

6 LANDSCAPE CHARACTER & VISUAL AMENITY

6.1	Introduction	1
6.2	Scope of Assessment	3
6.3	Legislation and Policy Framework	6
6.4	Consultation	11
6.5	Methodology	12
6.6	Visual Evaluation and Effect Assessment	19
6.7	Baseline Conditions	27
6.8	Potential Effects	51
6.9	Mitigation, Compensation and Enhancement Measures	53
6.10	Residual Effects	55
6.11	Evaluation of Significance	85
6.12	Summary and Conclusions	87
6.13	References	88

6 LANDSCAPE CHARACTER & VISUAL AMENITY

6.1 Introduction

- 6.1.1 It identifies and assesses the potential effects that the Glyn Rhonwy Pumped Storage (the Development), as described in Chapter 4 Project Description, may have on the landscape and visual resource of the study area and identifies the mitigation measures that will be implemented to prevent, reduce or offset potential adverse landscape and visual effects or enhance potential beneficial effects, where possible.
- 6.1.2 This Chapter considers how the Development may have an effect upon landscape character and visual amenity. It considers:
- Landscape effects associated with the development which relate to changes to the fabric, character and quality of the landscape resource and how it is experienced; and
 - Visual effects which relate closely to landscape effects, but also concern changes in views, as visual assessment is also concerned with people's perception and response to changes in visual amenity.
- 6.1.3 Landscape and visual effects are interrelated with other environmental effects but assessed separately. This chapter should be read in conjunction with Chapter 4 Project Description, Chapter 7 Ecology and Chapter 11 Archaeology and Cultural Heritage.
- 6.1.4 The assessment of effects on the Dinorwig Landscape of Outstanding Historic Interest (LOHI) is presented in Volume 3 Appendix 6.1 ASIDOHL report (Assessment of the Significance of Impact of Development on Historic Landscapes).
- 6.1.5 This chapter presents the Landscape and Visual Impact assessment undertaken following the best practice guidelines.

Summary of 2012 Environmental Statement Chapter

- 6.1.6 During construction, activities such as spoil handling, temporary construction infrastructure, use of plant and lighting will affect visual amenity.
- 6.1.7 During operation, the Development has the potential to have a permanent effect on visual amenity through change in the character of views of the quarry landscape, through introduction of above ground elements, including buildings, dams and reservoirs.
- 6.1.8 Mitigation measures include tunnelling the penstock, reinstatement of vegetation and Public Rights of Way, use of local materials, and dams and spoil mounds are designed to integrate with the quarry landscape.
- 6.1.9 Following implementation of mitigation measures there will be no significant effects on the landscape character of the site and its wider setting during construction and operation of the Development.

Scope of 2015 Environmental Statement Chapter

- 6.1.10 There are no fundamental changes to the above ground structures or features of the Development and therefore as the number of receptors would not change, it was proposed that the number and location of viewpoints for photomontage remain unchanged from the 2012 assessment. In the scoping letter for the Development submitted to consultees on the 12th November 2014, this approach was accepted by NRW and Snowdonia National Park in their responses.
- 6.1.11 Due to more accurate mapping and modelling, the slate mounds are slightly bigger than those assessed in the 2012 assessment and as a result Figures 6.4a, 6.4b and 6.4l have been updated. The change, however, is not discernible and it is considered that the findings of the previous assessment remain unchanged.
- 6.1.12 Since the LVIA was undertaken in 2012 the guidelines have been updated with the GLVIA3 published in 2013. The methodology has therefore been updated to reflect the updated guidance.
- 6.1.13 Therefore this chapter has been updated as follows:
- Scope of Assessment (Section 6.2);

- Policy update (Section 6.3); and
- Consultation (Section 6.4).

6.2 Scope of Assessment

Technical Scope

- 6.2.1 Landscape and visual assessment identifies the significance of the potential landscape and visual effects of the development upon the site and surrounding area.
- 6.2.2 The assessment forms part of an iterative process where, as potentially significant effects are identified, these inform the design of the proposed development. Mitigation of the Development has been considered throughout the process, including site selection, consultation and design development. This process and the considerations, which informed it, are described within Chapter 3 Design Evolution & Alternatives.
- 6.2.3 Landscape and visual effects are interrelated but assessed separately. Both landscape and visual effects can be positive (beneficial) or negative (adverse). Furthermore, it is possible for greater weight to be placed on only one element of the assessment e.g. the Development may result in no adverse landscape character effects but could result in adverse visual effects, conversely, the Development may result in no adverse visual effects but could result in adverse landscape character effects.
- 6.2.4 The landscape and visual resource of an area can be affected both directly and indirectly. The Guidelines for Landscape and Visual Impact Assessment (GLVIA) requires consideration of landscape and visual effects as follows: *“...thought must be given to whether the likely significant landscape and visual effects can result directly from the development itself (direct effects) or from consequential change resulting from the development (indirect and secondary effects); are additional effects caused by the Development when considered in conjunction with other proposed developments of the same or different types (cumulative effects); are likely to be short term or to carry on over a longer period of time; are likely to be permanent or temporary, in which case their duration is important; are*

judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity". (p.36, para 3.22)

6.2.5 When considering the potential impact of changes that future development may have on the landscape and visual resource it is necessary to identify those key elements of the landscape which make it distinctive. These can be seen as layers which overlay each other and vary in dominance from place to place. These layers mainly comprise of landform, settlement pattern, land use and built environment, circulation and access, vegetation and views. In accordance with published guidance a distinction should be made between landscape and visual effects, although the procedure for assessing each of these is closely linked.

6.2.6 In terms of 'landscape effects', the Development could directly affect the land cover, features and character within the application boundary as well as the aesthetic and perceptual aspects of the landscape and its distinctive character. These effects are determined through an assessment of the existing character of the landscape, and how this is likely to be altered by the development.

6.2.7 In relation to 'visual effects', visual amenity is defined as 'the overall pleasantness of the views people enjoy of their surroundings'. The visual assessment determines the degree of anticipated change to visual amenity that would occur as a result of the development, considering buildings, areas of public open space, roads and footpaths.

6.2.8 The visual assessment considers static effects through analysis of individual viewpoints, considered representative of the range of views within the study area.

Spatial Scope

6.2.9 The definition of the study area for this assessment is based on a combination of desk and site based survey. The study area has been defined as all land within a 10km radius of the Development application boundary, as it is considered, that on the basis of field evaluation and

analysis of the Zone of Theoretical Visibility that this distance is the limit within which significant effects may arise.

Temporal Scope

6.2.10 Glyn Rhonwy Pumped Storage would introduce some new elements into the landscape, creating the potential for landscape or visual effects. The type and duration of the landscape and visual effects fall within three main stages as follows -

6.2.11 Construction (temporary and of a short duration (3.5 to 4 years)).

- Potential physical effects arising from construction of the development on the landscape resource within the Development application boundary area;
- Potential effects to landscape character or visual amenity within the wider study area as a result of visibility of construction activities for the Development during construction;
- Effects of temporary site infrastructure such as –site traffic; construction compounds;
- Potential effects of partially built development in various stages of construction.

6.2.12 Operational (the proposed operational phase of the Development is up to 125 years)

- Potential effects of the Development on landscape resources and landscape character, including the perceptual qualities of the landscape, and upon designated landscapes;
- Potential effects of the Development on views and visual amenity; and
- Decommissioning (temporary and of a short duration at the end of the operational phase).

6.2.13 Effects arising from the process and activities associated with decommissioning have not been considered in detail as they are of a similar nature to construction issues, but of a smaller scale and shorter duration.

- 6.2.14 However, an assessment of those elements of the Development that may remain in the landscape after decommissioning will be assessed as appropriate.
- 6.2.15 Landscape and visual effects change over time as mitigation, such as planting and restoration of habitat types included as part of the proposals, establish and mature, and existing landscape external to the development evolves. The assessment acknowledges change and reports on the effects during the construction phase, winter year of opening and summer 15 years after opening of the Development.
- 6.2.16 Decommissioning effects will be temporary and of a short duration. The elements of the Development to be removed at the decommissioning stage are described within Chapter 4 Project Description. The lifespan of the development is such that the landscape will have evolved during the 125 years and an appropriate restoration strategy will need to be developed reflecting the future character and visual amenity of the landscape. It is not considered that the landscape and visual effects during decommissioning would be greater than the residual effects assessed during summer year 15. Consequently no further assessment has been undertaken.

Limitations of the Assessment

- 6.2.17 The assessment of effects has been undertaken by a combination of desk and field survey. The assessment is based on the proposals described in Chapter 4 Project Description.
- 6.2.18 The limitations of the ZTV are described under Section 6.5.13 of this report.

6.3 Legislation and Policy Framework

National Planning Statements

- 6.3.1 The following National Policy Statements (NPS) for Energy are relevant to this LVIA for the Development: EN-1 (Overarching Energy), Section 5.9 and EN-5 (Electricity networks infrastructure), Section 2.8.
- 6.3.2 NPS EN-1, Section 5.9 provides general guidance with regards to the landscape and visual effects of NSIP schemes. It suggests that statutory and non-statutory landscape designations together with the published

Natural Resources Wales (NRW) LANDMAP aspect areas or seascape character areas should be assessed within the LVIA. NPS EN-1 also emphasises the need for considering landscape and mitigation measures.

- 6.3.3 NPS EN-2, Section 2.6 specifically refers to fossil fuel electricity generating infrastructure and provides general guidance with regards to landscape and visual issues which is broadly similar to the one contained with the NPS EN-1 with a particular emphasis on chimney stacks and the mass of the buildings subject to the technology used.

National Planning Policy

Planning Policy Wales 2014

- 6.3.4 This document sets out the overview of the planning system in Wales. The document sets out the main land use planning policies of the Welsh Government and is supplemented by a series of Technical Advice Notes (TANs). Planning Policy Wales also provides a guide to the application of national planning policy statements in Local Development Plans.

The Wales Spatial Plan 2008 Update

- 6.3.5 This document should be read in conjunction with Planning Policy Wales 2014. The Wales Spatial Plan provides a vision and national framework for policy. Specifically, the plan recognises the importance of the environment and states that:

“The quality of our environment is a fundamental asset for its intrinsic value, and for our economy and quality of life. By safeguarding and enhancing both the natural and built environment we will attract people to and retain them within our communities and preserve the foundations for the future.”

Technical Advice Note (TAN) 12: Design

- 6.3.6 TAN 12 recognises the importance of local character in development of design proposals for all schemes throughout Wales. The objectives in relation to character include sustaining or enhancing local character by responding to:

“Landscapes and townscapes, culture and biodiversity; locally distinctive patterns and forms of development; existing buildings, infrastructure,

urban/rural landscape and public art; clear boundaries and established building lines; appropriateness of uses and the mix of uses and densities; easily recognisable and understood features and landmarks.”

- 6.3.7 To achieve this, design solutions should respond through the scale, layout and appearance of the development and through appropriate landscape design.

Regional Planning Policy

- 6.3.8 At a regional level the Wales Spatial Plan (Update) identifies a number of regional policy areas. Glyn Rhonwy lies within the North West Wales policy area and the closest settlement to Glyn Rhonwy, Llanberis, is designated as a key settlement. In relation to the environment the Spatial Plan states that:

“The overall aim is to protect the natural and built environment...and to realise the environmental opportunities that these assets provide.”

Local Planning Policy

- 6.3.9 The following section provides an outline of the development plan documents and landscape related planning policies within them which are relevant to the Development.

Anglesey and Gwynedd Joint Local Development Plan (JLDP)

- 6.3.10 Gwynedd Council and the Isle of Anglesey County Council have decided to prepare a Joint Local Development Plan. The JLDP will serve as a land use development strategy for a period of 15 years from when it is adopted and will focus on sustainable development in the local planning authority area. This strategy will aim to protect areas to ensure the maintenance and enrichment of the natural built environment. As of June 2013 a preferred Strategy document had been prepared and consultation period concluded and awaiting Independent examination by the Planning Inspectorate. Under the current timetable adoption of the JLDP is expected January 2016. The current adopted development plan for the Gwynedd Local Planning Authority Area is the Gwynedd Unitary Development Plan.

Gwynedd Unitary Development Plan (UDP) 2001-2016

6.3.11 The site lies within the Gwynedd Council administrative boundary. The Gwynedd UDP establishes a policy framework and makes provision for development needs for the period from 2001 to 2016:

- The Natural Environment - Strategic Policy 2: relates to the protection of the area's natural environment and its landscape character, and views in and out of the Snowdonia National Park;
- Built And Historic Environment - Strategic Policy 3: relates to the protection of the area's built and historic environment and design standards for new development which will maintain or improve their special character;
- Built And Historic Environment - Strategic Policy 4: states that development should be of good design and make a positive contribution where possible, to the landscape, built environment and sustainable development.
- Energy - Strategic Policy 9: Development proposals to provide energy from renewable sources will be approved provided they do not significantly harm the environment or the amenities of nearby residents;
- Policy B3 - Development Affecting the Setting of Listed Buildings: relates to proposals on sites affecting the setting of Listed Buildings, including the protection of important views to and from the building;
- Policy B4 - Developments in or Affecting the Setting of Conservation Areas: relates to the preservation and enhancement of conservation area and their setting, including the protection of important views across, into or out of the conservation area;
- Policy B8 - The Llŷn and Anglesey Areas Of Outstanding Natural Beauty (AONB): relates to the protection of the area's landscape and coastline (including views in and out);
- Policy B10 - Protecting and Enhancing Landscape Conservation Areas: relates to proposals in Landscape Conservation Areas and the potential

impact on the positive features in the landscape and its distinctive character;

- Policy B11- Open Spaces between or in Villages or Towns: Proposals that are deemed to cause significant harm to the role or importance of open land between towns/villages or on land important to rural/urban character of the area of town would be refused.
- Policy B12 - Protecting Historic Landscapes, Parks and Gardens: relates to proposals which may cause significant harm to the character, appearance or setting of registered sites;
- Policy B14 – Protecting the Landscape Character of Snowdonia National Park: relates to development which would adversely affect the qualities and special character of the Snowdonia National Park by: 1.causing significant visual intrusion, and/or 2.being insensitively and unsympathetically sited within the landscape;
- Policy B22 - Building Design: New buildings must not, inter alia, have an unacceptable detrimental effect on the form and character of the surrounding landscape or townscape, or on the local natural or historical environment; or on prominent public views;
- Policy B25 - Building Materials: The distinctive visual character of the Plan area will be maintained by ensuring that only natural Welsh slates or slates that are similar ...are permitted, other than in circumstances in which...another material would be appropriate;
- Policy C27 - Renewable and Sustainable Energy Schemes: Proposals must meet the following criteria 1. they must not have a significant harmful impact on the setting of AONBs or Snowdonia National Park; 2.that the type, scale and design of the Development is appropriate to the site, location and the impact on the landscape; 3.that associated ancillary equipment is sited and designed so as to alleviate visual impact on the landscape; 4.that any associated overhead connection lines and pipes will not cause significant harm to the visual quality of the landscape.

