitive ecological nature of the area, controlling the light would be a priority. Lighting has been designed to avoid/minimise any light spill onto adjacent areas and landscapes. A CMS would be specified: an intelligent dimming system that would link though a wireless network. Each individual luminaire would be addressable; this means that the CMS system could control each luminaire independently of the others. All this would be achieved on a computer. Lighting could be dimmed by setting timers online. This could be reviewed daily, weekly or monthly and dimming levels increased or decreased by logging into the system and amending the percentage of dimming and timings required. Seasonal variations could be applied, and in the event of an emergency, lighting could be triggered to revert back to 100%. During commissioning the system, dimming levels could be trimmed to suit the area and still maintain all users' safety. As LEDs have such good colour rendering, the human eye perceives this type of lighting to be brighter when the opposite is true; as the white light source allows our eyes to work properly, so greater dimming levels can be achieved than when using conventional high-pressure sodium lighting.

4.5.10. A dimming routine would be set up. Sensors would be used around the site so lighting could be switched off at curfew. These sensors would be zoned so only the required lighting would be activated. Further information would be provided once shift schedules have been finalised. The CMS would allow for this to be done remotely from a security office and would not require a visit to the lighting column or wall unit to activate the lamp.

4.5.11. A proposed lighting plan is shown in figure 44 and indicative views of the site in different light conditions is shown in figure 45.

Figure 44 Lighting scheme

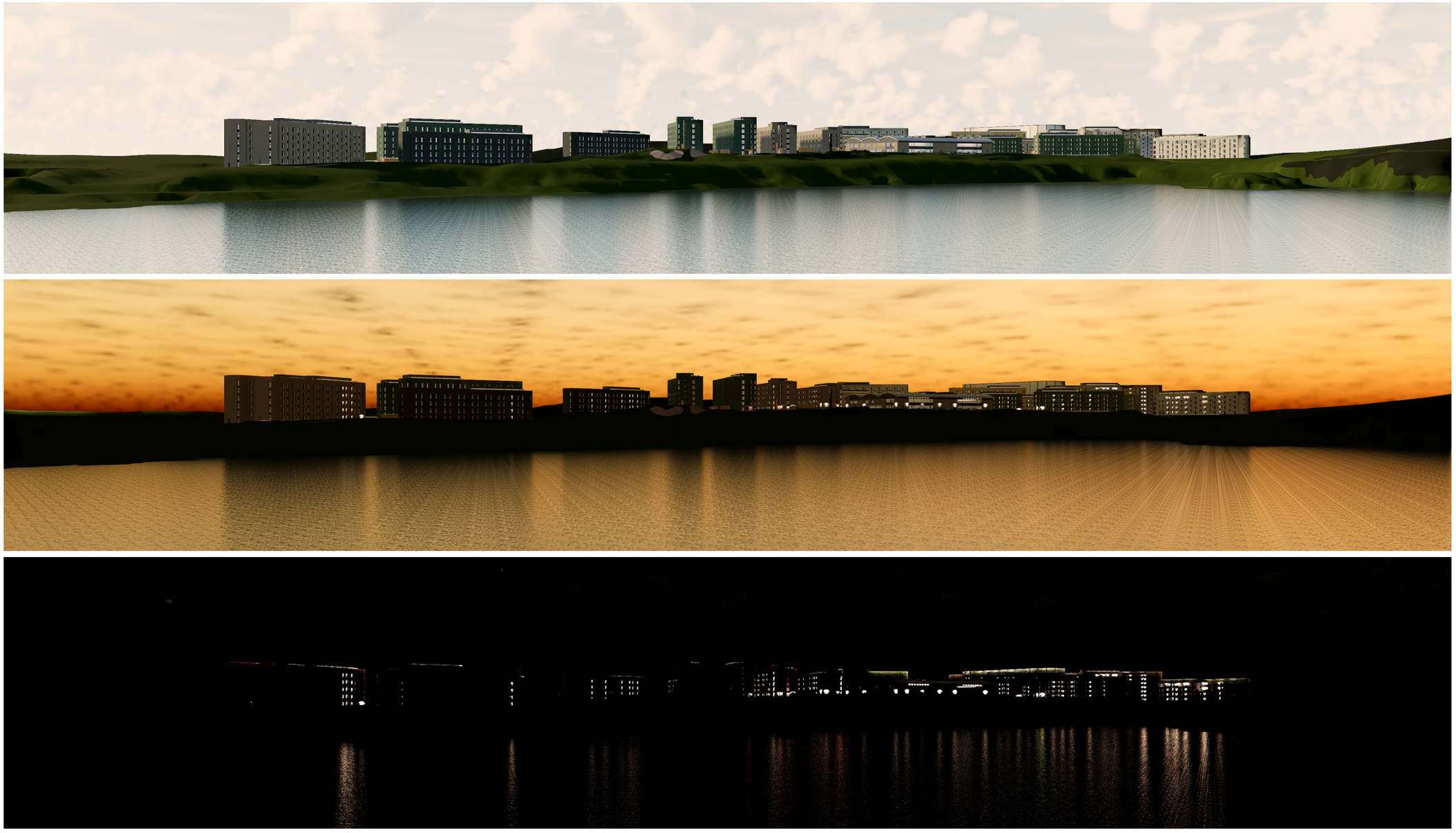


Figure 45 Indicative day, dusk and night images

5 ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability

5.1 INTRODUCTION

5.1.1. Horizon is committed to the process for embedding consideration of sustainability going forwards by continuing to develop the structured exercise of identifying, capturing and documenting sustainable design opportunities and measures. This process fosters good sustainable design practices, relating to design decisions that are in the first instance practicable (i.e. cost-effective), and demonstrate positive outcomes against Horizon's Sustainability Assessment's Objectives.

5.1.2. The overarching approach to sustainable design and construction of the Wylfa Newydd DCO Project is set out in Volume 1 of the DAS and the Sustainability Statement [APP-426] submitted in support of this application. This chapter outlines environmental sustainability measures that would specifically apply to the Site Campus element of the Wylfa Newydd DCO Project.

5.1.3. This chapter summarises how the design of the facility has taken into account sustainability during the design development process to date, with a view to passing Part L2A 2014 Building Regulations for Wales. Appendix 1-6 of Volume 3 of the DAS includes a review of rsustainability guidance from national and local planning guidance, and identifies key sustainability themes.

5.1.4. This chapter of the report describes how the development would incorporate good practice sustainable design measures in relation to each of these themes and includes recommended next steps to ensure that sustainability is embedded in the design, construction, operation and decommissioning going forward.

5.2 ENERGY HIERARCHY

5.2.1. A low energy design would be achieved by adopting the following hierarchy of strategic principles, ordered to represent their relative potential benefits both economic and practical.

A. MINIMISE USE

5.2.2. Providing scalable accommodation and amenity buildings means that if temporary accommodation demands are lower than anticipated, the design allows for certain blocks to not be built.

5.2.3. Designing the accommodation buildings to the minimum size requirements reduces services demand.

5.2.4. Internal temperatures – allow the internal temperature to vary according to external conditions.

5.2.5. Lighting – lighting levels have been considered and designed appropriately for the facility requirements. This includes intelligent system which reduces lighting levels when areas of the facility are not in use and minimises light spillage.

B. REDUCE WASTE

INSULATION

5.2.6. Insulation optimised to reduce the heating and cooling requirement.

AIR TIGHTNESS

5.2.7. Build tight and ventilate right – the buildings would be well-sealed using robust building details to ensure that the ventilation is controlled.

CONTROLS AND ZONING

5.2.8. The buildings would be zoned and the controls appropriate such that when areas of the buildings are not in use the services are off or on standby.

PRE-FABRICATION

5.2.9. Pre-fabrication of the accommodation buildings is proposed to minimise waste on-site during construction. The amenity building may have some modular elements in its make-up.

C. RECYCLE

HEAT RECOVERY

5.2.10. Efficient heat reclaim systems have been considered for all mechanical ventilation systems.

PRE-FABRICATION

5.2.11. Pre-fabrication of the accommodation buildings means the entire modules could be re-used at the end of the operational life of the facility.

D. GENERATE

5.2.12. Renewable energy systems have been proposed to reduce and offset the carbon impact of the development, by provision of photovoltaic panels on the amenity building.