Eryri Local Development Plan (LDP) 2007-2022

6.3.12 The policies within the Eryri LDP generally relate to development within the National Park; however the LDP also states that “developments outside the National Park may also have an adverse impact on landscape character and affect views from and into the area...The Authority will consider the landscape and visual impact of proposals close to the National Park boundary...”

- Development Policy 2: Development and the Landscape - relates to new development respecting and conserving the character of the landscape, with particular regard to the protection of: iii. Panoramas visible from significant viewpoints and iv. Landscape character areas.
- Strategic Policy Ff: Historic Environment (Ff) - Development will not be permitted that will adversely affect Heritage Assets, or their settings and significant views. This includes Conservation Areas, Scheduled Monuments, Historic landscapes, parks and gardens and Listed Buildings.

6.3.13 Snowdonia National Park Authority (SNPA) Supplementary Planning Guidance: Landscapes of Eryri (September 2011) describes the Landscape Character Areas within Snowdonia National Park (NP).

6.4 Consultation

6.4.1 Gwynedd Council (GC) and SNPA were consulted over the LVIA methodology and viewpoint selection during the Scoping process. Both GC and SNPA agreed that the production of summer only photomontages would be acceptable.

6.4.2 In April 2012 SNPA requested two additional viewpoints, namely the summit of Elidir Fach (795m AOD) and Hebron Station on the Snowdon Mountain Railway. A final list of viewpoints for agreement was submitted to both GC and SNPA as part of a Scoping Report Addendum submitted in May 2012 for the approved scheme.

6.4.3 Initial consultation for the Development through the scoping letter dated 12th November 2014 to statutory consultees propose to use the existing

photography and photomontages for the approved scheme as the above ground structures remained the same and no further receptors would be affected. No comments on this approach were received from Snowdonia National Park or NRW in their interim responses.

6.4.4 Since the 12th November 2014 scoping letter, the more accurate mapping and subsequent modelling of the slate mounds has resulted in a slight increase in size. Consequently Figure 6.4b has been updated to reflect the maximum elevation (refer to Chapter 4) of the proposed slate mounds.

6.4.5 In response to the SoS Scoping Opinion, this chapter has been updated to following the 2013 update to Guidelines for Landscape and Visual Impact Assessment (GLVIA3). No additional viewpoints or photomontage were requested as part of the scoping or s42 consultations.

6.5 Methodology

Guidance

6.5.1 The LVIA has been undertaken with reference to the following guidance documents:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition, edited by The Landscape Institute and Institute of Environmental Management and Assessment (2013);
- An Approach to Landscape Character Assessment (2014) by Natural England;
- The Landscape Institute (2011) Photography and photomontage in landscape and visual impact assessment. Advice note 01/11.

Landscape Method

Landscape Receptors

6.5.2 The landscape resources within the study area that could be affected by the development include:

- Physical resources such as buildings, open space, landform, trees, woodland, watercourses etc;
- Landscape Character Areas;

- Designated, valued or recognised landscapes that contribute to landscape character; and
- Cultural heritage interests that contribute to landscape character.

6.5.3 Landscape receptors are defined as those landscape resources within the study area from which the development may be visible or where potential visibility of the Development in one part of the landscape resource affects the experience of another part. Field assessment studies were used to check the potential visibility of the development from the landscape resources within the study area. Within this section specific consideration is also given to changes to landscape elements such as woodland or trees.

Landscape Character

6.5.4 Physical and cultural elements such as landform, hydrology, vegetation, land cover, land use pattern, cultural and historic features combine to create a common 'sense of place' and identity that is experienced as landscape character. Definable units (character areas and character zones) can be used to categorise the landscape and the level of detail and size of unit can be varied to reflect the scale of definition required. It can be applied at national, regional and local levels.

6.5.5 The quality or condition of a landscape character receptor is a reflection of its attributes, such as the condition of the buildings and spaces or woodland components and the attractiveness and landscape quality of the area as well as its sense of place. A landscape with consistent, intact and well-defined, distinctive attributes is generally considered to be of higher quality and, in turn, higher sensitivity, than a landscape where the presence of inappropriate or discordant elements has detracted from its inherent attributes. The higher the quality of a receptor the greater is its sensitivity to the proposed Development.

Landscape Sensitivity (nature of receptor)

6.5.6 The sensitivity of a landscape character receptor is an expression of its ability to accommodate the proposed development as part of its own character. The sensitivity of a landscape varies according to the nature of

the existing resource and the nature of the proposed changes as a result of the proposed development. The sensitivity of the landscape is based on interpretation of a combination of judgements relating to their susceptibility to the type of change or development proposed and the value attached to the landscape.

6.5.7 The GLVIA explains the **susceptibility**, as “*the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies*”. The more susceptible the receptor is to the type of change proposed, the greater is its sensitivity to the proposed Development.

6.5.8 The **value of a landscape receptor** is a reflection of its importance in terms of any designations that may apply, or its importance in itself as a landscape or landscape resource, which may be due to its ecological, cultural or recreational value. A receptor that lies within the boundary of a recognised landscape or landscape related planning designation, such as a Special Landscape Area or a Conservation Area, will be of high value, depending on the proportion of the receptor that is covered and the level of importance – international, national, regional or local - of the designation. It is important to note that the absence of designations does not preclude local resource value, as an undesignated landscape character receptor may be as important as a resource in the local or immediate environment due to its relative rarity. The higher the value of a receptor the greater is its sensitivity to the proposed Development.

6.5.9 The following factors are generally agreed to influence value (GLVIA p.84, para 5.28):

- Landscape quality (condition);
- Scenic quality;
- Rarity;
- Representativeness;
- Conservation interests;

- Recreation value;
- Perceptual aspects; and
- Associations.

6.5.10 The sensitivity of the landscape is based on interpretation of a combination of all or some of the susceptibility and value criteria outlined in Table 6.1 below.

Table 6.1 Landscape Sensitivity Criteria	
Class	Criteria
High	<ul style="list-style-type: none"> • Landscape characteristics or features with little or no capacity to absorb change without fundamentally altering their present character • Landscape designated for its international or national landscape value • Outstanding example in the area of well cared for landscape or set of features
High-Medium	<ul style="list-style-type: none"> • Landscape characteristics or features with a low capacity to absorb change without fundamentally altering their present character • Landscape designated for regional or county-wide landscape value where the characteristics or qualities that provided the basis for their designation are apparent • Good example in the area of reasonably well cared for landscape or set of features
Medium	<ul style="list-style-type: none"> • Landscape characteristics or features with moderate capacity to absorb change without fundamentally altering their present character • Landscape designated for its local landscape value or a regional designated landscape where the characteristics and qualities that led to the designation of the area are less apparent or are partially eroded or an undesignated landscape which may be valued locally – for example an important open space • An example of a landscape or a set of features which is neutral or mixed character
Medium-Low	<ul style="list-style-type: none"> • Landscape characteristics or features which are reasonably tolerant of change without detriment to their present character • No designation present or of little local value • An example of an un-stimulating landscape or set of features
Low	<ul style="list-style-type: none"> • Landscape characteristics or features which are tolerant of change without detriment to their present character • No designation present or of low local value • An example of monotonous unattractive visually conflicting or degraded landscape or set of features

Visual Method

Visual Receptors

6.5.11 For visual effects to occur there is the need for a viewer (receptor). Receptors include residential properties, workplaces, recreational facilities, road users, pedestrians and other outdoor sites used by the public which would be likely to experience a change in existing views as a result of the proposed Development.

Identification of the Zone of Theoretical Visibility (ZTV)

6.5.12 A computer generated ZTV map has been prepared for the Glyn Rhonwy Pumped Storage, using viewshed analysis within ArcGIS. It is based on the following maximum heights for the above ground components of the Development: power station, upper dam at Q1 (395m AOD) and lower dam at Q6 (156m AOD). This has been used to assist in viewpoint selection and to illustrate the potential influence of the development in the wider landscape. The ZTV is shown in Volume 4 Figure 6.3.

6.5.13 The ZTV map indicates areas from where it may be possible to view part or the entire development. However, the use of the map needs to be qualified by the following considerations:

- The ZTV map is based on a bare ground model (Ordnance Survey Landform Profile data based on a 10m grid terrain model) which is limited by the detail of the digital terrain model data used and does not take account of local topographic variations or screening from built form or vegetation;
- Some areas of theoretical visibility may comprise woodland, moorland or agricultural land, where there is effectively no public access and the likelihood of views being experienced is consequently low; and
- The ZTV map does not take account of the likely orientation of the viewer, such as the direction of travel, and there is no allowance for attenuation of visibility with distance, weather or light.

6.5.14 These limitations mean that the ZTV map tends to overestimate the extent of the visibility, both in terms of the area from which the Development is visible and the extent of the development which is visible. It should be considered as a tool to assist in assessing the theoretical visibility of the proposal and not a measure of the visual effect.

Identification of Visual Receptors

6.5.15 The ZTV for the Development was reviewed to aid identification of potential receptors. Those identified were then validated through site survey, which additionally verified the elements of the Development which would be visible from the various receptors.

6.5.16 Twelve viewpoints were selected as being representative of the worst case visual effects, in agreement with GC and SNPA.

Field Assessment of Affected Receptors

6.5.17 Visits to the site and wider study area were undertaken in April 2012, June 2012 and April 2015.

6.5.18 The assessment of visual effects is influenced by the following factors which were considered and recorded at each of the agreed viewpoint locations.

- Receptor type (dwelling/road/footpath/open space etc.) and relative numbers of people likely to be affected;
- Relative elevation to the Development;
- Existing views (composition, quality, visual characteristics – nature and extent of skyline, aspects of visual scale and proportion and key foci);
- Distance of viewpoint or receptor to the Development;
- Proportion of the Development potentially visible;
- Angle of view (narrow/wide/view up/view down/level);
- Type and nature of view (foreground/mid-ground/background/direct/oblique/screened/partial screening);
- Duration of view i.e. continuous such as a house, or transient such as a pedestrian/vehicular traveller;

- The distance of the viewpoint or receptor from the Development;
- Analysis of potential visual effects during construction winter year one and fifteen years into operation of the Development. The analysis relates to each of the receptors and groups of receptors and concludes with an evaluation of the significance of effects related to each receptor or groups of receptors.

Photographic Record

6.5.19 A photographic record is provided to support the visual assessment (see Volume 4 Figures 6.4a – 6.4 l). The photographs are taken from the agreed viewpoint locations. They show general landscape features which characterise the area and its immediate surroundings and are included as a visual reference within this chapter. The photographs were taken in variable weather conditions on the 1st June 2012 using a Canon 450D professional digital SLR with lens calibrated to 50mm field of view and on the 29th and 30th June 2012 using a Full Frame Canon EOS 5D MKII Digital SLR with 50mm lens.

Verified View Montages

6.5.20 Verified View Montages (VVM) are provided to support the visual assessment (see Volume Figures 6.4a – 6.4 l). A VVM photomontage is a visual representation of the Development that is as precise as it is possible to be within the limits of the technology and software employed. It is the superimposition of a rendered, photorealistic, computer generated model of the development, geo-referenced and aligned using verified real world markers onto a baseline photograph or panorama.

6.5.21 A 3D model of the development is generated using a combination of software and is lit appropriate to the date, time and orientation of the baseline photograph. A digital ground terrain model is also generated using Ordnance Survey Landform Profile DTM information. The model is then imported and overlaid onto the digital terrain. Using accurate real world coordinates gathered on-site, the photographic viewpoints are replicated and individual views constructed from the same locations as the baseline photographs. Each view is then aligned using on-site markers, and once

each is verified, the view is 'rendered' to produce an accurate representation of the model from each baseline viewpoint position. This information is superimposed over the original photograph to give a final photomontage.

6.5.22 Baseline panoramas and photomontages are created to replicate a user's field of view (90 degrees unless otherwise agreed) and are accurate enough to be examined at comfortable viewing distances, in accordance with relevant guidance. Whilst every effort has been made to ensure the accuracy of the photomontages, it must be appreciated that no computer-generated photomontage could ever claim to be 100% accurate as there are a number of technical limitations to the procedure.

6.6 Visual Evaluation and Effect Assessment

6.6.1 Sensitivity of a visual receptor considers the nature of the receptor, for example a person occupying a residential dwelling, is generally more sensitive than someone working in a factory unit. The importance of the view experienced by the receptor also contributes to an understanding of the susceptibility of the visual receptor as well as the value attached to the view.

6.6.2 The GLVIA identifies that the **susceptibility of visual receptors** to changes in views and visual amenity, is a function of:

- The occupation or activity of people experiencing the view at a particular location; and
- The extent to which their attention or interest may therefore be focused on the views and visual amenity they experience at particular locations.

6.6.3 A judgement is also made on the **value** attached to the views experienced. This takes account of:

- Recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations;
- Indicators of the value attached to views by visitors, for example through appearance in guidebooks or on tourist maps, provision of facilities for

their enjoyment (sign boards, interpretive material) and references to them in literature or art; and

- It is important to note that the absence of view recognition does not preclude local value, as a view may be important as a resource in the local or immediate environment due to its relative rarity or local importance.

6.6.4 The visual sensitivity to change is based on interpretation of a combination of all or some of the criteria outlined in Table 6.2 below.

Table 6.2 Visual Sensitivity Criteria	
Class	Criteria
High	<ul style="list-style-type: none"> • Users of outdoor recreational facilities, on recognised national cycling or walking routes or in national designated landscapes • Dwellings with views orientated towards the Development
High-Medium	<ul style="list-style-type: none"> • Users of outdoor recreational facilities, in locally designated landscapes or on local recreational routes that are well publicised in guide books • Road and rail users in nationally designated landscapes or on recognised scenic routes, likely to be travelling to enjoy the view
Medium	<ul style="list-style-type: none"> • Users of primary transport road network, orientated towards the Development, likely to be travelling for other purposes than just the view. • Dwellings with oblique views of the Development.
Medium-Low	<ul style="list-style-type: none"> • People engaged in active outdoor sports or recreation and less likely to focus on the view. • Primary transport road network and rail users likely to be travelling to work with oblique views of the Development.
Low	<ul style="list-style-type: none"> • People engaged in work activities indoors, with limited opportunity for views of the Development. • Road users on minor access roads travelling for other purposes than just the view.

Prediction and Evaluation of Effects

6.6.5 The evaluation and effects assessment has involved consideration of the extent to which the development would change the composition of the existing view, components of the landscape, its character and how this is experienced (magnitude of effect) and the sensitivity based on the

information gathered through site survey and analysis of the planning and design of the Development in relation to the sensitivity of the landscape and the baseline conditions.

Relevant Considerations

6.6.6 The assessment of effects of the Development requires a range of factors to be taken into account, including:

- Scale: the scale of the receiving landscape affects its ability to accommodate particular developments.
- Focus: specific viewpoints often focus in a particular direction. The location of the proposed development site in relation to this focus can affect the significance of the effect, particularly as some developments can form strong focal points within the landscape; and
- Setting: the combination of landform, foreground, background and features within a view, which provide the landscape setting, influences the nature of the effect of a development. Setting also relates to the complexity or simplicity of the landscape or view, the sense of remoteness or development, which provides the context for the development.

Magnitude of Landscape Effect (nature of effect)

6.6.7 Magnitude of effect is an expression of the size or scale of change in the landscape, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- The extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- The extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones;
- Whether the effect changes the key characteristics of the landscape, which are integral to its distinctive character;

- The geographic area over which the landscape effects will be felt (within the Development application boundary itself; the immediate setting of the site; at the scale of the landscape type or character area; on a larger scale influencing several landscape types or character areas); and
- The duration of the effects (short term, medium term or long term) and the reversibility of the effect (whether it is permanent, temporary or partially reversible).

6.6.8 The magnitude of change affecting the baseline landscape resource is based on an interpretation of a combination of the criteria set out in Table 6.3 below.

Table 6.3 Landscape Magnitude Criteria				
Class	Size or Scale of Change	Geographical Extent	Duration	Reversibility
High	<ul style="list-style-type: none"> • Noticeable change, affecting many key characteristics and the experience of the landscape; and • Introduction of many incongruous developments. 	Extensive, affecting several landscape types or character areas.	Long-term (10 years +)	Irreversible
Medium	<ul style="list-style-type: none"> • Noticeable change, affecting some key characteristics and the experience of the landscape; and • Introduction of some uncharacteristic elements. 	Affecting a significant proportion of the landscape type or character areas.	Medium-term (5-10 years)	Partially reversible
Low	<ul style="list-style-type: none"> • Minor change, affecting some characteristics and the experience of the landscape to an extent; and • Introduction of elements that are not uncharacteristic. 	Affecting the immediate setting of the site.	Short-term (0-5 years)	Partially reversible
Very	<ul style="list-style-type: none"> • Little perceptible 	Limited to the	Short-term (0-	Reversible

Table 6.3 Landscape Magnitude Criteria				
Class	Size or Scale of Change	Geographical Extent	Duration	Reversibility
Low	change.	Development application boundary.	5 years)	

Magnitude of Visual Effects (nature of effect)

6.6.9 The magnitude of the visual effect resulting from the Development at any particular viewpoint or receptor is based on the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Development;
- The degree of contrast or integration of any new features or changes in the landscape form, scale, mass, line, height, sky-lining, back-grounding, visual clues, focal points, colour and texture;
- The nature of the view of the Development, in relation to the amount of time over which it will be experienced and whether views will be full, partial or glimpses.
- The angle of view in relation to the main activity of the receptor, distance of the viewpoint from the Development and the extent of the area over which the changes would be visible; and
- The duration of the effects (short term, medium term or long term) and the reversibility of the effect (whether it is permanent, temporary or partially reversible).

6.6.10 The magnitude of visual effect resulting from the Development at any particular viewpoint or receptor is based on the interpretation of the above range of factors and is set out in Table 6.4 below.

Table 6.4 Visual Magnitude Criteria				
Class	Size or Scale of Change	Geographical Extent	Duration	Reversibility
High	Prominent/considerable/dominant	Wide	Long-term (10 years +)	Irreversible
Medium	Noticeable/distinct	Limited	Medium-term (5-10 years)	Partially reversible
Low	Minor	Limited	Short-term (0-5 years)	Partially reversible
Very Low	Very minor	Very limited, not legible.	Short-term (0-5 years)	Reversible

Significance of Effects

6.6.11 The objective of the assessment process is to identify and evaluate the potentially significant effects arising from the Development. The assessment identifies the residual effects likely to arise from the finalised design taking into account mitigation measures and change over time. The significance of effects is assessed by considering the sensitivity of the receptor and the predicted magnitude of effect in relation to the baseline conditions.

6.6.12 In order to provide a level of consistency and transparency to the assessment, and allow comparisons to be made between the various landscape and visual receptors subject to assessment, the assessment of significance is based on pre-defined criteria as outlined in Table 6.5 below. When assessing significance, individual effects may fall across several different categories of significance and professional judgement is therefore used to determine which category of significance best fits the overall effect to a landscape or visual receptor.

Table 6.5 Categories of Landscape and Visual Significance of Effect		
Degree of significance	Description of Landscape Effect	Description of Visual Effect
Major	Substantial alteration to elements/features of the baseline (pre-development) conditions. Notably affect an area of recognised national landscape	Major/substantial alteration to elements/features of the baseline (pre-development) conditions. Where the proposed development would cause a very noticeable

Table 6.5 Categories of Landscape and Visual Significance of Effect		
Degree of significance	Description of Landscape Effect	Description of Visual Effect
	<p>quality.</p> <p>Substantial alteration to the character, scale or pattern of the landscape.</p>	<p>alteration in the existing view.</p> <p>This would typically occur where the Development closes an existing view of a landscape of regional or national importance and the proposed development would dominate the future view.</p>
Moderate	<p>Alteration to elements/features of the baseline conditions.</p> <p>Affects an area of recognised regional landscape quality.</p> <p>Alteration to the character, scale or pattern of the local landscape.</p>	<p>Alteration to one or more elements/features of the baseline conditions such that post development character/attributes of the baseline will be materially changed.</p> <p>This would typically occur where the Development closes an existing view of a local landscape and the proposed development would be prominent in the future view.</p>
Minor	<p>A minor shift away from baseline conditions.</p> <p>The Development partially changes the character of the site without compromising the overall existing landscape character area.</p>	<p>A minor shift away from baseline conditions.</p> <p>This would typically occur where change arising from the alteration would be discernible but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.</p> <p>It would also occur where the Development newly appears in the view but not as a point of principal focus or where the proposed development is closely located to the viewpoint but seen at an acute angle and at the extremity of the overall view.</p>
Neutral	<p>No or very little change from baseline conditions.</p> <p>Change not material, barely distinguishable or indistinguishable.</p>	<p>Where there is no discernible improvement or deterioration in the existing view.</p>
No Effect	<p>The Development would not</p>	<p>The Development would not affect</p>

Table 6.5 Categories of Landscape and Visual Significance of Effect

Degree of significance	Description of Landscape Effect	Description of Visual Effect
	affect the landscape receptor	the view

6.6.13 Landscape or visual effects of Moderate and above are considered to be significant, all other effects are considered Not Significant.

6.6.14 The nature of each effect is based on the ability of the landscape character or visual receptor to accommodate the proposed development, and the appearance of the Development within the receiving context and is assessed to be beneficial or adverse. A change to the landscape or visual resource is not considered to be adverse simply because it constitutes an alternation to the existing situation.

6.6.15 The following terms have been used to define residual effects on the landscape resources:

- Adverse: the Development results in direct loss of physical resources, weakens key characteristics or negatively affects the integrity of a landscape designation; and
- Beneficial: the Development may replace physical resources or strengthen the landscape characteristics.

6.6.16 The following terms have been used to define residual effects on the visual resources:

- Adverse: the Development results in a loss of visual amenity; and
- Beneficial: the visual amenity is improved by the Development.

Limitations of the Assessment

6.6.17 Where views are representative of those from residential properties or other buildings, the assessment of visual effects has been undertaken from outside properties and, where necessary, assumptions have been made about the types of room and importance of views obtained from these rooms.

6.6.18 The assessment and viewpoint photography were undertaken in the summer when vegetation was in leaf. Assumptions have been made about visual effects in winter when deciduous vegetation is not in leaf. This approach has been agreed with consultees.

6.6.19 The amount of spoil generated by the Development is based on a realistic worst case but is indicative at this stage due to the nature of the material excavated and the associated 'bulk factor'.

6.7 Baseline Conditions

Landscape

Overview of the Site and Study Area

6.7.1 The site and wider study area (the area within a 10km radius of the site boundary) are in north west Wales, broadly lying between the mountainous landscape of Snowdonia NP and the lower lying Menai Strait, which separates mainland Wales from Anglesey (see Volume Figure 6.1).

6.7.2 The site comprises of a series of former slate quarries located approximately 1.5km to the north west of Llanberis town centre, on the north east facing slopes of Cefn Du (441m AOD) in the Dinorwig valley. The landform and character of the site is heavily influenced by its past use as a slate quarry, which has resulted in a series of dry and water filled quarries and a number of slate spoil heaps, forming a stepped profile down the slopes of the Cefn Du mountain.

6.7.3 The site is approximately 97.77 hectares in size and is steeply sloping, lying at between approximately 400m AOD in the vicinity of Chwarel Fawr, a disused quarry at the top of the slope, and approximately 130m AOD in the vicinity of the A4086 at the foot of the slope. The majority of the quarrying infrastructure has been removed, with the exception of a former Munitions Store (Q8) at the foot of the slope, used during World War II (WWII).

6.7.4 The lower part of the site, below Ffordd Clegir, comprises a series of development platforms and access tracks, recently constructed by Gwynedd Council to encourage redevelopment of the site.

- 6.7.5 Along with the disused quarries, slate waste is a dominant characteristic of the site, with a number of large scale spoil heaps on the surrounding slopes. The slate tips are relatively regular in shape and form, are sparsely vegetated and have a post-industrial influence on the character of the site and the wider valley landscape. The quarries themselves are relatively well vegetated due to natural colonisation, mainly comprising pockets of woodland and scrub.
- 6.7.6 The slopes around the site are also interspersed with the remains of outhouses and quarry workings, scattered over steep grazing land. The neighbouring land is mainly agricultural, with much deciduous woodland on the lower slopes around the settlement of Llanberis and on the shores of Llyn Padarn.
- 6.7.7 The site lies within the steep-sided Dinorwig valley, home to extensive areas of former slate workings and a number of small settlements associated with the former quarrying use of the valley. The twin lakes of Llyn Padarn and Llyn Peris are important landscape features in the valley.
- 6.7.8 The south eastern component of the study area is dominated by the upland, mountainous landscape of Snowdonia NP, incorporating a series of peaks and valleys, including the summit of Snowdon, the highest peak in Wales at 1085m AOD. There are a number of distinctive u-shaped valleys including Nant Ffrancon and water bodies including valley streams and small lakes. Beneath the rocky ridges and scree slopes associated with mountain summits, the landscape is typically open moorland or heath, with some areas of grazing on improved pasture on lower slopes. The area is sparsely populated and settlement is generally associated with the extensive former slate workings in the area.
- 6.7.9 The north western component of the study area opens out into the gently undulating Arfonian plateau and the Menai Strait, a broad fringe of tidal water separating mainland Wales from Anglesey. The land use in this part of the study area is predominantly agricultural and there is a range of coastal habitats and landscapes as well as large areas of woodland. There is a mixture of settlement types, from small villages to large towns, including

the historic town of Caernarfon. Outwith the main population centres there are a number of scattered farmsteads and hamlets.

6.7.10 There are a number of important arterial roads within the study area, typically winding through the valleys or along the coast. These include the A487 which is of importance for its views across the Menai Strait to Anglesey, the A5 which is an important visitor route into and through Snowdonia NP and the A55 which forms a gateway to the Gwynedd area. There are a number of National Cycle Routes including National Route 8 along the Menai Strait and National Route 82 which runs between Bangor and Betws-y-Coed. There are many popular public rights of way and walking routes within the study area (e.g. the Llanberis Path and the Peris Slate Trail), as well as access land governed by the Countryside and Rights of Way Act (CRoW).

6.7.11 The upland topography of the study area affords some long distance views across the study area, particularly from the peaks of Snowdonia in the south east, westwards towards the coastline in the north west. The site lies within the Dinorwig valley and is generally well screened from the west by intervening topography. From the south and east the site becomes more visible, in particular from the eastern side of the Dinorwig valley and peaks within Snowdonia NP.

Historic Landscape Characterisation

6.7.12 Historic Landscape Characterisation has been undertaken by Cadw and the Gwynedd Archaeological Trust. The historic background of Glyn Rhonwy Quarry is described as “a series of open slate quarries, exploiting a vein that runs up the hillsides from the shore of Llyn Padarn on the north east to the commons on Cefn Du at the south west. Operations ceased in 1930, apart from very sporadic working from 1945 to 1948. The Lower Glyn Rhonwy pit was used as a bomb store during WWII. The quarry machinery was comprehensively removed in 1930. Some of the lower tips have more recently been landscaped, and the mill complex is in reuse for the manufacture of climbing equipment. The wartime bomb-storage facilities include a concrete roof covered with slate rubble and traces of the siding.

Elsewhere the stone embankments for the ropeway systems into the pits and the inclines remain impressive features.”