5.3 SUSTAINABLE DESIGN

5.3.1. The illustrative design has incorporated the following measures:

- use of topsoil for landscaping including screening;
- designing out retaining walls;
- retention of rock outcrops;
- loose stone bunding, positive use of material stored during construction and identified for use in reinstatement of field boundaries in the Wylfa Newydd Development Area following construction of the Power Station;
- identification and protection of existing environmental features during operation, bat barn and bat foraging routes, Tre'r Gof SSSI, ancient woodland, mature tree planting and rock outcrops;
- use of swales to help with management of surface water runoff and protection of Tre'r Gof SSSI as part of the overall drainage strategy;
- internal pedestrian footpath and cycle network;
- indirect pedestrian access to Wylfa Head, the Wales Coast Path and wider network via the main site entrance and main access road;
- development of communal/social spaces for workers during operation;
- development of external amenity and fitness areas for residents;
- communal cycle store, adjacent to amenity building;
- efficient use of cut and fill, management of natural resources;
- selective retention and reinstatement of coastal grassland;
- choice of materials, asphalt paths and reinforced gravel tracks – choice based on flexibility and robustness during construction and operation, ease of decommissioning when restoring the site and the potential to re-use materials both on- and off-site;
- use of native planting species;
- use of sensitive cut-off lighting to minimise light spillage;
- retaining accessible footways and viewing areas as part of restoration proposals;
- roof lights on the amenity building to enhance natural light within the building;
- modular construction for accommodation buildings to minimise waste during construction; reducing the work required on-site;
- modular construction for accommodation buildings to allow future dismantling and re-use of the accommodation buildings;
- light weight construction to minimise foundation requirements;
- co-ordination of founding level with rock level to minimise excavation and foundation requirements; and
- use of a steel frame for the amenity building to reduce the impact on decommissioning and to aid selective re-use or recycling of the building.

SITE ANALYSIS, LAYOUT AND PASSIVE DESIGN

5.3.2. A landscape constraints and opportunities mapping exercise has been undertaken for the site taking into account key views, visually prominent sloping land, watercourses, PRoWs, existing vegetation types, landscape features and ecological features. The illustrative site layout and massing (on which the wider parameters are based) has been chosen to align with the site topography and to be sympathetic to the local landscape. Existing landscaping features such as stone walls and trees would be retained where feasible.

5.3.3. The current site proposals allow for a balance between minimising land-take, whilst still retaining open green spaces on-site to support well-being, ecology and pedestrian access. Much of this open space is designed to be sheltered against the wind by the surrounding buildings.

5.3.4. A planting scheme is proposed which would reflect local character and enhance ecology.

5.3.5. Unwanted solar gain is acknowledged as a potential issue for the west-facing units. Therefore, appropriate measures are proposed for inclusion at the detailed design stage (e.g. shading and effective displacement ventilation).

5.3.6. Generally, the glazing to solid wall ratio on the external façades is specified to allow reasonable levels of natural daylight whilst reducing unwanted heat loss and solar gain.

ENERGY AND CARBON

5.3.7. The accommodation buildings are proposed to be constructed from pre-fabricated modular units and flat pack components. Off-site construction can offer a number of benefits in terms of reducing energy use and carbon emissions compared to more conventional construction methods including:

- design can meet and exceed latest standards for energy efficiency;
- site deliveries can be minimised, so there can be significantly fewer vehicle movements on a modular building site than a traditional building project, reducing emissions associated with vehicle use;
- typically, less energy is required to produce a modular building than a traditionally constructed one;
- off-site manufacture to tight tolerances can help create very airtight buildings, minimising draughts that reduce thermal efficiency; and improved moisture control during assembly resulting in higher levels of insulation performance.

5.3.8. The illustrative design follows a 'fabric first' approach with low U-values and a high level of air tightness. Mechanical and electrical systems included in the buildings will be highly efficient and incorporate heat recovery where possible. The inclusion of photovoltaic panels is proposed on the amenity building.

5.3.9. The building services design proposals currently include energy sub-metering and monitoring for all major energy uses within the buildings. Any high load areas would also be sub-metered. The building services and sub-metering are proposed to be managed by a central BMS to allow for more effective energy management during operation.

5.3.10. Highly efficient LED lighting is proposed for internal and external areas. External lighting would be controlled (e.g. photocell with time switch) to avoid operation during daylight hours.

5.3.11. It is proposed that a permanent power supply be available on-site from the start of construction to enable construction site activities to be powered by grid electricity where feasible, thus providing energy and carbon savings compared with using electricity generated on-site through less efficient means e.g. diesel generators.

5.3.12. The external lighting would be specified in accordance with the Institute of Lighting Practitioners guidance notes for the reduction of obtrusive light. This would ensure that external lighting is concentrated in appropriate areas and upwards light is minimised, reducing unnecessary light pollution, nuisance to neighbours and light spill onto ecologically sensitive areas.

5.3.13. The proposed heating source is electricity which has low NOx emissions at a local-level thus providing a local air quality benefit.

POLLUTION

5.3.14. It is proposed to specify the external lighting in accordance with the Institution of Lighting Practitioners' guidance note for the reduction of obtrusive light. This would help to ensure that external lighting is concentrated in appropriate areas and upwards light is minimised, reducing unnecessary light pollution, nuisance to neighbours and light spill onto ecologically sensitive areas.

5.3.15. The proposed heating source is electricity, which has low NOx emissions at a local-level, thus providing a local air quality benefit when compared to gas or biomass boilers.

5.3.16. The illustrative design allows for the mitigation of watercourse pollution through the use of Sustainable Urban Drainage Solutions (SuDS) techniques, such as permeable paving, where feasible. Oil interceptors are proposed for areas where there is a higher risk of watercourse pollution such as the vehicle manoeuvring and delivery areas. It is proposed that the drainage systems shall be designed and installed in accordance with the recommendations in Pollution Prevention Guideline 3 (PPG 3) and/or, where applicable, the SuDS manual (CIRIA, 2015).

5.4 WATER

5.4.1. The water and drainage design aims to identify:

- the potable water strategy;
- the surface water drainage strategy and any discharge into local watercourses and preventing pollution; and
- the foul drainage strategy including any wastewater treatment package plant requirements.

5.4.2. This section provides the water and drainage proposals associated with the design, including the strategy covering proposed potable water networks and foul and surface water drainage networks at the proposed facility.

POTABLE WATER REQUIREMENTS

5.4.3. The design proposals include water-efficient fittings such as low-flush toilets which help reduce water consumption. More detailed specifications will be developed at a later stage in the design process in accordance with recognised best practice for water efficiency.

5.4.4. The proposals also include water metering and monitoring, including sub-metering of major water consuming items/facilities. This allows for more effective water monitoring and management during operation.

5.4.5. Proposals for the landscaped areas exclude the need for any dedicated mains-fed irrigation.

SURFACE WATER DRAINAGE REQUIREMENTS

5.4.6. A new surface water network is proposed to serve the site's drainage requirements, which would include drainage of the building roof areas, the car park, bus transfer area, and all permeable and impermeable hardstanding areas.

5.4.7. The site is naturally split into two catchment areas. The proposed surface water design has been split into three networks to manage the storm water across the site and within the two catchment areas to mimic the pre- and post-development drainage characteristic.

5.4.8. Network 1 manages the northern catchment and drains the accommodation building roof areas into a piped system by site linear/gully drainage receptors. Storm water attenuation would be provided in line with The SuDS Manual C753 (CIRIA, 2015) in the form of a permeable paving systems and swales. Surface water flows would be discharged to the sea via the Existing Power Station Site outfall, which is located north-west of the proposed site. Discharge flows would be limited to greenfield runoff rates via a flow control chamber.

5.4.9. Networks 2 and 3 manage the southern catchment. Network 2 drains the car park, accommodation and amenity building roofs, bus transfer area, and all permeable and impermeable hardstanding areas into a piped system by site linear/gully drainage receptors. Oil / hydrocarbon treatment and storm water attenuation is required within Network 2 and this is provided through the use of a full retention separator and a below ground proprietary cellular tank with flow control prior to discharge.

5.4.10. Network 3 drains building roof areas and permeable paved areas only. No hydrocarbon treatment is required prior to discharge. A piped system by site linear/gully drainage receptors via swales is proposed for Network 3.

5.4.11. Surface water flows would be discharged to an existing local watercourse/drain, which to the south of the site would outfall into Tre'r Gof SSSI, then ultimately to the sea. Discharge flows would be limited to greenfield runoff rates via a flow control chamber.

5.4.12. The surface water strategy is visualised in figure 46a.

Figure 46a Surface water strategy

FOUL WATER DRAINAGE REQUIREMENTS

5.4.13. There is an existing WwTW on the Existing Power Station Site, owned and operated by Dŵr Cymru Welsh Water (DCWW); Cemaes WwTW. DCWW have confirmed that Cemaes WwTW will have sufficient capacity to treat the Site Campus foul water, following temporary remediation and expansion work. This temporary expansion could be achieved by constructing a modular package treatment plant in parallel with the existing permanent plant.