National Landscape Character – LANDMAP

- 6.7.13 At a national level, the landscape of Wales has been characterised by Natural Resources Wales (NRW) using their LANDMAP methodology to determine the various features and influences which combine to make up the landscape.
- 6.7.14 The LANDMAP characterisation process splits the landscape into a number of ‘Aspects’ comprising ‘Geological Landscape’, ‘Landscape Habitats’, ‘Visual and Sensory’, ‘Historic Landscapes’ and ‘Cultural Landscapes’. Within each aspect, the landscape has been divided into areas of similar character and evaluated in line with aspect specific criteria. Those areas relevant to the site and its immediate setting are listed in the Table 6-7 below.

Table 6-7 LANDMAP Characterisation			
Area Unique ID	Area Name	Description	Evaluation
Geological Landscape			
GWNDDGL087	Llanberis	Cambrian (Llanberis Slate Formation) slate belt cut by NW-SE Llyn Peris - Llyn Padarn U-shaped valley.	Outstanding (Area nationally important for glacial geomorphology (Llyn Peris SSSI) and with historically well known slate quarries in the Cambrian slate belt.)
GWNDDGL090	Betws Garmon	Upland ridge of Cambrian (Llanberis Slate Formation) slate belt cut by Nant y Betws U-shaped valley.	Outstanding (Includes nationally important site for Cambrian stratigraphy (Moel Tryfan SSSI).)
Landscape Habitats			
GWNDDLH633	N/A	This area has been heavily modified by quarrying and is dominated by spoil. Notable habitats are also present and include areas of heath, acid grassland and flushes. Some woodland is also present.	Moderate (Some valuable habitat areas such as heath but spoil dominates the area.)
GWNDDLH632	N/A	Planted Coniferous Woodland (100%)	Low (A low ecological value, manmade habitat.)
Visual and Sensory			
GWNDDVS024	Derelict quarries	Series of six separate derelict slate quarries, with variety of quarry buildings, rock exposure and tips, along western upland fringes of Snowdonia. Very dramatic landforms and remnants of industry giving distinctive sense of	High (Special qualities of slate and scale of workings and general drama of remains)

Table 6-7 LANDMAP Characterisation			
Area Unique ID	Area Name	Description	Evaluation
		place and raison d'etre for many settlements relating to the quarries. Colour of slate, sense of danger, exposure, etc. also re-colonisation by nature all add to positive qualities which should not be 'prettified'.	
GWNDDVS012	Cefn Du	Three separate areas of rough grass/upland grazing with scattered rocky outcrops on eastern edge of north part of county adjoining National Park... Attractive views of Snowdonia inland, and Lleyn /coast to the west... Adjacent slate quarries may be considered visual detractors... Strong visual linkage with nearby mountains adjacent, slightly at odds with the proximity to the villages and farm land below...	High (Relatively unspoilt with attractive views to mountains and coast...Seen from most parts of coastal lowlands)
GWNDDVS026	Llanberis	Llanberis urban area. A loosely nucleated settlement in valley bottom with some views over Llyn Padarn that adds to sense of place. Mix of traditional slate and stone buildings and modern residential and retail. Railway station for Snowdon mountain railway and other tourist-related developments add to character. Very much part of Snowdonia.	Moderate
Historic Landscapes			
GWNDDHL251	Glynrhonwy Quarry	A series of open slate quarries, exploiting a vein that runs up the hillsides from the shore of Llyn Padarn on the north east to the commons	Outstanding

Table 6-7 LANDMAP Characterisation			
Area Unique ID	Area Name	Description	Evaluation
		on Cefn Du at the south west. Designated as outstanding overall, as it is part of a nationally designated landscape and good example of a slate landscape.	
Cultural Landscapes			
GWNDDCL025	Slate quarries	The landscape of the slate quarries are 'vitally important (industrial) archaeology landscapes in their own right as well as forming an important part of the Welsh national heritage. The remains include the quarry areas (typically pits), mills, inclines, railways and the pattern of the tips of slate rubble.'	Outstanding (International)
GWNDDCL057	Llanberis	Once a major industrial landscape - in the shape of the Dinorwic slate quarry and its satellites - now a significant tourist landscape, with the Welsh Slate Museum, the Llanberis Lake Railway, the Snowdon Mountain Railway, Electric Mountain and the climbing and outdoor shops in Llanberis all within the area.	Outstanding (Of national value as famous landscape associated with quarrying, mountaineering and leisure.)

6.7.15 In summary, the LANDMAP assessment demonstrates that the importance of the Glyn Rhonwy site is related to its industrial heritage as a former slate quarry, and the historical and cultural associations this has, particularly when viewed as part of a 'wider picture' with other slate quarries in the area. The disused nature of the quarry has resulted in re-colonisation of parts of the site by vegetation including grassland and heath. The sensitivity of the Glyn Rhonwy site is therefore assessed as high.

Regional Landscape Character

6.7.16 The LANDMAP methodology has enabled the identification of distinct Landscape Character Areas (LCAs), which are distinctive areas of landscape with a recognisable 'sense of place' or 'local identity' referred to in the following publications:

- Gwynedd Council Supplementary Planning Guidance: Landscape Character (November 2009); and
- Snowdonia National Park Authority Supplementary Planning Guidance: Landscapes of Eryri (September 2011).

6.7.17 The key characteristics of each LCA within the study area are described in the table 6-8 and illustrated in Volume 4 Figure 6.1. Only those LCAs with theoretical visibility of the development are included in Table 6-8. An assessment of Value, Susceptibility and Sensitivity has been provided, based upon the criteria outlined in sections 5.7 - 7.9. The site itself falls within LCA 3 – Llanberis – Bethesda. The Gwynedd Council Supplementary Planning Guidance on Landscape Character has identified a number of development considerations for LCA 3: Llanberis – Bethesda, within which the site is located. The guidance states that new buildings should avoid using materials untypical of the area; and effects on the historic features and the pattern and fabric of the landscape should be considered.

6.7.18 For the other LCAs within the study area a number of development considerations have also been identified. Those of relevance (e.g. relating to parts of the landscape which may be inter-visible with the Development) are summarised below:

- Visual effects from and towards main road and rail corridors, including the A5/A55 and A487;
- Visual effects upon the local landscape and setting of Snowdonia NP, and its influence on the location, scale, form and materials used in any development.

Table 6-8 Landscape Character Areas		
Landscape Character Area	Key Characteristics	Value / Susceptibility / Sensitivity
Gwynedd Council Supplementary Planning Guidance: Landscape Character (November 2009)		
LCA 2 – Penisarwaun Plateau	Agricultural area with distinct small/irregular gently undulating; Occupying an intermediate zone between coast on or around 100m contour; Exhibits a number of post glacial landforms such as alluvial fans; Number of small, densely clustered settlements; and Large areas of woodlands and plantations.	Value: High
		Susceptibility: High
		Sensitivity: High
LCA 3 – Llanberis – Bethesda	Fringe of Snowdon Massif, includes extensive areas of former slate workings; Typified by small, nucleated quarrying communities; Water bodies, woodlands and wet marshy areas important features; and Tourism becoming increasingly important.	Value: High
		Susceptibility: High
		Sensitivity: High
LCA 4 - Caernarfon - Coast And Plateau	A long broad fringe of the Menai Strait, extending to the upland fringes of Moel Tryfan and Mynydd y Cilgwyn; Character of landscape influenced by glacial actions and resultant deposits and landforms; Mixture of settlement types – small villages to large towns. Caernarfon, important historic core, with modern settlement edges of varying quality; and Range of coastal habitats and landscapes, which contribute to character of the area.	Value: Medium
		Susceptibility: High
		Sensitivity: High-Medium
Snowdonia National Park Authority Supplementary Planning Guidance: Landscapes of Eryri (September 2011)		

Table 6-8 Landscape Character Areas		
Landscape Character Area	Key Characteristics	Value / Susceptibility / Sensitivity
LCA3 - Snowdon Massif	<p>The visual and historic core of the National Park, extending from the A4085 road in the west, around to Beddgelert and the A4086;</p> <p>At its core is Snowdon itself which rises to 1085 metres AOD and is flanked by a number of other peaks;</p> <p>Characterised by mountains, rocky ridges, summits strewn with rock and a number of lakes within the corries which encircle the mountain tops;</p> <p>Whilst U-shaped valleys can be found (Nant Gwynant) others, such as the Nant Llanberis are more V-shaped, especially in their upper reaches.</p> <p>A spectrum of vegetation from improved grasslands along the valley floors through to upland heath and bracken and moraine scree rock with acid grassland;</p> <p>Contains some areas of broadleaved woodland at Nant Gwynant;</p> <p>There are a number of lakes within the LCA;</p> <p>Includes part of the Dinorwig LOHI, designated for its close association with nineteenth and twentieth century slate mining; and</p> <p>Llanberis is closely linked with slate mining and is also the base for the Snowdonia Mountain Railway, a popular tourist facility.</p>	Value: High
		Susceptibility: High
		Sensitivity: High
LCA 4 - Moel Hebog Uplands	Forms the western upland flank of north Snowdonia and includes a number of peaks between 600 and 800m AOD, offering borrowed views of the coast and Snowdonia;	Value: High

Table 6-8 Landscape Character Areas		
Landscape Character Area	Key Characteristics	Value / Susceptibility / Sensitivity
	<p>Exhibits the effects of glaciations with classic U-shaped valleys such as Afon Glaslyn and Dyffryn Nantlle;</p> <p>The valley heads contain a number of water bodies;</p> <p>The Cwm Pennant cuts into the area, forming a pleasant rural valley with scattered farmsteads, small fields and areas of broadleaved woodland;</p> <p>Vegetation is largely upland heath and grasslands, although to the north of Moel Hebog, the coniferous Beddgelert Forest forms a visually prominent feature;</p> <p>Contains part of the Nantlle Valley LOHI and Conservation Areas in Dolbenmaen and Nantmor; and</p> <p>Contains evidence of relict prehistoric and later land use, superimposed by the 19th and 20th century remains of large scale slate quarrying and processing.</p>	<p>Susceptibility: High</p> <hr/> <p>Sensitivity: High</p>

Landscape Designations

- 6.7.19 The site itself falls within the Dinorwig LOHI and as such has been assessed separately in the ASIDOHL report (found in Volume 3 Appendix 6.1). The site also forms part of a LCA, identified in the Gwynedd Unitary Development Plan. Although not located within the National Park, the site forms part of the immediate setting of Snowdonia NP.
- 6.7.20 The site does not contain any Conservation Areas, Listed Buildings or Scheduled Monuments, though there are a number within the wider study area. To inform the landscape baseline, those features within 1km of the site are identified in Table 6-9 for information purposes.

Table 6-9 Landscape Designations	
Designation	Description
Snowdonia National Park	Snowdonia NP occupies the majority of the south eastern component of the study area and at its closest point lies approximately 500m from the site boundary. The NP is the largest NP in Wales and covers 823 square miles of diverse landscapes, including the highest mountain in England and Wales.
Registered Parks and Gardens	The study area contains a number of Registered Parks and Gardens, including Bryn Bras Castle, Caernarfon: Morfa Common Park, Llanidan, Glynllifon, Plas Newydd and Vaynol. With the exception of Bryn Bras Castle these are all located over 6.5km from the site.
Landscape Conservation Areas	Landscape Conservation Areas are afforded protection by Policy B10 in the Gwynedd Unitary Development Plan for their distinctive character. There are a number within the study area, including the Rhosgadfan - Llanberis – Mynydd Llandygai Landscape Conservation Area which the site falls within.
Conservation Areas	The study area contains the following Conservation Areas: Glasinfryn; Aberpwll - Y Felinheli; Tregarth; Rhes Elfed – Bethesda; Rhes Gordon – Bethesda; Tanysgafell – Bethesda; Lon Y Graig – Bethesda; Bryn Eglwys; Braichmelyn; Llwybr Main/Tan Y Bwlch - Mynydd Llandyg; Caernarfon; Y Faenol; Glynllifon; Llanllechid; Bontnewydd; Llanwnda; Llanllechid; and Nant Peris. The majority of these are located over 5km from the site, with the exception of Nant Peris which is approximately 4.5km from the site.

Table 6-9 Landscape Designations	
Designation	Description
Listed Buildings (Within 1km)	There are three grade II Listed Buildings located opposite the site entrance, near the A4086. There are also several grade II Listed Buildings to the north of the site, in close proximity to the Ffordd Clegir and several within Llanberis itself.
Scheduled Monuments (Within 1km)	There are no Scheduled Monuments within 1km of the site. The closest Scheduled Monuments to the site are Dolbadarn Castle and several Scheduled Monuments associated with the Dinorwig Quarries, on the eastern side of Llyn Padarn.
Landscapes of Outstanding Historic Interest	Landscape and visual effects on LOHI within the study area have been subject to a separate assessment in Volume 3 Appendix 6.1 ASIDOHL report.

6.7.21 Designated landscapes and features within the 10km study area, and cultural heritage features within 1km are described in the table below, where there is potential for significant effects. Landscape designations are also illustrated in Volume 4 Figure 6.2.

Visual Amenity

Overview

6.7.22 A ZTV map has been produced to illustrate the potential visibility of the proposals and is illustrated in Volume 4 Figure 6.3.

6.7.23 The baseline landscape and its broad visual context are described earlier in this section. The visual context of the site can be summarised as follows:

- Distant views from the north are generally well screened by intervening topography and woodland vegetation within the study area. There are some close, glimpsed views towards the site along the A4086 and from the minor road which traverses the northern side of Llyn Padarn, however these views are limited to the stepped profile of the northern side of the quarry which screens the majority of the site;

- The site is most visible from the north east and east, from the opposite side of the Dinorwig valley. There are views from minor roads and settlements such as Deiniolen and Dinorwig, as well as the peaks to the east which include Elidir Fawr (923m AOD) and the more distant Glyders. From these places there are views into the majority of the site, with the exception of the uppermost quarries which sit beyond a ridgeline between Cefn Du and Moel Eilio;
- The mountainous nature of the landscape to the south and south east of the site, within Snowdonia NP, allows elevated, distant views into the site, with the stepped profile of the quarries being a feature in views along the Dinorwig valley, seen in the context of Llanberis and Llyn Padarn;
- Views from the west are generally well screened by the topography of the study area, although there are views into the upper quarries within the site from Cefn Du, a mountain immediately to the west of the site; and
- Despite being in close proximity to the settlement of Llanberis, woodland to the north and west of the town screens the majority of views towards the site. There are occasional glimpsed views from the A4086 and from the minor roads which feed into the town from the west.