5.4.14. An existing foul sewer runs through the proposed Site Campus area. This foul sewer would require diverting, prior to constructing the Site Campus. DCWW are currently assessing this diversion.

5.4.15. The foul water strategy is visualised in figure 46b.

Figure 46b Foul water strategy

5.5 SUSTAINABLE MATERIALS

5.5.1. The proposals are designed to make efficient use of materials (e.g. off-site modular construction).

5.5.2. Preference would be given to the use of sustainable materials. It is anticipated that major building elements including external walls, roof, internal walls, floor finishes and insulation would be specified to achieve an A or A+ rating in the Green Guide to Specification.

5.5.3. During detailed design, the following sustainable material use measures will be reviewed and applied where feasible:

- the use of materials with recycled content;
- the use of materials with Environmental Product Declarations; and
- the use of responsibly sourced materials (e.g. BES 6001 certified, Forest Stewardship Council (FSC) timber).

5.6 NATURAL HABITATS

5.6.1. The development site has been surveyed by a suitably qualified ecologist to identify any features of ecological value and protection and mitigation measures required. The findings and recommendations have been incorporated in the landscape design. This has been described in more detail in section 4.2 Landscape proposals.

5.6.2. Existing features of ecological value (including a bat barn and woodland areas) have been identified and protected in the design proposals. During operation, these areas would be clearly signposted and fenced off. The illustrative design also retains and enhances the stone walling running through several areas of the site.

5.6.3. The design reinforces the existing vegetation pattern and species, including dense native trees and shrubs on the south-western boundary. Within the development, the proposals restrict planting to a minimal palette of native shrubs, petering out as the buildings open onto areas of grassland, seeded with species appropriate to the location and context of the site, helping to further place the facilities within the surrounding landform and landscape character.

5.6.4. The development is expected to be in use for the period of the construction of the Power Station. Following this period, it is proposed that the site is reinstated to its current use. This would include restoring appropriate habitats, planting and landscape features.

5.7 WASTE

5.7.1. The waste disposal system will be designed to incorporate the following:

- external areas set aside for the parking of commercial waste bins for recyclables and mixed waste;
- separate collection of recyclables and waste electrical and electronic equipment (WEEE); and
- in the offices, central wastebaskets provided so that recyclable waste can be separated at source.

5.7.2. External areas would comprise a screened open-top compound to store waste bins. There would also be an area for skips and roll-on-roll-off container for larger items such as beds, mattresses, furniture or WEEE items etc.

5.7.3. The site would provide appropriately sized and designed waste management areas with space for storage and collection of recyclable and compostable waste.

5.7.4. The amount of cut and fill would be minimised to reduce the amount of waste removed from site. It is anticipated that a significant amount of excavated material would be re-used within the Wylfa Newydd Development Area.

5.7.5. The building proposals are based on the inclusion of off-site manufactured components. WRAP (Waste and Resources Action Programme) identifies that this construction method can support resource efficient construction thus reducing waste.

5.7.6. A central space for the storage and collection of recyclable and general waste is proposed in the amenity building, accessed via external doors. The area would be easily accessible to both building occupants and by waste management contractors to facilitate collection. In addition, there would be:

- A small building adjacent to the amenity building containing a bin store.
- A bin store and waste recycling point outside each accommodation block. This would comprise domestic-sized 'wheely' bins. Workers would be encouraged to use them.

5.7.7. Waste management services restricted to general waste from offices and welfare facilities would be handled by a waste carrier licensed for this activity. Suitably labelled receptacles would be provided and their use explained as part of the site induction. For waste produced as part of construction activities a contractor or contractors would be nominated to ensure that all legal compliances are met with regards to waste management and Horizon's Management of Materials and Waste procedure. The responsible contractor would retain waste transfer notes on-site for audit purposes.

5.7.8. The green waste stream would be broken down into the various categories such as paper and card, plastics, metals and glass, as applicable to the local authority's collection scheme.

5.7.9. Consideration would be given to waste minimisation using Horizon's principles of waste hierarchy minimisation (in decreasing order of preference):

- Prevention and minimisation
- Preparing for re-use
- Recycling
- Other recovery
- Disposal.

5.7.10. Waste management would be undertaken by the FM company who would procure waste management services.

5.7.11. Pre-demolition audits would be produced in advance of decommissioning the Site Campus, to maximise the re-use and recycling of the contents and elements of the buildings, structures and infrastructure.

5.8 CLIMATE CHANGE

EXTERNAL

5.8.1. The NRW flood risk mapping shows that the site has little or no risk of flooding. As part of the Flood Consequences Assessment being undertaken for the development (Environmental Statement Appendix D8-4 [APP-150]), further modelling will be carried out to confirm the risk of flooding from all sources, including an allowance for climate change.

5.8.2. The proposals for the development include measures to minimise surface water runoff using sustainable drainage techniques, where feasible, including a best practice allowance for climate change based on the expected lifespan of the development.

5.8.3. Attenuation measures are proposed to ensure that discharge rates are less than or equal to greenfield runoff rates while maintaining flow rates into the SSSI.

INTERNAL

5.8.4. The design team has used thermal modelling software which analyses the proposed construction materials and mechanical, electrical and plumbing services. It has been used to undertake heat gain and heat loss analysis for all spaces within the building.

5.8.5. Heating is to be provided to maintain a minimum temperature of 21°C +/- 2°C at all times. If the external temperature rises above 30°C the internal temperature will be controlled to maintain a 5°C differential. This is to be achieved by the most energy efficient means.

6 COMMUNITY SAFETY

Community safety

6.1 NATURAL SURVEILLANCE

MANAGEMENT REQUIREMENTS

6.1.1. The Site Campus is within the boundary of the Wylfa Newydd Development Area. The site is not within the 'Nuclear Licensed Site Under Construction' nor inside the construction security fence line. It is proposed that the Site Campus would be staffed by a security team on a 24/7 basis. The perimeter of the site would be secured with fencing. The main (southern) entrance would have gated access staffed by security personnel. The vehicular access to the north-west of the site would be unstaffed and would only be opened in the event of an emergency. Pedestrian accesses/gates on the northern perimeter would only be opened in the event of an emergency.

ENTRANCE GATE AND FENCING STRATEGY

6.1.2. The entire perimeter would have 2.4m-high Paladin-type fencing. Five metres' clearance is generally provided inside and outside the perimeter fence, where possible, but limited in some areas due to the proximity of exiting vegetation and hard landscape features that will be retained. Gates would be co-ordinated with the fencing, would be monitored by CCTV, and would comprise:

- main entrance gate;
- minimum of two vehicular maintenance and emergency access gates on the north-west perimeter; and
- minimum of two additional emergency pedestrian entrances on the northern perimeter.

6.1.3. The security strategy is shown in figure 47.

Figure 47 Security strategy

LIGHTING

6.1.4. Lighting would be provided within the boundary of the site and would be a combination of pole and building wall-mounted. The design would work under the 'broad consideration' that the Isle of Anglesey is working towards a Dark Sky Reserve Status. A CMS would be utilised, which would be remotely accessible. LED lighting would be utilised, in conjunction with a detection system to provide lighting only when required for access.

CCTV

6.1.5. CCTV would be provided at strategic locations within the site, externally and within buildings.

- CCTV can be located on 6m or 8m high lighting columns or on 5m height camera columns (dependent on CCTV/lighting survey and design).
- All exits to be covered by CCTV for the purposes of identification.
- Maintenance access required to all cameras. e.g. base pivot pole.
- Cameras on or around buildings locations and general circulation omitted from figure for security purposes.

SAFETY AND SECURITY

6.1.6. The following security provisions would be incorporated into the design.

- Fencing would be provided around the entire perimeter.
- External lighting would be designed to BS 5489.
- Controlled access at the main gate, if required.
- CCTV.

6.1.7. A review of best practice safe access requirements has been undertaken by the design team. This identified that the following measures to maximise pedestrian and cyclist safety have been included in the design.

- Footpaths on-site would provide direct access from the site entrance to the building entrance.
- Generally, vehicles would not be permitted on-site except in emergencies and for routine facilities maintenance (e.g. window cleaning, deliveries).
- Notwithstanding, parking and turning areas would be designed for simple manoeuvring, thus avoiding the need for repeated shunting and reversing.
- Drop-off areas would provide direct access to pedestrian footpaths, thereby avoiding the need for pedestrians to cross vehicle access routes.
- Dedicated pedestrian crossings would be provided where pedestrian routes cross vehicle access routes.
- The lighting for access roads, pedestrian routes and cycle lanes would be compliant with BS 5489-1:2013 Lighting of roads and public amenity areas.

6.1.8. It is proposed to erect security fencing around the site establishment facility during the construction phase. Entry to the site would be through electronic, pass-activated turnstiles. All personnel working on the Wylfa Newydd DCO Project would have a site-specific safety induction prior to the issue of a security pass. A security facility would be provided at the entrance to the site. All vehicles and pedestrians accessing and leaving the site would be logged in and out. Visitors would be escorted at all times during their time on-site.

ACCOMMODATION BLOCKS

6.1.9. Individual rooms would be fitted with key-card locks and there would be additional secure access provisions at the entrance to each block. Window frames would incorporate a secure locking mechanism.

6.2 COMMUNITY

HEALTH, WELL-BEING AND SOCIAL ISSUES

6.2.1. The proposals include the provision of an external window (or roof light) to all bedrooms, offices and meeting rooms. This would provide a view out to allow occupants to refocus their eyes and enjoy an external view, thus reducing the risk of eyestrain and breaking the monotony of the indoor environment.

6.2.2. The design would achieve good practice daylight levels for occupied spaces such as accommodation living rooms, communal spaces and offices.

6.2.3. All regularly occupied spaces within the buildings are specified to be fitted with user-operated glare control, such as blinds, to remove unwanted glare when required.

6.2.4. The majority of building services plant is proposed to be located in roof-mounted plant rooms, which would minimise noise from plant to building occupants. The proposed mechanical services installation is designed to limit internal noise levels.

6.2.5. Ventilation rates for occupied spaces in the development are specified to good practice standards.

6.2.6. Internal lighting would be designed to be in accordance with the Society of Light and Lighting Code for Lighting (2012) to provide best practice lighting standards. External lighting would be designed in accordance with best practice standard BS 5489.

6.2.7. The design proposal allows for appropriate zoning of internal lighting to give building staff and building occupants (where applicable) a good level of control.

6.2.8. The illustrative design incorporates areas of reclaimed stone bunding along footpaths to protect residents from the wind. A canopy and seating area is proposed to the eastern elevation of the amenity building.

6.2.9. It is proposed that the construction contractor would be required to comply with the Considerate Constructors Scheme to minimise nuisance to the local community.

ADJACENCIES TO OTHER FACILITIES

6.2.10. There are a number of facilities located close to the site. These include the Existing Power Station and prominent natural features such as the Wales Coast Path, Tre'r Gof SSSI and woodland.

7 ACCESSIBILITY

Accessibility

7.1 INCLUSIVITY ACCESS AUDIT

7.1.1. An inclusivity access audit has been undertaken for the site.

7.1.2. It is intended that there should be no discrimination against any person wishing to work on the Wylfa Newydd DCO Project, either on a temporary or a permanent basis.

7.1.3. The site would be fully compliant with the recommendations BS 8300 Design of buildings and their approaches to meet the needs of disabled people. Code of practice.

7.1.4. The proposals are deemed to be in accordance with the regulations regarding inclusivity and Policy PCYFF 3 in the JLDP, with the inclusion of the following:

- access and security controls at the site entrances/exits of drives and pathways;
- all buildings fully accessible;
- internal and external furniture for relaxation;
- fully inclusive access and facilities for using the gym in the amenity building; and
- building management, including staff training, to cater for those with disabilities.

7.2 TRANSPORT AND ACCESS

7.2.1. The proposed Site Campus would provide TWA during Main Construction.

7.2.2. During this period, the facility would be accessed in the following scenarios.

- Construction workers: access via the southern entrance after bus transfer from the Park and Ride facility at Dalar Hir and/or after bus transfer via buses to the Power Station Site. The initial phase of operation allows up to 400 parking spaces on the site, but as the site is developed, this is proposed to be moved to a new parking area for up to 800 vehicles between the Existing Power Station access road and the SSSI.
- Staff: as construction workers.
- Emergency, maintenance and general delivery vehicles: access generally via the southern entrance.

7.2.3. The proposals would exclude the provision of any car parking on-site for residents beyond an initial allowance for the first phase and disabled parking for all phases per table 1.

7.2.4. Bus transport to and from the planned parking to the south of the site and the Park and Ride facility at Dalar Hir is proposed. Bus transport to and from the Power Station Site is proposed. This approach supports delivery of the overall Wylfa Newydd DCO Project sustainable transport objectives.

7.2.5. The proposals also include sports, leisure and recreation facilities on-site (which in turn reduces the need for travel to access these facilities).

7.2.6. The proposals would also include cycle storage for residents and staff. Showers, lockers and changing facilities for cyclists are also proposed for the amenity building on-site.

7.2.7. The Wylfa Newydd Code of Operational Practice [APP-421] includes commitments to prepare a Travel Plan strategy, thus helping to reduce transport-related impacts.

7.3 ACCESS TO AND WITHIN THE SITE

7.3.1. Access to the Site Campus would be generally through use of the existing, widened access road and then through a new entrance at the south of the site. Once in the site, orientation and wayfinding would be guided along a series of wide pathways, designed primarily for pedestrian use, with access for emergency and occasional FM vehicles.

7.3.2. The proposed public realm concept, including accessibility in relation to accommodation buildings, pictorial (isotype) wayfinding and access to communal spaces is visualised in figure 48.