Viewpoints

6.7.24 Twelve key viewpoints were identified within the ZTV and agreed in consultation with GC and SNPA. The viewpoints are listed in the Table 6-10 and their locations presented in Volume 4 Figure 6.3:

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
1. Yr Wyddfa/ Snowdon	Recreational (walkers)	- North west - 6km - 736m AOD	<p>The viewpoint is located on the Llanberis path which runs between Llanberis and the summit of Snowdon. The viewpoint is in close proximity to Clogwyn Station on the Snowdon Mountain Railway and is also representative of views from the summit of Snowdon. Walkers descending Snowdon on the Llanberis Path have panoramic views across the mountainous north western fringes of Snowdonia NP, including Foel Goch (625m AOD) and Moel Eilio (726m AOD). The National Park is characterised by rocky upland scree slopes and moorland and sheep pasture on the lower slopes, with some plantation woodland. To the west there is a large water body (Llyn Du r Arddu). There are views along the settled Dinorwig valley, across Llyn Padarn, with the flatter settled and wooded part of the study area to the north, and the Menai Strait and Anglesey visible beyond. The Glyn Rhonwy site, and in particular the existing slate tips, is clearly visible on the valley side, sloping down towards Llyn Padarn, partially screened by intervening landform in the middle distance. The site forms a very small part of a panoramic view.</p> <p>Value is considered to be high due to the location of the viewpoint in Snowdonia NP and the well publicised nature of the path. Susceptibility is also considered to be high as the view is an important factor and focus for walkers' visual amenity.</p> <p>The sensitivity of recreational receptors at this viewpoint is high, due to the recreational value and popularity of Snowdon, the highest peak in England/Wales and located within Snowdonia NP.</p>
2. Moel Eilio	Recreational (walkers)	- North	<p>The viewpoint is located on a public right of way which runs up the northern face of Moel Eilio, within Snowdonia NP. The viewpoint is located adjacent to a fenceline, just</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
		- 2km - 666m AOD	<p>below the summit (726m AOD). Walkers descending the PRoW have panoramic views in the direction of the site, encompassing rolling upland moorland and pasture, plantation woodland and slate tips on the western face of Cefn Du. The site is visible between the lower slopes of Cefn Du and Llanberis on the wooded shores of Llyn Padarn. Both Quarries 1 and 6 and the development platforms at the lower end of the site are visible. Beyond the site there are views across Llyn Padarn to the settled eastern side of the wooded Dinorwig valley, with Dinorwig quarry a noticeable element in the view. The peaks of Snowdonia NP are visible to the south and there are views as far as the Menai Strait and Anglesey to the north.</p> <p>Value is considered to be high due to the location of the viewpoint in Snowdonia NP. Susceptibility is also considered to be high as the view is an important factor and focus for walkers' visual amenity.</p> <p>The sensitivity of recreational receptors at this viewpoint is high, due to the recreational value of the viewpoint being located within Snowdonia NP.</p>
3. Glyder Fawr	Recreational (walkers)	- North west - 7.5km - 998m AOD	<p>The viewpoint is located at the summit of Glyder Fawr within Snowdonia NP. In the direction of the site there are panoramic views along the Dinorwig valley, as far as the Menai Strait and Anglesey beyond. The twin lakes of Llyn Padarn and Llyn Peris are visible in the valley bottom. The site is visible in mid-ground views, on the eastern face of Cefn Du, sloping down towards Llanberis on the shores of Llyn Padarn and forms a small part of a wider view. Both Quarries 1 and 6 and the development platforms at the lower end of the site are visible.</p> <p>Value is considered to be high due to the location of the viewpoint in Snowdonia NP.</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
			<p>Susceptibility is also considered to be high as the view is an important factor and focus for walkers' visual amenity.</p> <p>The sensitivity of recreational receptors at this viewpoint is high, due to the recreational value of the viewpoint being located within Snowdonia NP.</p>
4. Llanberis Lake Railway, Llyn Padarn	Recreational (visitors to the Llanberis Lake Railway and Padarn Country Park)	- South west - 0.5km - 107m AOD	<p>The viewpoint is located at Cei Llydan Station on the Llanberis Lake Railway, adjacent to a picnic area within the Padarn Country Park. Although transient, the Llanberis Lake Railway traverses the north eastern shores of Llyn Padarn, allowing receptors a range of prolonged views into the site. There are mid-ground views of the site, across the wide expanse of Llyn Padarn towards the opposite side of the Dinorwig valley and the rising peaks of Snowdonia NP beyond. The slate spoil heaps and stepped profile of the Glyn Rhonwy quarries are clearly visible elements amongst the woodland and rocky outcrops on the western side of the Dinorwig valley. Scattered farmsteads and wooden electricity poles are the only evidence of development in the view, with the exception of the quarries themselves.</p> <p>Value is considered to be high-medium due to the location of the viewpoint in the Country Park and is a well publicised facility. Susceptibility is considered to be high as the view is an important factor and focus for recreational users' visual amenity.</p> <p>The sensitivity of recreational receptors at this viewpoint is high-medium, as the Llanberis Lake Railway is a popular local tourist attraction and located within a Country Park.</p>
5. Llanberis	Residential,	- North west	The viewpoint is located at the junction between the A4086 and Llanberis High Street,

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
/ A4086	road users, recreational (visitors to the Dinorwig Electric Mountain Visitor Centre)	- 1.5km - 116m AOD	<p>approximately 50m south of the Dinorwig Electric Mountain visitor centre at the southern end of Llanberis. There are glimpsed, mid-ground upward views of parts of the Glyn Rhonwy site, beyond Llanberis and the mature woodland on the valley sides above the town. The majority of the site is not visible due to screening by intervening built development, topography and vegetation.</p> <p>Value is considered to be high for residential receptors and medium for recreational and road receptors as it is a well publicised tourist route into Llanberis. Susceptibility is considered to be high-medium for residential receptors due to the more oblique nature of the property orientation and medium for recreational and road receptors as they are transient in nature but are likely to be travelling in part to enjoy the view.</p> <p>The sensitivity of residential receptors is high-medium, as properties front onto the A4086 and are not orientated towards the Development, and views towards the site are from upper floors at the side. Recreational and road receptors at this viewpoint are of medium sensitivity.</p>
6. Pen-y-Llyn	Residential, road users	-South -1.2km - 115m AOD	<p>The viewpoint is located within the small settlement of Pen-y-Llyn on the minor road between the A4244 and Dinorwig. There are two dwellings with views towards the site from upper floors at the front and front gardens. From this viewpoint there are views towards the site across Llyn Padarn, along the Dinorwig valley, with the peaks of Snowdonia NP rising beyond. The lake is fringed with mature trees and scrub. Only the northern profile of the quarries is visible, in amongst the woodland, rocky outcrops and slate tips which are the main characteristics of the valley. The majority of the site is screened by the intervening woodland and topography of the site itself.</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
			<p>Value is considered to be high for residential receptors and medium-low for road receptors. Susceptibility is considered to be high for residential receptors as it is their principal view which is orientated towards the development. Road users are considered to be of low-medium susceptibility as their views are oblique and are travelling for other purposes than just the view.</p> <p>The sensitivity of residential receptors at this viewpoint is high, as properties are orientated towards the Development. Road users are of low-medium sensitivity due to the oblique nature of their views.</p>
7. Cefn Du	Recreational (walkers)	- East - 0km - 422m AOD	<p>The viewpoint is located on the eastern slopes of Cefn Du. There are no views of the site from the summit itself; therefore the viewpoint is located adjacent to the northern boundary fence of the Glyn Rhonwy site. The foreground of the view is occupied by grassland and wetland on the lower slopes of Cefn Du, with the upper quarry partially visible beyond, sitting beyond a ridgeline. The majority of the site is screened by the intervening landform, with the fenced off quarries lying out of view. Beyond the site there are panoramic views across the Dinorwig valley to the east, with the mountainous peaks of Snowdonia NP visible in mid-ground to distant views to the south.</p> <p>Value is considered to be medium as it is not within the National Park and susceptibility is high-medium as the view is an important focus for walkers.</p> <p>The sensitivity of recreational receptors at this viewpoint is high-medium. Sensitivity is lower than other recreational viewpoints as it is not within the National Park and not on a defined or definitive public right of way, so is unlikely to be as well used as</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
			defined recreational routes.
8. Dinorwig	Residential, recreational (public right of way)	- South west - 1.2km - 297m AOD	<p>The viewpoint is located within the village of Dinorwig, adjacent to terraced housing within the scattered settlement, on a public footpath off the minor road which serves the village. There are mid-ground views of the site across the Dinorwig valley, comprising a grazed, agricultural foreground enclosed by dry stone walling or fencing, with areas of scrub, scattered trees and occasional farmsteads on the slope down to the shores of Llyn Padarn, with the wooded hills on the opposite side of the valley beyond. The majority of the site is visible, with the exception of the upper quarries which sit beyond a ridgeline between Cefn Du and Moel Eilio. The peaks of Snowdonia NP are visible in the far distance, to the south. The view is relatively settled, with Llanberis clearly visible at the foot of the slope, as well as scattered farmsteads and industrial buildings at the Siemens plant. These buildings contrast with the woodland, slate tips and rocky outcrops present in the valley and are a detracting feature in the view. There are views into the site, including the development platforms and Quarry 6 to the south of the Ffordd Clegir at the lower end of the site.</p> <p>Value is considered to be high for residential receptors and high-medium for recreational users as it is a publicised right of way. Susceptibility for residential receptors is considered to be high as their principal view is focussed towards the Development and high-medium for recreational receptors as the view is an important focus for walkers.</p> <p>The sensitivity of residential receptors at this viewpoint is high, as principal views are across the Dinorwig valley in the direction of the Development. Users of the public</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
			right of way are of high-medium sensitivity.
9. Dolbadarn Castle	Recreational (visitors to the castle, walkers)	- North west - 2km - 149m AOD	<p>The viewpoint is located in the grounds of Dolbadarn Castle, a Scheduled Monument with panoramic views across Llyn Padarn and along the wooded Dinorwig valley to the north west and Llyn Peris to the south east. There are mid-ground views of the site on the stepped landform of the former quarry, rising to the west of Llyn Padarn, with Llanberis visible at the foot of the slope, contained within a wooded landscape framework. Views towards the site are partially screened by mature mixed coniferous and deciduous woodland in the foreground of the view, associated with the setting of the castle. There are clear views of Dinorwig Electric Mountain to the east from this viewpoint.</p> <p>Value is considered to be high due to the Castle being a nationally designated site and high susceptibility as the view is an important element in the visitors experience of the castle.</p> <p>The sensitivity of recreational receptors at this viewpoint is high, due to the recreational value of the location as a publicly accessible Scheduled Monument.</p>
10. Public footpath, west of Llanberis	Recreational (walkers)	- North west - 0.8km - 156m AOD	<p>The viewpoint is located on a public right of way on the undulating grassland slopes to the west of Llanberis, in the vicinity of Coed Mawr. The foreground of the view is occupied by grassland and scrub with groups of mature trees, enclosed by dry stone walling / fencing. There are several farm buildings in the locality, including a derelict barn in the foreground of the view. There are glimpsed views of slate tips within parts of the site, however the majority of the site is screened by intervening landform including rocky outcrops, woodland and groups mature trees. Parts of the site are</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
			<p>clearly visible but not the focus of the view, which is to the east across the Dinorwig valley, including the prominent Dinorwig Quarries, and Snowdonia NP to the south.</p> <p>Value is considered to be high-medium as the path is a publicised public right of way. Susceptibility is considered to be medium as the view is an important factor in their recreational use although the Development is not a focus to the view.</p> <p>Users of the public right of way are of high-medium sensitivity.</p>
11. Elidir Fach	Recreational (walkers)	- West - 3.7km - 541m AOD	<p>The viewpoint is located on a private road which runs around the western side of Elidir Fach. Elidir Fach lies within Snowdonia NP. From this location there are panoramic views across the Dinorwig valley, to the mountainous landscape of Snowdonia NP to the south west, and the flatter settled and wooded plains stretching towards the Menai Strait and Anglesey to the north. There are clear views into the site, between Llanberis at the foot of the slope and the slopes of Cefn Du on the upper slopes. The settlement of Llanberis, and modern industrial buildings at the Siemens plant, provide a contrast to the wooded slopes and slate tips on the far side of the valley.</p> <p>Value is considered to be high due to the location of the viewpoint in Snowdonia NP. Susceptibility is also considered to be high as the view is an important factor and focus for walkers' visual amenity.</p> <p>The sensitivity of recreational receptors at this viewpoint is high, due to the recreational value of the viewpoint, within Snowdonia NP.</p>
12. Hebron	Recreational (walkers,	- North west	<p>The viewpoint is located on a public footpath adjacent to Hebron Station, within Snowdonia NP. The footpath connects with the Llanberis Path to the north, leading to</p>

Table 6-10 Viewpoints			
Viewpoint Name	Receptor	View - Direction - Distance - Height	Baseline Description & Sensitivity of Receptor
Station	visitors to the Snowdon Mountain Railway)	- 2.8km - 288m AOD	<p>the summit of Snowdon. There are views along the Dinorwig valley with Llyn Padarn and settlements on the eastern side of the valley visible in the distance. The site is partially visible in mid-ground views, and the stepped profile of the Glyn Rhonwy quarries forms the horizon in some places. Intervening topography partially screens views of parts of the site, and the upper quarries are not visible as they sit beyond a ridgeline.</p> <p>Value is considered to be high due to the location of the viewpoint in Snowdonia NP and the well publicised nature of the Mountain Railway. Susceptibility is also considered to be high as the view is an important factor and focus for walkers' visual amenity.</p> <p>The sensitivity of recreational receptors at this viewpoint is high, due to the recreational value of the location on the Snowdon Mountain Railway and within Snowdonia NP.</p>

6.8 Potential Effects

Landscape

Construction

6.8.1 The construction programme and phasing for the Development are described within Chapter 4 Project Description. Construction works include, but are not limited to, site investigation works, enabling works, formation of access routes, removal of existing spoil from Q1 and Q6, dam construction, lining and grouting of the dams, tunnel boring, construction of the power station and reservoir filling. There are a number of ways in which construction activities may temporarily affect the existing landscape resource of the study area, these include:

- Site compounds may result in temporary physical changes to the landscape e.g. through loss of vegetation;
- Construction activity may introduce dynamic elements (e.g. construction traffic, earth movement) into an otherwise static and tranquil landscape; and
- The introduction of temporary structures and infrastructure may result in a temporary urbanising effect on a predominantly rural landscape.