7.3.3. The community access strategy for the whole site is visualised in figure 49.

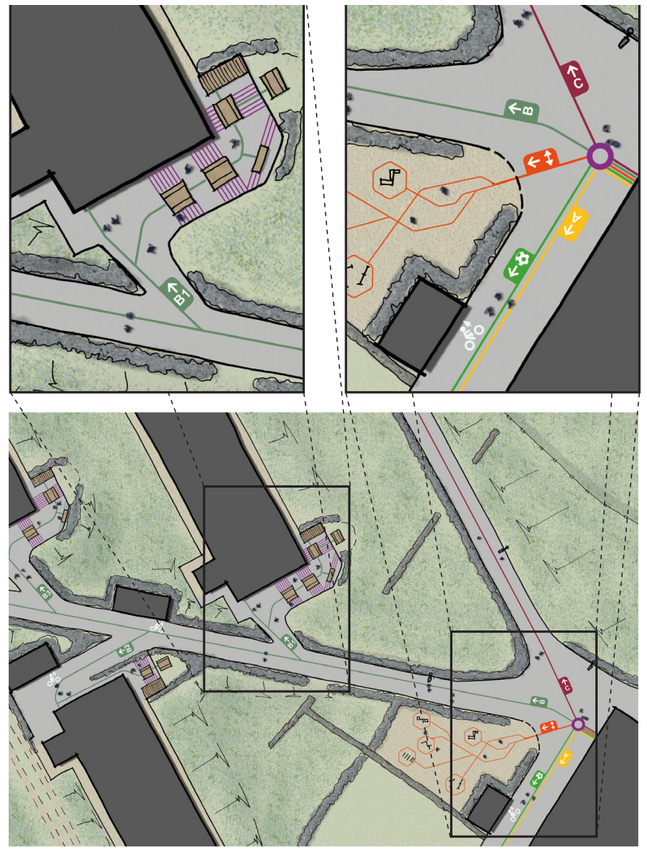


Figure 48 Communal spaces and wayfinding

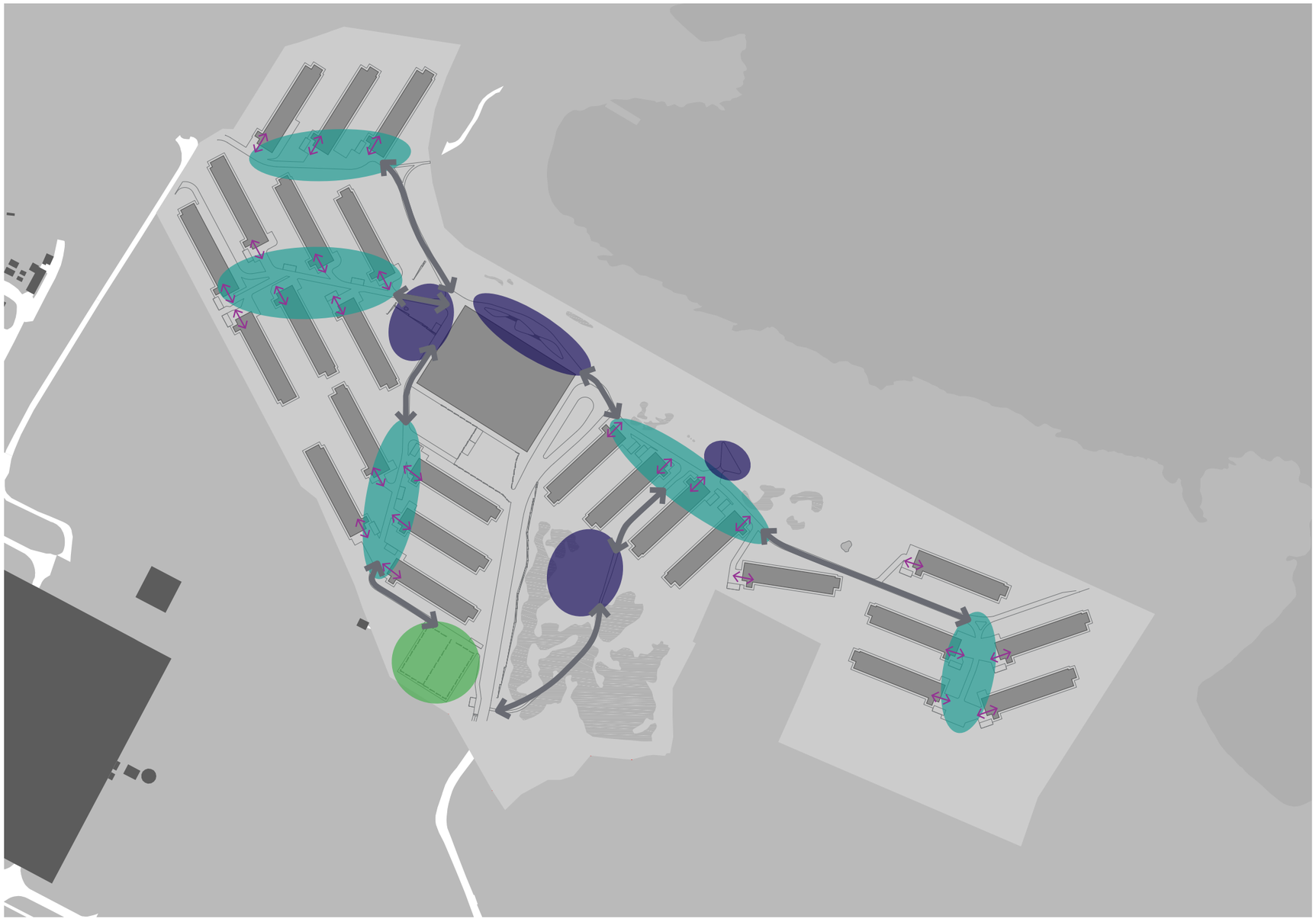


Figure 49 Community strategy

8 MOVEMENT

Movement

8.1 GENERAL

8.1.1. Figure 49 and figure 50 show indicative vehicle and pedestrian movements associated with this facility as well as entrances and exits for vehicles and pedestrians.

BUSES

8.1.2. Buses would enter the site via the access road at the main entrance at the south of the site. They would drop off and pick up workers at one of the bus parking bays along the access road, adjacent to the amenity building. To leave the site, buses would continue around the 'loop' road and leave via the main entrance.

RESIDENTS AND STAFF

8.1.3. Residents and staff would generally travel to and from the site via bus transfer or by foot. There would be the opportunity for residents to walk to the Power Station Site from the main entrance, via designated footpaths.

DELIVERIES

8.1.4. Vehicles undertaking deliveries of day-to-day consumables and/or FM would enter the site through the main entrance. There is a small parking/laydown area adjacent to the amenity building where deliveries may be offloaded.

PEDESTRIANS AND CYCLISTS

8.1.5. Pedestrians and cyclists may enter and exit the site through the main entrance.

8.2 TRANSPORT AND TRAVEL

8.2.1. A multi-modal approach to the traffic and transport assessment has been adopted to assist in designing the development to provide suitable facilities and infrastructure that could encourage travel by sustainable modes to minimise the impact of travel demand on both the local and strategic transport network. This includes assessment of transport-related effects both on-site and off-site, in particular consideration of the operation of junctions and provision for access to bus services and the cycle network.

8.2.2. For further details, please refer to chapter C2 of the Environmental Statement.

8.3 CAR PARKING

8.3.1. Provision would be provided at the Site Campus for up to 16 disabled spaces and for up to 16 minibuses/light vehicles at completion of Phase 3. The intention is that all residents and staff would park their vehicles off-site and access the facility via bus transfer.

8.3.2. During initial phases, parking is provided for up to 400 vehicles on the Site Campus but as the campus is developed, this parking is moved to an area between the between the Existing Power Station access road and the SSSI within the Wylfa Newydd Development Area boundary.

8.4 HIGHWAYS

PROPOSED HIGHWAYS DESIGN

8.4.1. The highways design for the Site Campus features:

- A layout for buses and delivery vehicles that would ensure there are no reversing manoeuvres.
- Delivery vehicles drop-off parking adjacent to the amenity building.
- Emergency vehicle access around 50% of the outside of each accommodation block and amenity building.
- Access for linen distribution vehicles between accommodation blocks and laundry.

8.4.2. Emergency access would be provided around the accommodation blocks with access through the bus and delivery zone. There is also expected to be access to the site at the northern point of the site directly from the Power Station. Linen transfer electric vehicles would have access to the entrances to the accommodation blocks.

8.4.3. The proposals for accessibility across the site are shown in figure 51.

Figure 50 Vehicular movement strategy

Figure 51 Accessibility strategy

9 POST-OPERATION

9.1 POST-OPERATION STRATEGY

Post-operation

9.1 POST-OPERATION STRATEGY

9.1.1. Horizon's visions and objectives include an aim to,

"build on the legacy of the Existing Power Station, and help to create a positive legacy for Anglesey; thinking about each significant investment and how it can create a positive future for the area, where appropriate".

9.1.2. It is therefore important to identify how each component of the Wylfa Newydd DCO Project will be managed and used following their operational stage, whilst recognising that the DCO itself cannot give approval for post-operational uses.

9.1.3. For the Associated Development sites, this means that strategies are required to deliver a lasting legacy and/or restore the sites to an appropriate state. The post-operation strategy for the Site Campus would be to reinstate the site to its current agricultural use, reinforcing the objectives set out in the Ynys Môn Landscape Strategy and in the LANDMAP landscape character classifications.

9.1.4. The proposals would focus on re-establishing the site, incorporating the key environmental assets that would have been identified, enhanced and protected throughout the operation of the site. These enhancements primarily focus on preserving and restoring:

- restored coastal grassland areas;
- restored stone walling to existing field pattern;
- reinstated landform;
- retained rock outcrops with reinstated planting;
- reinforced woodland edge as wooded slopes;
- stronger woodland area of the ancient woodland and surrounding woodland;
- reinstated native shrub planting replicating the pattern prevalent on-site;
- new gravel surfaced path connecting the Wales Coast Path with the Fisherman's car park and footpaths to the south and east;
- public vehicular access restored to the Fisherman's car park;
- new viewpoint along the Wales Coast Path, providing a place to sit and pause on the route; and
- retained accessible footpaths to support the wider public network.