Permanent

6.8.2 A detailed description of the Development is provided in Chapter 4 Project Description. There are a number of ways in which the Development might affect the existing landscape resource of the study area, these include:

- The scale and form of the development, which includes large scale features such as dams, reservoirs and spoil mounds, may have a direct effect on the existing landform, landscape features and overall character of the site;
- The development may result in the loss of mature woodland, including plantation woodland from the footprint of the dam at Q1 and deciduous woodland from the footprint of the dam at Q6 and the spillway at the eastern end of the site. This vegetation may have landscape, visual or biodiversity value at a local level; and

- The development may have indirect effects on the landscape character of neighbouring landscapes including Snowdonia NP, due to the introduction of features such as dams and reservoirs and loss of vegetation, in views from the surrounding area.

Visual Amenity

Construction

6.8.3 The programme and phasing for the Development is described within Chapter 4 Project Description. Construction activities may affect the existing visual amenity of the study area, by intruding into existing views experienced by day to day users of the study area, including local residents, recreational walkers and road users.

6.8.4 The construction period will be undertaken in phases over a period of 3.5 to 4 years, and as such effects will not necessarily apply to all receptors at the same time, and, although temporary in nature, may not be short term in duration. Typical activities with potential to affect visual amenity by creating views, changing the character of a view, or by causing direct visual intrusion include:

- Site investigation works;
- Site clearance and removal of spoil;
- Erection of temporary storage facilities, site compound and parking areas;
- Earth movement and modelling, including creation of spoil mounds;
- Formation of accesses and diversions, widening of existing tracks;
- Use of plant, including large dozers, large excavators, dumpers and mobile crushers;
- Vehicular movement on and off-site; and
- Night time lighting and working outside of normal working hours.

Permanent

6.8.5 The Development has the potential to have the following permanent effects on visual amenity:

- Change in character of views of the quarry landscape, a valued landscape feature, through introduction of above ground elements of the Development, including buildings, dams and reservoirs, particularly in localised views;
- Potential for adverse effects in views from the wider recreational landscape resource due to visual intrusion of the larger elements of the Development (dams and reservoirs) particularly in sensitive, longer distance views from SNPA.

6.9 Mitigation, Compensation and Enhancement Measures

Construction

6.9.1 Mitigation opportunities during the construction phase of works will primarily relate to the restrictions imposed on the working areas and measures identified in the CoCP which will be developed prior to construction commencing. These will seek to stipulate measures to avoid, reduce or offset environmental effects (including landscape and visual effects) associated with the construction works.

6.9.2 The following specific mitigation measures have been identified in relation to landscape and visual effects:

- The penstock will be tunnelled, thus avoiding effects on visual amenity during construction of the Development associated with open cut/trenched or above ground construction solutions;
- Construction compounds have been sited to minimise disruption to existing areas of vegetation. Vegetation removed will be replaced where appropriate on completion of the construction works;
- During construction, trees to be retained are to be protected in accordance with BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations; and

- Public Rights of Way which have been diverted or closed during construction will be reinstated, with the exception of those around Q1 which will be permanently diverted; and
- Considered siting of temporary installations such as site compound and material storage areas to avoid direct effects in views from sensitive receptors.

Permanent

6.9.3 Mitigation measures seek to avoid, reduce or offset permanent and operational environmental effects, including those related to the landscape resource. The mitigation of adverse effects from the Development upon landscape features, landscape character and views has been addressed through the following measures:

- The penstock will be tunnelled, thus avoiding effects on visual amenity during operation of the Development associated with an above ground, or open cut or trenched solution;
- The power house is to be sited on an existing development platform adjacent to Q6, a location which benefits from natural screening from surrounding woodland, in particular in views from Llanberis, and within an area designated for future development;
- The power house and pumping station will be clad using local materials (i.e. slate) or rendered in colours appropriate to the local area to help integrate them with the wider landscape context;
- The dams have been designed to reflect, and tie into, the existing gradients and contours of the quarry and hill side landscape as far as possible. This approach will help integrate the new structures into the quarry landscape and reduce potential for an over engineered or artificial appearance;
- Excavated slate will be used in the construction of the dams and associated structures to help integrate new structures into the post-industrial landscape in terms of texture, form and colour;

- The spoil mounding to the south west of Q1 has been located and designed to minimise visual effect and be sympathetic in scale, gradient and angle of slope to the surrounding post-industrial quarry landscape. The spoil mounds have been designed to encourage natural re-colonisation of vegetation where practical to soften their appearance, reduce erosion, and encourage greater biodiversity;
- Existing vegetation which has naturally re-colonised the site will be retained where practicable. The Development will utilise Q1 and Q6, avoiding the quarries to the west of the Ffordd Clegir;
- Where practicable, access and maintenance tracks will be surfaced in visually recessive materials and designed to fit in with existing contours and vegetation within the site;
- The local road from Waunfawr will be retained and enhanced through rebuilding and repair of stone walls to retain its character;
- Where existing trees are removed to make way for the spillway and pumping station, they will be replaced on a like for like basis; and
- Q1 and Q2 will be secured by a combination of stock proof fencing and a ditch.

6.10 Residual Effects

Landscape

Construction

6.10.1 At a site level, the character of the landscape has been assessed against each of the 'aspects' identified in NRW's LANDMAP, with an overall assessment made of effects of construction on landscape character within the site and its immediate setting of the Glyn Rhonwy quarries.

6.10.2 Overall, the construction of the Development will have limited effect on the Geological Landscape, Historic Landscape and Landscape Habitat aspects of the site and wider Glyn Rhonwy quarries, due to the nature of the construction operations, the temporary nature of construction effects and mitigation measures outlined in section 6.13.

- 6.10.3 There will be an adverse effect on the Cultural and Visual and Sensory aspects of the landscape due to the introduction of site compounds and dynamic elements to a relatively static, and in places tranquil, landscape. However, construction works will be located within a derelict slate quarry, a landscape heavily influenced by former industrial workings, quarries and numerous, large-scale spoil tips, which will be able to accommodate a temporary change of the type proposed without intrinsic alteration to the character of the landscape.
- 6.10.4 In summary, the sensitivity of the site to a change of the type proposed is **High**, and the magnitude of change will be **Low**. The effect on the landscape character of the site will therefore be **Moderate-Minor Adverse** and **Not Significant** during construction.
- 6.10.5 The effects of the Development on the wider landscape are outlined in the Table 6-11 and Table 6-12 which provides an assessment of the overall effect that the development would have on setting, LCAs and designated landscapes within the ZTV during the construction period. Mitigation measures outlined in section 6.13 have been taken into consideration in the assessment of effects.
- 6.10.6 In summary, there will be **No Significant** effects on the landscape character of the site and its wider setting during construction due to the limited inter-visibility between the site and the surrounding landscape, the temporary nature of the change, and the post industrial character of the site within which construction works of the type proposed can be successfully accommodated.
- 6.10.7 Please note that the Table 6-11 and Table 6-12, the residual effects have not changed since the 2012 assessment.

Table 6-11 Landscape Effects on the Site & its Setting During Construction		
Landscape Receptor	LANDMAP Evaluation	Description of Effect
Geological Landscape – Llanberis (GWNDDGL087)	Evaluation - Outstanding	The presence of construction activity in itself would have no temporary or permanent effect on the geological aspects of the landscape. Permanent changes to existing landform are assessed in the operational phase.
Geological Landscape – Betws Garmon (GWNDDGL090)	Evaluation - Outstanding	Construction activity in itself would have no temporary or permanent effect on the geological aspects of the landscape. Permanent changes to existing landform are assessed in the operational phase.
Landscape Habitats - GWNDDLH633	Evaluation - Moderate	Temporary construction compounds for works at Q1 will require the removal of some vegetation, resulting in a direct effect on some landscape habitats within the site. Any effect will be minimised through considered siting of compounds and reinstatement of vegetation following completion of the construction period. The site compound required for works to Q6 will be located within an area of existing hardstanding.
Landscape Habitats - GWNDDLH632	Evaluation - Low	Construction activities will extend a short distance into this area during construction of the dam, spoil mounds and access road at Q1. Due to recent forestry operations some of the coniferous planting previously identified has been clear felled, and the area is more open in character. Due to the limited incursion into this area, the magnitude of change to landscape habitats will be limited.
Visual & Sensory - Derelict quarries (GWNDDVS024)	Evaluation - High	The introduction of construction activity and two site compounds will have a temporary, adverse effect on the visual and sensory landscape of the site and its setting, due to the addition of urbanising and dynamic elements within an otherwise static scene. However, the scale of construction works will be in keeping with the scale of the post industrial landscape within which they are set, and due to the derelict and post industrial character of the site, construction works can be accommodated without noticeable change to the character of the site. The site at Glyn Rhonwy forms only one of six separate derelict slate quarries which comprise

Table 6-11 Landscape Effects on the Site & its Setting During Construction		
Landscape Receptor	LANDMAP Evaluation	Description of Effect
		this LANDMAP Aspect area, and as such effects on the wider aspect area will be limited.
Visual & Sensory – Cefn Du (GWNDDVS012)	Evaluation - High	The introduction of construction activity will have a temporary, but adverse effect on the visual and sensory landscape of the site due to the addition of urbanising and dynamic elements within an otherwise rural and static scene. However, construction works will be located in immediate proximity to existing spoil heaps, an area of active forestry and derelict quarries, which already provide a distinct contrast with the upland landscape. In addition, the site is visually enclosed and forms only a small part of this aspect area, and as such construction works will have a limited effect on the wider landscape.
Visual & Sensory – Llanberis (GWNDDVS026)	Evaluation - Moderate	The construction activity associated with the pumping house, intake / outlet and access track will have a temporary, but adverse effect on the visual and sensory landscape, primarily due to the loss of mature deciduous woodland which will be required in a localised area. However the construction works will be visually contained by the surrounding woodland and the wider area will be unaffected.
Historic Landscape - Glynrhonwy Quarry (GWNDDHL251)	Evaluation - Outstanding	Construction activity will be temporary in nature and as such will not affect the intrinsic characteristics of the historic landscape.
Cultural Landscape - Slate quarries (GWNDDCL025)	Evaluation - Outstanding	The cultural landscape will be temporarily affected by the introduction of construction activity within the site, however the Glyn Rhonwy quarries form part of a wider cultural landscape encompassing a number of other former slate quarries, and as such, the effect on the wider aspect area will be limited.

Table 6-11 Landscape Effects on the Site & its Setting During Construction		
Landscape Receptor	LANDMAP Evaluation	Description of Effect
Cultural Landscape - Llanberis (GWNDDCL057)	Evaluation - Outstanding	The cultural landscape will be temporarily affected by the introduction of construction activity within the site. There will be very limited effect on the adjacent settlement at Llanberis due to a lack of intervisibility between the settlement and the site. The site forms part a small part of a wider aspect area encompassing the settlement at Llanberis and industrial facility and heritage centre at Dinorwig/Electric Mountain. As such, the construction works would only affect a very small proportion of the aspect area.

Table 6-12 Landscape Effects on LCAs and Landscape Designations During Construction				
Landscape Receptor	Sensitivity	Description of Effect	Magnitude	Effect (During Construction)
Landscape Character Areas				
Gwynedd Council LCA 2 – Penisarwau Plateau	High	Construction works associated with the lower dam and turbine house may be barely perceptible from a very limited part of the LCA, in the vicinity of Penisa’rwaun / Llanrug, however the majority of the LCA has no inter-visibility with the site. Where there would be inter-visibility, construction operations would cause an almost imperceptible change due to the limited nature of views.	Very Low	Neutral
Gwynedd Council LCA 3 – Llanberis – Bethesda	High	There will be a direct effect on part of this LCA as a result of the introduction of construction elements and activity on the site. In the wider area, construction works associated with the upper dam may be visible, to the north of Moel Eilio. Construction works associated with the lower dam and turbine house may be visible in the vicinity of Llanberis and Dinorwig. The site is inter-visible with the northern side	Low	Minor adverse

Table 6-12 Landscape Effects on LCAs and Landscape Designations During Construction				
Landscape Receptor	Sensitivity	Description of Effect	Magnitude	Effect (During Construction)
		of the Dinorwig Valley, however inter-visibility between Llanberis and the site is limited by intervening woodland. The majority of the LCA has no inter-visibility with the site and as such effects on the character of the wider landscape setting would be limited to those at a site level, within a localised area.		
Gwynedd Council LCA 4 - Caernarfon - Coast and Plateau	High - Medium	Construction works associated with the upper dam may be visible, between the western boundary of the study area in the region of Llanwnda and Dinas, and the eastern edge of the LCA in the vicinity of the A4085. The proportion of the works visible would be very small and the majority of the LCA has no inter-visibility with the site. As such, the construction works would not change the character of the wider landscape setting.	Very Low	Neutral
Snowdonia National Park LCA3 - Snowdon Massif	High	The construction works will be visible from elevated parts of this LCA, including works associated with the upper dam in the vicinity of Moel Eilio, and the upper and lower dams and turbine house from the north face of Snowdon in the vicinity of the Snowdon Mountain Railway, the A4086 and Glyder Fawr. The majority of the LCA has no inter-visibility with the site, due to screening from by intervening topography and effects on landscape character would be limited as a result.	Low	Minor adverse
Snowdonia National Park LCA4 - Moel Hebog Uplands	High	Construction works associated with the upper dam only will be visible from elevated parts of this LCA, in the vicinity of Mynydd Mawr (698m AOD). The majority of the LCA has no inter-visibility with the site, due to screening from by intervening topography. As such, the construction works would not change the character of the wider	Very Low	Neutral