9.1.5. The post-operation restoration strategy is illustrated in figure 52.

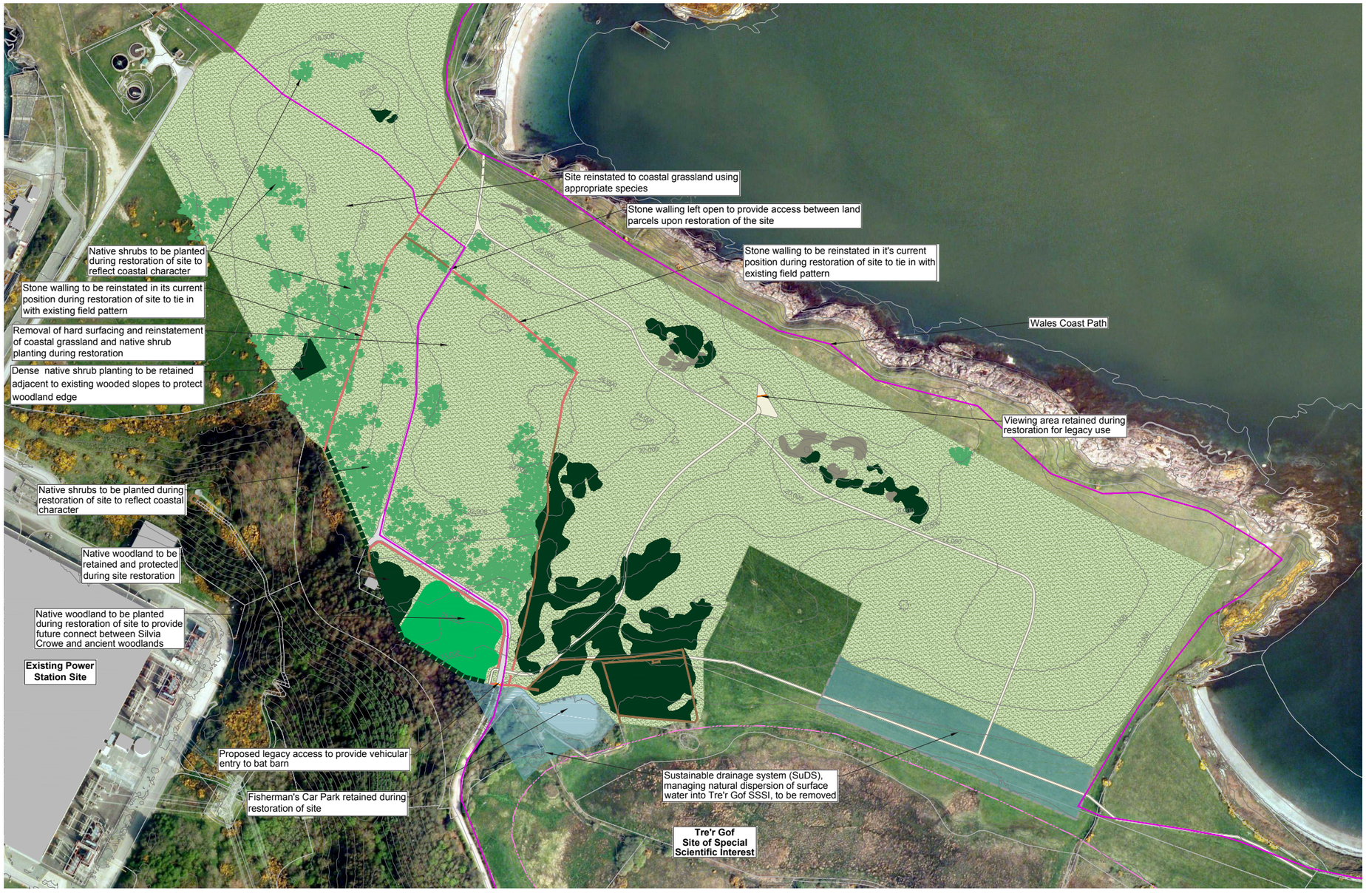


Figure 52 Post-operation restoration strategy

A APPENDIX A

FACILITY ENVIRONMENTAL DESIGN OBJECTIVES

This appendix sets out the EDOs that were developed, with regard to the site constraints as set out in chapter 2 of this document, to inform the facility design and landscape principles. The third column provides an illustration of how each EDO could be met through the design process, as demonstrated in the illustrative design provided in Part B of this document.

REF.	OBJECTIVE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN
EDO1	Design to manage any effect on Tre'r Gof SSSI, including mitigation to reduce/avoid impacts such as dust during construction.	Design maintains a 50m buffer zone (excluding drainage mitigation works) from the SSSI. Drainage has been designed to replicate the current flow into the SSSI. Pre-fabricated modular construction is proposed for the accommodation blocks which will minimise dust. Site layout has been developed to utilise the existing topography where possible to minimise the amount of cut and fill required which will minimise dust from excavation works.
EDO2	Design to avoid any impact on, and maintain access to, Cemaes Bay RIGS.	The site layout developed maintains access to Cemaes Bay Regionally Important Geodiversity (CBRIG) site via the Wales Coast Path. Site layout does not encroach on CBRIG. Pre-fabricated modular construction is proposed for the accommodation blocks which will minimise dust. Site layout has been developed to utilise the existing topography where possible to minimise the amount of cut and fill required which will minimise dust from excavation works.
EDO3	Design to manage effects on rocky outcrops adjacent to the RIGS.	The two rocky outcrops to the eastern part of the site are to be retained as part of the proposed site layout.
EDO4	Drainage design to consider surface water catchment of Tre'r Gof SSSI such that effects on hydrology are managed.	Surface water drainage has been designed to replicate the current flow into the SSSI using the current surface water catchment areas.
EDO5	Drainage design to consider recharge to groundwater such that effects on the groundwater resource are managed.	Surface water drainage has been designed to replicate the current flow into the SSSI using the current surface water catchment areas. Proposals utilise swales and reno mattresses / rock filled gabions for natural dispersion into the groundwater.
EDO6	Design to preserve 50m buffer from Temporary Workers' Accommodation fence line to the Tre'r Gof SSSI (excluding drainage mitigation).	Design maintains a 50m buffer zone for buildings (excluding drainage mitigation works) from the SSSI.
EDO7	Design to enable Wales Coast Path to be kept open during Temporary Workers' Accommodation construction and operation.	The site layout maintains access to Wylfa Head via the Wales Coast Path.
EDO8	Design to reinstate public footpaths and access to Fisherman's car park on decommissioning of the Temporary Workers' Accommodation.	Reinstatement plan proposes to retain a number of the footpaths constructed as part of the Site Campus. This includes access from Fisherman's Car Park to Wylfa Head.
EDO9	Design to retain, as far as possible, existing Dame Sylvia Crowe landscape design (woodland).	Design retains Dame Sylvia Crowe mound and incorporates new edge planting to provide a buffer between the temporary development and the mound. Note area within south-west area of site incurs into the woodland adjacent the base of Dame Sylvia mound.
EDO10	Design to retain and protect areas of significant vegetation and walls around site boundary as far as practicable. Layout to consider root protection zones.	The illustrative design retains areas of significant vegetation and walls around the site boundary where possible. A number of dry stone walls will have to be removed as part of the construction works. However, they are proposed to be reinstated as part of the decommissioning works.
EDO11	Design to ensure layout considers noise sources and receptors. This could include, but not be limited to, maximising distances between source and receptor, orientation of buildings and/or ensuring sufficient space to accommodate noise barriers or enclosing features generating noise sources.	Design considers noise sources, receptors and mitigation. Accommodation blocks are proposed to be pre-fabrication modular construction design to meet required noise criteria. Heating and ventilation strategy allows for windows to be closed. Plant equipment on ground and on roofs is to have barriers to minimise noise impact on receptors.
EDO12	Design to comply with Technical Advice Note 11: Noise (Welsh Office, 1997).	Design to comply with this Technical Advice Note.
EDO13	Design to comply with Technical Advice Note 15: Development and Flood Risk (Welsh Assembly Government, 2004).	Design to comply with this Technical Advice Note.
EDO14	Design to ensure, wherever possible, lighting design avoids light spill onto boundary habitats.	Design takes cognisance of the boundary habitats on-site. Vehicular and pedestrian access through the boundaries is required in some locations with lighting required. A lighting strategy has been produced which minimises light spill on to boundary habitats.
EDO15	Design to re-use site soil as far as practicable, to minimise requirements for off-site disposal.	Design takes cognisance of existing topography to minimise the amount of cut and fill required. It is not thought to be practical to store topsoil for re-use due to the time periods involved (10 years) and the requirements associated with being able to re-use. Some of the material may be able to be used in soft landscaping areas.
EDO16	Where feasible, the design should minimise adverse effects on the cist cemetery.	Site boundary goes around the burial ground.
EDO17	Design to include mitigation for potential effects on bat barn.	Site layout allows the bat barn to be retained in its current position. Ecology bat mitigation planting is proposed along south-western boundary, Site layout, including 2 no. MUGAs, go into the previous bat mitigation area.