Table 6-12 Landscape Effects on LCAs and Landscape Designations During Construction				
Landscape Receptor	Sensitivity	Description of Effect	Magnitude	Effect (During Construction)
		landscape setting.		
Landscape Designations				
Snowdonia National Park	High	Construction works associated with the upper dam only may be visible in the vicinity of Moel Eilio and Mynydd Mawr. Construction of the upper and lower dams and turbine house may be visible on the northern face of Snowdon, in the vicinity of the Snowdon Mountain Railway, the A4086 and Glyder Fawr. The majority of the National Park has no inter-visibility with the site, due to screening from by intervening topography the construction works would not change the character of the landscape within the National Park.	Low	Minor adverse
Landscape Conservation Areas	High-Medium	There will be a direct effect on the Rhosgadfan - Llanberis – Mynydd Llandygai Landscape Conservation Area which the site falls within. Effects will be limited due to the temporary nature of construction works and the landscape context of the quarry. In addition, construction works associated with the upper dam will be visible to the east of Rhosgadfan and in the immediate vicinity of the site. Construction of the upper and lower dams and turbine house may be visible from the north eastern side of the Dinorwig Valley.	Low	Minor adverse

Permanent

- 6.10.8 Permanent effects on the landscape resource are those resulting from the development that would remain in the long term (summer 15 years after opening). The extent to which the Development would affect the existing landscape resource varies significantly depending on the individual components of the Development and the capacity of the existing landscape to absorb these components.
- 6.10.9 At a site level, the character of the landscape has been assessed against each of the 'aspects' identified in NRW's LANDMAP, with an overall assessment made of permanent effects on landscape character within the site and immediate setting of the Glyn Rhonwy quarries, taking into account mitigation measures outlined in section 6.13.
- 6.10.10 Overall, the Development will have a limited effect on the Geological Landscape aspects and will not affect any nationally important sites. There will be an adverse effect on the Landscape Habitat aspects through vegetation loss, however where habitats would be directly affected, replacement planting is proposed and natural regeneration encouraged – please see Chapter 7 Ecology. There will also be an adverse effect on Visual and Sensory aspects through the introduction of the Development into the valley and upland landscapes. However, the magnitude of change will be limited due to the existing character of the site, the nature of the Development and the mitigation measures proposed, which will ensure that the Development will be in keeping with the character of the post industrial landscape within which it is set.
- 6.10.11 There will be an adverse effect on Historic and Cultural Landscape aspects due to the loss of features associated with the former quarrying use of the site and introduction of new features. However the development will be in keeping with the industrial heritage of the site, a landscape heavily influenced by former industrial workings, quarries and numerous, large-scale spoil tips, which will be able to accommodate a change of the type proposed without intrinsic alteration to the character of the landscape.

6.10.12 In summary, the sensitivity of the site to a change of the type proposed is **High**, and the magnitude of change will be **Low**. The effect on the landscape character of the site will therefore be **Moderate-Minor Adverse** and **not significant** during operation.

6.10.13 Table 6-13 and Table 6-14 provide an assessment of the overall effect that the development would have on site setting, the LCAs and designated landscapes within the study area in the winter year of opening and summer 15 years after opening, taking into account mitigation measures outlined in section 6.9. The effects at winter 15 years after opening have not been presented separately as they are not considered to appreciably differ from the year of opening or the summer 15 years after opening assessment due to the primary nature of the mitigation which has been inherent in the detailed design of the Development.

6.10.14 In summary, there will be **no significant** effects on the landscape character of the site and its wider setting during operation due to the limited intervisibility between the site and the surrounding landscape, the nature of the development being in keeping with the post industrial character of the site and mitigation measures proposed to help the Development integrate with the surrounding landscape.

6.10.15 Please note that the residual effects outlined in Table 6-13 and Table 6-14 have not changed since the 2012 assessment.

Table 6-13 Landscape Effects on the Site & its Setting		
Landscape Receptor	LANDMAP Evaluation	Description of Effect
Geological Landscape – Llanberis (GWNDDGL087)	Evaluation - Outstanding	The Development will have a direct effect on a small part of this aspect area, which comprises a series of historically well known slate quarries in the Llanberis area. Direct effects at Glyn Rhonwy are associated with excavation of the quarry at Q6, construction of a dam on the north eastern side of Q6, and tunnelling of the penstock. Although the Development introduces new topographic features, it has been designed to respond to the topography of the site, to minimise the amount of excavation, and to reflect the existing gradients, appearance and form of the post industrial landscape setting. The Development will be in keeping with the slate quarries in which it is located and will not affect the Llyn Peris SSSI, a nationally important site for glacial geomorphology.
Geological Landscape – Betws Garmon (GWNDDGL090)	Evaluation - Outstanding	The excavation of the reservoir at Q1, the tunnelling of the penstock and the addition of further spoil mounds west of Q1 will have a direct effect on a small part of this aspect area. Although the Development introduces new topographic features, it has been designed to respond to the topography of the site, to minimise excavation, and to reflect the existing gradients, appearance and form of the post industrial landscape setting. The development will not affect the Moel Tryfan SSSI, a nationally important site for Cambrian stratigraphy.
Landscape Habitats - GWNDDLH633	Evaluation - Moderate	The Development will result in the loss of some vegetation, most notably deciduous woodland in the vicinity of Q6 and the spillway to Llyn Padarn. The proposals will also result in the loss of some grassland. Once the Development is operational it is anticipated that vegetation will re-colonise the spoil heaps, and replacement tree planting will replace those removed in key areas.
Landscape Habitats - GWNDDLH632	Evaluation - Low	A relatively small proportion of this coniferous forestry plantation will be removed to accommodate the dam footprint at Q1. Effects on landscape habitats will be limited as the forestry plantation is of limited ecological value and is not a key feature in terms of landscape habitat in the local or wider landscape.

Table 6-13 Landscape Effects on the Site & its Setting		
Landscape Receptor	LANDMAP Evaluation	Description of Effect
Visual & Sensory - Derelict quarries (GWNDDVS024)	Evaluation - High	Effects will be limited to the Glyn Rhonwy site, one of the six derelict quarries which comprise this aspect area. The visual and sensory landscape will be directly affected by the introduction of above ground elements of the Development including dams and reservoirs at Q1 and Q6, and the turbine house. Effects on the visual and sensory aspects of landscape character will be limited, due to the existing character of the site, the nature of the development and the mitigation measures proposed, which will ensure that the development will be in keeping with the post industrial landscape within which it is set.
Visual & Sensory – Cefn Du (GWNDDVS012)	Evaluation - High	One of the three areas of rough grass / upland grazing which comprise this aspect area will be directly affected, by the introduction of the dam and reservoir at Q1 and associated extension of existing spoil mounds to the west of Q1. The dam will also require the removal of an area of forestry plantation within this area. The site is visually enclosed and the development will affect only a small part of this aspect area. In addition, the magnitude of change will be limited due to the existing character of the site, the nature of the development and the mitigation measures proposed, which will ensure that the development will be in keeping with the post industrial landscape within which it is set. As a result, the development will have a limited effect on the visual and sensory landscape, particularly in views from the wider landscape.
Visual & Sensory – Llanberis (GWNDDVS026)	Evaluation - Moderate	A small part of this aspect area will be affected through the introduction of the pumping house, intake / outlet and access track, and the associated loss of deciduous woodland. These components of the development are visually enclosed by the surrounding woodland and the wider area will be unaffected. Once the Development is operational it is anticipated that replacement tree planting will replace trees removed in key areas.
Historic Landscape - Glynrhonwy Quarry	Evaluation - Outstanding	The Development will result in the loss of a number of archaeological features associated with the former quarry landscape through conversion of Q1 and Q6 to reservoirs, and the introduction of above ground elements including two dams, a small pumping station, a turbine house and an extension to existing spoil mounds. The design of the Development has been undertaken to

Table 6-13 Landscape Effects on the Site & its Setting		
Landscape Receptor	LANDMAP Evaluation	Description of Effect
(GWNDDHL251)		respond to the historic landscape context as far as possible through use of appropriate materials, form and gradients, which reflect the existing character of the site. Although some of the new elements will be large scale, the Development will only directly affect two of the existing quarries at the Glyn Rhonwy site which limits the effects on the historic character of the site as a whole. In addition, the proposed turbine house will be located on one of the recently constructed development platforms, which is an area with little appreciable historic constraint. However, the effects on the two quarries, in particular Q1, will have a noticeable effect on the historic character of the disused quarry landscape, due to the nature and scale of the change.
Cultural Landscape - Slate quarries (GWNDDCL025)	Evaluation - Outstanding	The introduction of a dam and reservoir at Q1 and extension of existing spoil mounds will have a direct effect on the character of the disused quarry landscape. The design of the Development has been undertaken to respond to the historic landscape context as far as possible through use of appropriate materials, form and gradients, which reflect the existing character of the site. The extent of the effect will be highly localised to the immediate setting of Q1. Furthermore, the site at Glyn Rhonwy forms part of a wider cultural landscape encompassing a number of other former slate quarries, and as such, the effect on the wider aspect area will be limited.
Cultural Landscape - Llanberis (GWNDDCL057)	Evaluation - Outstanding	<p>A small part of this LANDMAP Aspect will be directly affected by the Development, through the introduction of the dam and reservoir at Q6. The design of the Development has been undertaken to respond to the historic landscape context as far as possible through use of appropriate materials, form and gradients, which reflect the existing character of the site. There will be very limited effect on the adjacent settlement at Llanberis due to a lack of intervisibility between the settlement and the site and effects will be highly localised to Q6 and its immediate setting as a result.</p> <p>The site forms part a small part of a wider aspect area encompassing the settlement at Llanberis and industrial facility and heritage centre at Dinorwig Electric Mountain. As such, the development would only affect a very small proportion of the aspect area.</p>

Table 6-13 Landscape Effects on LCAs and Landscape Designations						
Landscape Receptor	Sensitivity	Predicted Inter-visibility and Description of Effect	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
Landscape Character Areas						
Gwynedd Council LCA 2 – Penisa’rwaun Plateau	High	There is theoretical visibility of the lower dam and turbine house only, in the vicinity of Penisa’rwaun / Llanrug, however inter-visibility between the site and this LCA along the Dinorwig valley is limited due to intervening vegetation and micro-topography, including the stepped quarry profile to the north of the site. The majority of the LCA has no inter-visibility with the development. Where there would be inter-visibility, the development will have an almost imperceptible change on the LCA due to the limited nature of views.	Very Low	Neutral	Very Low	Neutral
Gwynedd Council LCA 3 – Llanberis – Bethesda	High	The site will have a direct effect on this LCA, by introducing new elements into the landscape, most notably the upper and lower dams and associated water bodies. There is theoretical visibility of the upper dam only, to the north of Moel Eilio. There is theoretical visibility of the lower dam and turbine house only, in the vicinity of Llanberis and Dinorwig. The site is inter-visible with the northern side of the Dinorwig Valley, however inter-visibility	Low	Minor adverse	Low	Minor adverse

Table 6-13 Landscape Effects on the Site & its Setting						
Landscape Receptor	LANDMAP Evaluation	Description of Effect				
		between Llanberis and the site is limited by intervening woodland. Incorporating mitigation measures, the nature and scale of the development will appear in keeping with the existing quarrying landscape and effects on the character of the wider landscape setting will be limited to those at a site level, within a localised area.				
Gwynedd Council LCA 4 - Caernarfon - Coast and Plateau	High	There is theoretical visibility of the upper dam only, between the western boundary of the study area in the region of Llanwnda and Dinas, and the eastern edge of the LCA in the vicinity of the A4085. Effects on landscape character are therefore limited and the majority of the LCA will experience no effects.	Very Low	Neutral	Very Low	Neutral
Snowdonia National Park LCA3 - Snowdon Massif	High	There is theoretical visibility of the upper dam in the vicinity of Moel Eilio, and the upper and lower dams and turbine house from the north face of Snowdon in the vicinity of the Snowdon Mountain Railway, the A4086 and Glyder Fawr. The majority of the LCA has no inter-visibility with the development and effects on landscape character will be limited as a result	Very Low	Neutral	Very Low	Neutral

Table 6-13 Landscape Effects on the Site & its Setting						
Landscape Receptor	LANDMAP Evaluation	Description of Effect				
Snowdonia National Park LCA4 - Moel Hebog Uplands	High	There is theoretical visibility of the upper dam only, in the vicinity of Mynydd Mawr (698m AOD). The majority of the LCA has no inter-visibility with the site, due to screening from by intervening topography. As such, the development would not change the character of the wider landscape setting.	Very Low	Neutral	Very Low	Neutral
Landscape Designations						
Snowdonia National Park	High	There is theoretical visibility of the upper dam only in the vicinity of Moel Eilio and Mynydd Mawr. There is theoretical visibility of the upper and lower dams and turbine house in the vicinity of the Snowdon Mountain Railway the A4086 and Glyder Fawr. The majority of the National Park has no inter-visibility with the site, due to screening by intervening topography and the development will not change the character of the landscape within the National Park.	Very Low	Neutral	Very Low	Neutral
Landscape Conservation Areas	High-Medium	There will be a direct effect on the Rhosgadfan - Llanberis – Mynydd Llandyngai Landscape Conservation Area which the site falls within. There is theoretical visibility of the upper dam to the east of Rhosgadfan and in the immediate vicinity of the site. There is	Low	Minor adverse	Low	Minor adverse

Table 6-13 Landscape Effects on the Site & its Setting						
Landscape Receptor	LANDMAP Evaluation	Description of Effect				
		theoretical visibility of the upper and lower dams and turbine house from the north eastern side of the Dinorwig Valley. Effects will be limited to the site and its immediate surroundings.				

Visual Amenity

Construction

6.10.16 The assessment of visual effects associated with the construction phase of works reflects the various activities required to construct the development as well as the temporary works required to enable and support the construction process including compound and lay-down areas.

6.10.17 A total of twelve representative viewpoints have been selected. Table 6-15 provides an assessment of the overall effect that the development would have on the representative viewpoints during the construction period, taking into account the mitigation measures outlined in section 6.13. Please note that these effects have not changed since the 2012 assessment.