REF.	OBJECTIVE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN
ED018	Design to minimise as far as possible the area of site to be covered by hardstanding to reduce the effects on soil resources.	Design has considered this. Current approach is to minimise the amount of hardstanding. Roads and delivery areas will require traditional road build-ups to cope with the traffic numbers and types. Emergency access roads are proposed to be 'grasscrete' or similar. The new buildings will require foundations and pavement surrounds. This cannot be detailed further until intrusive geotechnical investigation has been undertaken.
ED019	Design to incorporate, where appropriate, hedgerow creation/tree planting with native species of local provenance to remain as 'legacy' landscape planting on removal of Temporary Workers' Accommodation, and to enhance retained hedgerows to create species-rich hedgerows.	The design has been developed to reinforce the existing vegetation pattern and species proposing to plant dense native tree and shrub planting adjacent to the wooded slopes to provide a foil between the slopes and the accommodation facilities. The site will generally be reinstated to coastal grassland using appropriate species following decommissioning of the Site Campus. Buffer planting adjacent to the Dame Sylvia Crowe wooded slopes will be retained and native shrubs will be planted in certain areas of the site to reflect the coastal character.
ED020	Design to minimise as far as possible topsoil removal and the exposure of subsoil, and to ensure seeding and appropriate management of any grassland creation with appropriate grassland species.	The proposal includes expansive areas of coastal grassland, seeded with species appropriate to the location and context of the site helping to place the accommodation blocks within the surrounding landform and landscape character.
ED021	Design to incorporate landscaping and other measures to mitigate adverse effects on landscape character of the area.	Design incorporates landscaping to mitigate adverse effects. This includes retaining existing landscape features where possible (e.g. rocky outcrops, existing woodland) and reinforcing the existing vegetation pattern (e.g. with native tree and shrub planting in certain areas). The building colour palette has been developed to reflect the landscape character of the area.
ED022	Design to minimise as far as possible the generation of waste that needs to be disposed of off-site.	The design minimises, as far as possible, the generation of waste that needs to be disposed of off-site. The site layout has been developed to utilise the existing topography where possible to minimise the amount of cut and fill required. The accommodation blocks are proposed to be pre-fabricated which will minimise construction waste.
ED023	Design to avoid effects on ancient woodland areas, including mitigation to manage effects such as dust during construction.	The site layout has been developed to avoid the ancient woodland area. The only works proposed in this area is to enhance the existing footpath that runs through it. Pre-fabricated modular construction is proposed for the accommodation blocks which will minimise dust. Site layout has been developed to utilise the existing topography where possible to minimise the amount of cut and fill required which will minimise dust from excavation works.
ED024	Design to manage, as far as possible, any effects on chough nesting and foraging areas.	Certain parts of the site are within noted chough foraging habitat but are not within any recognised nesting locations.
ED025	Design to minimise as far as possible cut and fill requirements.	Site layout has been developed to utilise the existing topography where possible to minimise the amount of cut and fill required.
ED026	Design to ensure layout and other design elements (including ventilation) consider the potential odour from the adjacent sewage treatment works (which would be expanded to cope with the Temporary Workers' Accommodation residents). This could include, but would not be limited to, ensuring well-sealed windows, maximising vertical and horizontal distance between the sewage works and the ventilation air intakes, including enhanced controls at the sewage works to contain odours and not siting any seating or recreational areas close to the sewage works.	Design considers this. Ventilation strategy considers closed windows. Pre-fabrication of accommodation blocks ensures well-sealed windows. Treatment plant works are to be undertaken to required standards including odour control. Accommodation block communal areas are generally facing away from the treatment plant.
ED027	Design to mitigate visual impact by locating lower block heights on outer edge of Temporary Workers' Accommodation.	Design utilises the existing topography of the site by locating the taller blocks in the lower areas of the site, generally the western side.
ED028	Design to mitigate potential wind-blow within retained area of Dame Sylvia Crowe woodland.	The reinstatement works include planting native trees and shrubs to provide a buffer adjacent to the Dame Sylvia Crowe woodland. The detailed wind effect on the site is to be considered as part of the next stage of design.

B APPENDIX B

MEETING THE DESIGN PRINCIPLES

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
Key design principles			
3.4.8	The Site Campus will provide safe and good quality single bedroom accommodation to meet accommodation standards for single living accommodation with good access to the construction site.	Refer to the floor layouts in figures 34 and 35. Good quality, efficiently laid out single en-suite bedrooms are proposed for all residents.	Functionality
3.4.9	The amenity building will provide facilities that meet workers' needs, including facilities for good quality food and relaxation on-site.	The amenity building is planned to provide good quality catering and leisure facilities for all residents. Outdoor MUGAs are provided.	Functionality
3.4.10	The Site Campus density will provide the required number of beds to meet the forecast demand.	The development of the campus would be phased, per section 4.3 and figure 26, up to a maximum of 4,000 beds.	Functionality Adaptability
3.4.11	The proposed development will limit the potential impact of the buildings and connect the site visually and physically to the scale and pattern of the surrounding landscape.	The massing and colour finish of the buildings has been considered in detailed evolution studies, to mitigate effects on the surrounding landscape character and key views to the proposed site. Refer to figure 28 Preferred building colour development model and figure 29 Aerial impression of the site.	Appearance Character Functionality Mitigation
3.4.12	The proposals will seek to reduce the overall visual impact of the site, using the site contours and natural levels of the site to locate the accommodation buildings.	As set out in 3.4.11 above. In addition, the layout has utilised the existing topography to minimise visual effects of the scale of the buildings.	Appearance Character Functionality Mitigation
3.4.13	The development will make use of simple building forms, with off-site modular construction adopted as appropriate.	Modular off-site construction is proposed as a likely method. This may be seen in the illustrative design of the accommodation buildings in figure 33 Accommodation buildings visualisation and the building floor layouts in figures 34, 35 and sections and elevations in figure 36, where standard module sizes are utilised where feasible.	Functionality Adaptability Mitigation Sustainability
3.4.14	Accommodation and amenity buildings will be designed to provide scalability and to allow its construction and decommissioning in phases.	Phasing of the site has been worked into the design and is discussed in paragraphs 4.3.16 to 4.3.36 and shown visually on figure 26 Indicative phasing plan.	Functionality Adaptability
3.4.15	The development will include an internal pedestrian network connecting the facilities, allowing safe circulation.	Pedestrian routes within the site would be provided, allowing access and connection between the buildings and facilities (refer to figure 49 Community strategy).	Functionality
3.4.16	A simple and natural palette of materials and colours will be adopted.	Design studies to investigate the massing and colour of the buildings have been undertaken, resulting in a proposed model that blends in with the landscape and levels, and minimises adverse visual effects. Refer to paragraphs 4.3.37 to 4.3.44 and the associated figures 27 and 28.	Appearance Character Mitigation
3.4.17	The Site Campus will provide accommodation and facilities of sufficient quality to attract the temporary workers to stay on the site.	The accommodation and facilities would meet all relevant welfare standards (see paragraph 4.3.48) in a safe overall facility. Single en-suite rooms would be provided for all residents. A central amenity building would be provided offering catering and entertainment.	Functionality Sustainability
3.4.18	As many existing features will be retained as possible, including mature trees and woodland, the bat barn, hedges, hedgerows, boundary features, stone walls and exposed rock outcrops.	This would be achieved through sensitive landscaping proposals and placement of the buildings to make use and retain existing features (refer to section 4.2 Landscape proposals and especially figure 19 Indicative landscape masterplan and figure 20 Planting strategy).	Appearance Character Mitigation
General / masterplanning principles			
3.4.19	The precise position of the buildings within the parameters, will maximise the retention of key site characteristics.	Buildings would be positioned to retain existing vegetation and ancient woodland as depicted on figure 20 Planting strategy. The layout also follows the existing topography.	Appearance Character Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
3.4.20	The accommodation buildings will be designed to the optimum size requirements to reduce services demand.	Accommodation buildings have been designed to contain an optimum number of rooms per floor, whilst adhering to welfare requirements. Refer additionally to the floor layouts in figures 34 and 35.	Functionality Sustainability Mitigation
3.4.21	Buildings will be organised into communities to aid wayfinding and orientation.	The masterplan has been set out with community courtyards and informal external recreation areas with a simple wayfinding strategy for the site, contributing to a good quality feel for the site. Refer explicitly to figure 49 Community strategy.	Functionality Appearance Sustainability
3.4.22	Buildings will maintain a separation distance of at least 20m.	This has been achieved on the masterplan (refer to figure 15 General arrangement plan).	Functionality
3.4.23	The development will minimise the vehicle traffic areas within the site.	The site has been set out so that the only regular vehicle route is the bus access to and from the amenity building. A small parking area is planned adjacent to the amenity building for deliveries and disabled access. A network of roads is planned to allow occasional maintenance and emergency vehicle access. However, the modus operandi for site movement is for pedestrians and cycles, minimising vehicle movements. Refer to figure 50 Vehicular movement strategy.	Functionality Sustainability Mitigation
3.4.24	The development will include a network of internal roads and footpaths to support the safe operation of the accommodation, and provide recreational areas within the site.	This has been achieved per figure 50 Vehicular movement strategy. Refer additionally to the proposals for community areas on figure 49 Community strategy.	Functionality Appearance
3.4.25	Highways design will make provision for buses and delivery vehicles, drop-off parking by the amenity building and emergency access.	This has been achieved providing safe access to the amenity building per figure 50 Vehicular movement strategy.	Functionality
3.4.26	The main vehicular site access will be located in the proposed position to the west of the existing Fisherman's car park. This entrance will have gated access monitored by security personnel.	Safe and secure access to the site has been achieved per figure 47 Security strategy. The main entrance would be served by automatic number plate recognition (ANPR) and CCTV cameras monitored by personnel in a security office in the amenity building.	Functionality
3.4.27	The proposals will exclude the provision of any car parking on-site for residents beyond an initial allowance for the initial phases. Appropriate levels of disabled and light goods vehicle parking spaces will be provided on-site.	During initial phases, residents' parking would be possible on-site. Beyond this, vehicular access would be limited to buses, deliveries, maintenance and emergency vehicles. In all cases, there would be an allowance for disabled parking adjacent to the amenity building.	Functionality Adaptability
3.4.28	The perimeter of the site will be secured with fencing. The precise line of the fence line will have regard to security requirements, local topography and vegetation.	2.4m high Paladin-type fencing is proposed. The perimeter fence line has been designed to enclose the facility but have regard for features such as the woodland, burial ground and Tre'r Gof SSSI. Refer to figure 47 Security strategy.	Functionality Mitigation
3.4.29	Direct access from the Site Campus to Wylfa Head will be prohibited except in emergency events. A minimum of two pedestrian emergency access points will be provided along the Site Campus boundary with Wylfa Head to facilitate access to this area during an emergency. Indirect pedestrian access to Wylfa Head and the Wales Coast Path from the Site Campus for recreational purposes will only be provided via the main access road in non-emergency situations.	Two secure pedestrian gates would be provided to give access in the event of an emergency to the Wales Coast Path, connecting the site with its surroundings, as indicated on figure 47 Security strategy.	Functionality
3.4.30	Recreational facilities will be included as part of the Site Campus.	Externally, MUGAs and campus trails would be provided. In the amenity building, a gym would be provided along with multi-purpose rooms for various activities.	Functionality
3.4.31	The development will include coordinated street lighting, street furniture and signage.	An external lighting plan is provided in figure 44. Coordination with street furniture (e.g. benches) and signage would be developed during detailed design.	Functionality

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
Building design principles			
3.4.32	Visually recessive natural colours and materials will be used to minimise the sense of scale and massing of the accommodation buildings and to help integrate them into the landscape using a similar approach to colours found within the surrounding landscape and on the Existing Power Station. The colour scheme design will be formulated taking account of visual analysis from the AONB and other key views, the new and Existing Power Station and the collective appearance of all buildings proposed in this application.	Extensive design studies to investigate the colour of the buildings in relation to the surrounding landscape have been undertaken, in order to minimise adverse visual effects where feasible. Refer to paragraphs 4.3.37 to 4.3.44 and the associated figures 27 and 28. Also refer to the proposed figure 43 Building materials palette.	Appearance Character Mitigation
3.4.33	An external window (or roof light) will be provided to all bedrooms and where possible offices and meeting rooms.	Refer to the accommodation building floor layouts in figures 34 and 35. A window is proposed for all bedrooms. Refer to the amenity building floor layouts in figure 40. First and ground floor offices have windows.	Functionality Sustainability
3.4.34	All regularly occupied spaces within the buildings, including the amenity building, will be fitted with user-operated glare control, such as blinds, to also prevent light spill onto the surrounding area.	All amenity building rooms situated on external walls would have blinds or curtains, providing quality internal spaces.	Functionality
3.4.35	The development will include communal and social spaces for workers including external amenity and fitness areas.	Quality indoor social spaces would be provided in the amenity building, including a gym. The layout of the Site Campus would provide external meeting areas and a sports pitch (per figure 49 Community strategy).	Functionality Appearance
3.4.36	Communal cycle storage will be provided on-site.	A main cycle store would be provided adjacent to the amenity building. There is the potential to develop additional cycle stores in compounds adjacent to the accommodation blocks.	Functionality Sustainability
3.4.37	The Site Campus will provide safe facilities that meet all current requirements for fire safety, including fire sprinklers for all living accommodation in accordance with Welsh building regulations.	A fire safety analysis of the design has been carried out, stipulating measures that must be incorporated into the design. For further details, refer to paragraphs 4.4.36 to 4.4.37.	Functionality
3.4.38	The Site Campus will include water-efficient fittings which help reduce water consumption.	Water-efficient toilets would be incorporated into the design.	Functionality Sustainability
3.4.39	The accommodation buildings to the west end of the site (within 70m of the centre of the Cemaes Wastewater Treatment Works (WwTW)) will be designed to reduce the exposure of residents to odour emissions.	The accommodation building ventilation strategy includes use of closed windows and mechanical ventilation, to reduce adverse effects from odour emissions.	Functionality Mitigation
3.4.40	Acoustic mitigation measures will be provided as part of the building design of the Site Campus to achieve the requirements and guidance provided in BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of practice', World Health Organisation Guidelines (1999) (for LAmax levels), Approved Document E of the Building Regulations and CIBSE Guide B4 Noise and vibration control for building services systems.	Detailed acoustic design will be undertaken at the next stages of design.	Functionality Mitigation
Landscape design principles			
3.4.41	New native tree and shrub planting will be incorporated, using species of local provenance to reinforce and enhance the existing woodland and habitats within the Site Campus boundary with particular reference to the wooded slopes design by Dame Sylvia Crowe, providing shelter and aid wayfinding during operation and integrate the site with the surrounding landscape.	The landscape design proposals in section 4.2, in particular figure 20 Planting strategy and figure 21 Planting palette describe how the landscape is enhanced by planting.	Appearance Character Mitigation
3.4.42	Hard landscaping will reflect local vernacular and complement the architectural design.	Materials have been selected accordingly (refer to figure 22 Indicative hard landscape palette) and set out sympathetically to complement the landscape character (refer to figure 23 Material strategy).	Appearance Character
3.4.43	Accessible footways and viewing areas will be retained as part of the restoration proposals.	It is proposed that the Fisherman's car park and routes to the coast are reinstated at the end of operation.	Functionality Character Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE ILLUSTRATIVE DESIGN	'GOOD DESIGN' THEME
3.4.44	The lighting designs for operation will be developed to meet operational, safety and security purposes; limit reduce light spill onto sensitive receptors to below thresholds where significant adverse effects are predicted; maintain a uniform lighting solution to reduce dark and light spots; and limit visibility of new lighting at distant receptors. Best available technologies would include: sympathetic design, automatic sensors for street lights, and use of LED lighting to achieve lower lighting levels whilst maintaining the same level of effective lighting.	These aspects are present in the external lighting proposals are presented in section 4.5 and figure 44 Lighting scheme.	Functionality Mitigation
3.4.45	CCTV will be provided at strategic locations within the site, externally and within buildings.	To provide a safe and secure site, CCTV is proposed at all entrances (vehicular and pedestrian), refer to figure 47 Security strategy. CCTV would also be provided in communal areas within buildings.	Functionality
Sustainability principles			
3.4.46	The Site Campus development will adopt a generally low energy design, based on the hierarchy of minimising use, reducing waste, recycling and on-site generation.	Refer to sections 5.1, 5.2 and 5.3 for sustainability proposals. The building design and construction would embody sustainability principles. Waste and recycling would be appropriately managed.	Sustainability
3.4.47	The drainage strategy will use swales to help with management of surface water runoff.	Refer to section 5.4 for the surface water proposals. Swales are proposed at the outlets of each surface water drainage network to manage surface water runoff (see figure 46a Surface water strategy).	Sustainability Mitigation
3.4.48	The amenity building will be designed to provide natural light into the building as far as reasonably practicable.	The amenity building has been designed with a glazed north façade, windows to work spaces to the east and west and roof lights to allow natural light into the centre of the building (see floor layouts in figure 40). These features would enhance the quality of the internal spaces.	Sustainability
3.4.49	Off-site modular construction will be used where practicable.	This has been proposed (per section 5.2). See also response to 3.4.13 above.	Functionality Adaptability Mitigation Sustainability
3.4.50	All surface water during construction of the Site Campus will run into a drainage channel to the east and west and discharge into attenuation ponds, to allow appropriate sedimentation control.	This has been proposed per section 5.4 Water	Sustainability Mitigation
3.4.51	After each phase of Site Campus construction, surface water drainage from the completed elements of the Site Campus will either run into the ground around the site, or into surface water channels to the east of the site. Discharges to the west will be taken to the outfall currently used by the foul water treatment plant.	To be dealt with during the next stages of design.	Sustainability Mitigation Adaptability
3.4.52	Drainage design for the operation of the Site Campus will include attenuation of discharge to surface water (e.g. geocellular attenuation tank), and recharge of storm water runoff (e.g. via infiltration trenches, reno mattress, swales), in order to minimise potential hydrological effects on the SSSI arising from surface water flows from the Site Campus site.	This has been proposed per section 5.4 Water. Measures would manage surface water runoff to minimise effects.	Sustainability Mitigation

C APPENDIX C

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