Table 6-15 Visual Effects During Construction					
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (during construction)	Effect (during construction)
1. Yr Wyddfa/ Snowdon	Recreational	High	Due to the elevated nature of the view, construction activity associated with the majority of the development will be visible, running between the lower slopes of Cefn Du in the vicinity of Q1 construction and construction of Q6 adjacent to Llyn Padarn and Llanberis at the foot of the slope. The construction activity will be discernible, but at a distance of approximately 6km is not considered to change the underlying character or focus of the foreground views across Snowdonia NP.	Low	Minor adverse
2. Moel Eilio	Recreational	High	Due to the elevated nature of the viewpoint and close proximity to the site, construction activity at the upper and lower ends of the site will be clearly visible, including construction associated with Q1, the spoil mounds, Q6 and the turbine house. The dam construction will require the removal of an area of conifer plantation in the middle distance of the view. The construction activity will be clearly noticeable, at a minimum distance of approximately 2km, but will occupy only a small proportion of panoramic views across the Dinorwig Valley.	Medium	Moderate adverse
3. Glyder Fawr	Recreational	High	Due to the elevated nature of the viewpoint, construction activity at the upper and lower ends of the site will be visible at a distance, including construction associated with Q1, Q6 and the turbine house. Construction activity will be perceptible, but will affect only a small proportion	Low	Minor adverse

Table 6-15 Visual Effects During Construction					
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (during construction)	Effect (during construction)
			of wider panoramic views across the Dinorwig valley.		
4. Llanberis Lake Railway, Llyn Padarn	Recreational	High-Medium	From the viewpoint at the Cei Llydan Station there will be views of construction activity across Llyn Padarn, in particular associated with the construction works at Q6 from a distance of approximately 0.5km. Construction of the temporary access road and turbine house will also be visible from this location, although intervening woodland will provide some screening. The construction works will cause a notable deterioration in views across Llyn Padarn by introducing uncharacteristic elements into a view where man made elements are few.	Medium	Moderate adverse
5. Llanberis / A4086	Residential	High-Medium	Receptors at this viewpoint will have glimpsed views of construction activity in the background of views, beyond intervening built form and vegetation in Llanberis, at a distance of approximately 1.5km. Construction works associated with Q1 will be screened by intervening landform, however the works at the lower end of the site may be partially visible, particularly in winter when intervening vegetation is not in leaf. There will be little change to the character and or focus of the existing view.	Low	Minor adverse
	Recreational	Medium			
	Road users	Medium			
6. Pen-y-llyn	Residential	High	The site itself is not visible from this viewpoint, however residential receptors may have glimpsed views of construction activity associated with the lower dam and turbine house, at a distance of approximately 1.5km.	Very Low	Neutral
	Road users	Medium-Low			Neutral

Table 6-15 Visual Effects During Construction					
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (during construction)	Effect (during construction)
			Road users will view any construction works obliquely. The construction activity may be discernible, but will not change the underlying character or focus of the view which is across Llyn Padarn towards the peaks of Snowdonia NP in the distance.		
7. Cefn Du	Recreational	High-Medium	The PRoW on the lower slopes of Cefn Du will be diverted during construction. However, receptors (walkers) using open access land on Cefn Du will have close views of construction activity, particularly that associated with the dam and reservoir at Q1. The construction activity will affect a high proportion of the view, and be seen in close proximity over a wide panorama comprising the Dinorwig Valley and of Snowdonia NP. Due to the elevation of the viewpoint above the development, views of Snowdonia and Dinorwig will be retained, seen beyond the reservoir at Q1, similar to the existing situation.	High	Major-Moderate adverse
8. Dinorwig	Residential	High	Construction activity on the lower part of the site, particularly that associated with Q6, will be visible at a distance of approximately 1.2km. The construction access road and construction compounds at the lower end of the site will also be visible. Construction activity will cause a noticeable deterioration in the view, but will affect only a small proportion of wider views across the	Medium-Low	Moderate adverse
	Recreational	Medium			Moderate-Minor adverse

Table 6-15 Visual Effects During Construction					
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (during construction)	Effect (during construction)
			Dinorwig Valley.		
9. Dolbadarn Castle	Recreational	High	Visitors to Dolbadarn Castle will have background views of construction activity, particularly that associated with Q6 and the turbine house. Intervening landform will screen construction activity at Q1. The mature vegetation in the foreground of the view will partially screen construction activity, particularly in winter. The underlying character of the view will not be changed. The development will form a very small part of a much wider view.	Low	Minor adverse
10. PRow, west of Llanberis	Recreational	Medium	Walkers on the PRow will have glimpsed views of the construction activity and compound adjacent to Q6, although the majority will be screened by intervening landform and vegetation. The construction activity will not change the character of the view or alter the principal focus of the view which is across the Dinorwig Valley to the east and Snowdonia NP to the south.	Low	Minor adverse - Neutral
11. Elidir Fach	Recreational	High	Walkers in the vicinity of Elidir Fach will have distant views of the construction activity on the lower parts of the site, in particular the construction associated with Q6. The construction activity at Q1 will not be visible due to the topography of the site. The construction access road and construction compounds at the lower end of the site will also be visible. Construction activity will be	Low	Minor adverse

Table 6-15 Visual Effects During Construction					
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (during construction)	Effect (during construction)
			noticeable, but will affect only a small proportion of wider panoramic views across the Dinorwig valley to the west and Snowdonia NP to the south. The change will be barely perceptible.		
12. Hebron Station	Recreational	High	Walkers on the PRow adjacent to Hebron Station will have views of the construction activity, particularly that associated with Q6 at the lower end of the site. Intervening landform will screen views of construction activity at Q1. The construction activity will be discernible, but is not considered to change the underlying character or focus of the view which is the wider landscape of Snowdonia NP.	Low	Minor adverse

Permanent

- 6.10.18 Permanent effects on visual amenity are those resulting from the development that would remain in the long term (summer 15 years after opening), to reflect the integration of the development over time. Due to the nature of the Development, the majority of landscape and visual mitigation measures are an integral part of the design and as such will help to integrate the development from day one. In addition to proposed mitigation measures, the viewpoint assessment also demonstrates the differential in the mitigating effects of existing vegetation in winter and summer, when vegetation is in leaf.
- 6.10.19 The following table provides an assessment of the overall effect that the development would have on the representative viewpoints in the winter year of opening and summer 15 years after opening, taking into account mitigation measures outlined in section 6.9. The effects at winter 15 years after opening have not been presented separately as they are not considered to appreciably differ from the year of opening or the summer 15 years after opening assessment due to the primary nature of the mitigation which has been inherent in the detailed design of the Development.
- 6.10.20 Reference should also be made to the photomontages in Volume 4 Figures 6.4a-l which illustrate the Development from the representative viewpoints.
- 6.10.21 Of the 12 viewpoints assessed in Table 6-16, only recreational receptors at Viewpoint 7 – Cefn Du will experience a significant adverse effect, due to the close proximity to the development to receptors of a relatively high sensitivity.
- 6.10.22 Please note that these effects in Table 6-16 have not changed since the 2012 assessment.

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
1. Yr Wyddfa/ Snowdon	Recreational	High	Some elements of the development will be visible in the middle distance of wider, elevated views across Snowdonia NP and along the Dinorwig Valley. These elements include the dam and reservoir at Q6 and the turbine house. Intervening landform will screen the dam and reservoir at Q1. Whilst components of the development will be perceptible, at a distance of 6km there will be no discernible change to the composition and character of the view, the focus of which is on the surrounding National Park.	Very Low	Neutral	Very Low	Neutral
2. Moel Eilio	Recreational	High	Due to the elevated nature of the viewpoint and close proximity to the site, the dam and reservoirs at Q1 and Q6, the turbine house and the spoil mounds will be noticeable new elements in the landscape. The development will occupy only a small proportion of panoramic views across the Dinorwig Valley and mitigation measures will ensure the development	Low	Minor adverse	Low	Minor adverse

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
			is in keeping with the character of the existing Glyn Rhonwy site.				
3. Glyder Fawr	Recreational	High	Due to the elevated nature of the viewpoint, the dams and reservoirs at Q1 and Q6 and the turbine house will be visible. Whilst components of the development will be perceptible, at a distance of 7.5km there will be no discernible change to the composition and character of the view, the focus of which is on the surrounding National Park.	Very Low	Neutral	Very Low	Neutral
4. Llanberis Lake Railway, Llyn Padarn	Recreational	High-Medium	Some elements of the development will be visible in views across Llyn Padarn, most notably the dam and reservoir at Q6 and the turbine house, partially screened by intervening woodland. The dam and reservoir at Q1 will be screened by the topography of the site. The development will occupy only a small proportion of wider views across the Dinorwig Valley and mitigation measures will ensure the elements of the development is in keeping with the	Low	Minor adverse	Low	Minor adverse

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
			character of the existing Glyn Rhonwy site, thereby reducing the magnitude of change in the view.				
5. Llanberis / A4086	Residential	High-Medium	The majority of the development will be screened by intervening topography and vegetation within Llanberis. There may be glimpsed views of the dam and reservoir at Q6 and the turbine house in winter, when this predominantly deciduous vegetation is not in leaf. There will be no discernible change to the composition and character of the view.	Very Low	Neutral	Very Low	Neutral
	Recreational	Medium					
	Road users	Medium					
6. Pen-y-llyn	Residential	High	The development will not be visible from this location therefore there will be no change to the composition and character of the view.	No change	No effect	No change	No effect
	Road users	Medium-Low					
7. Cefn Du	Recreational	High-Medium	The most notable change to the view will be the introduction of the dam and reservoir at Q1 in the foreground of the view. Q6 and the turbine house will be screened from this viewpoint by intervening topography. The	Medium	Moderate adverse	Medium	Moderate adverse

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
			development will occupy a wide proportion of views towards Snowdonia NP, however valued elements of the view are preserved and mitigation measures inherent in the design of the dam and reservoir at Q1 will ensure the development is in keeping with the quarry landscape.				
8. Dinorwig	Residential	High	Some elements of the development will be visible across the Dinorwig valley, most notably the dam and reservoir at Q6 and the turbine house. The dam and reservoir at Q1 will be screened by the topography of the site. The development will occupy only a small proportion of wider views across the Dinorwig Valley and mitigation measures will ensure the elements of the development are in keeping with the character of the existing Glyn Rhonwy site.	Low	Minor adverse	Low	Minor adverse
	Recreational	Medium					
9. Dolbadarn	Recreational	High	The majority of the development will be screened from this location. The dam and reservoir at Q1 will be screened by	Very Low	Neutral	Very Low	Neutral

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
Castle			intervening landform. The dam and reservoir at Q6 and the turbine house will be screened by the mature woodland which lies between Llanberis and the site. In winter, when vegetation is not in leaf, there may be glimpsed views of the lower dam and/or turbine house, however the underlying character of the view will not be changed.				
10. PRow, west of Llanberis	Recreational	Medium	The majority of the development will be screened from this location. The dam and reservoirs at Q1 and Q6 will be screened by intervening landform and vegetation, including the woodland surrounding the Glyn Rhonwy site and mature trees in closer proximity to the viewpoint. The turbine house will be visible, partially screened by the surrounding woodland. The development will not change the character of the view or alter the principal focus of the view which is across the Dinorwig Valley to the east	Very Low	Neutral	Very Low	Neutral

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
			and Snowdonia NP to the south.				
11. Elidir Fach	Recreational	High	Some elements of the development will be visible across the Dinorwig valley, most notably the dam and reservoir at Q6 and the turbine house. The dam and reservoir at Q1 will be screened by the topography of the site. However, the development will be seen as a long distance, and will occupy only a small proportion of wider views across the Dinorwig Valley and mitigation measures will ensure the elements of the development is in keeping with the character of the existing Glyn Rhonwy site. As a result, the change in the view will be barely perceptible.	Very Low	Neutral	Very Low	Neutral
12. Hebron Station	Recreational	High	Some elements of the development will be visible in the middle distance of wider views along the Dinorwig Valley. The dam and reservoir at Q6 and the turbine house will be visible, partially	Very Low	Neutral	Very Low	Neutral

Table 6-16 Visual Effects During Operation							
Viewpoint	Type of Receptor	Sensitivity	Predicted Visibility	Magnitude (winter year of opening)	Effect (winter year of opening)	Magnitude (summer year 15)	Effect (summer year 15)
			screened by the mature woodland which surrounds the site. Intervening landform will screen the dam and reservoir at Q1. There will be no discernible change to the composition and character of the view, the focus of which is on the surrounding National Park.				

6.11 Evaluation of Significance

- 6.11.1 Effects of Moderate and above are considered to be significant, as this is the level at which features would be clearly perceived.
- 6.11.2 Of the landscape resource assessed, there will be no significant effects on either the LANDMAP characteristics of the site or LCAs and Landscape Designations in the wider study area as a result of the construction works or operation of the Development.
- 6.11.3 During construction, visual receptors at four of the twelve viewpoints will experience a significant adverse effect, due primarily to the high sensitivities of the receptors at these locations and the relatively close proximity to the construction works. Construction effects are temporary in nature.
- 6.11.4 Of the twelve viewpoints, only one (Viewpoint 7 – Cefn Du) will experience a significant permanent adverse effect for recreational receptors in year 1 and year 15, due primarily to the close proximity of the viewpoint to the development. The mitigation measures proposed in section 6.9 will help to minimise potential effects on visual amenity.
- 6.11.5 Table 6.17 below provides a summary of residual effects on the landscape and visual resource. Summary comments on mitigation have not been included as the mitigation is primary in nature and inherent in the detailed design of the Development and not additional.

Table 6.17 Summary of Residual Landscape and Visual Effects

Receptor	Sensitivity of Receptor	Magnitude of Effect	Effect (Summer year 15)
Landscape Character Areas			
Gwynedd Council LCA 2 – Penisa'rwaun Plateau	High	Very Low	Neutral
Gwynedd Council LCA 3 – Llanberis – Bethesda	High	Low	Minor adverse
Gwynedd Council LCA 4 - Caernarfon - Coast and Plateau	High	Negligible	Neutral
Snowdonia National Park LCA3 - Snowdon Massif	High	Very Low	Neutral (not significant)
Snowdonia National Park LCA4 - Moel Hebog Uplands	High	Very Low	Neutral (not significant)
Landscape Designations			
Snowdonia National Park	High	Very Low	Neutral
Landscape Conservation Areas	High-medium	Low	Minor adverse
Visual Effects			
1. Yr Wyddfa/ Snowdon	High	Very Low	Neutral (not significant)
2. Moel Eilio	High	Low	Minor adverse (not significant)
3. Glyder Fawr	High	Very Low	Neutral (not significant)
4. Llanberis Lake Railway, Llyn Padarn	High-Medium	Low	Minor adverse (not significant)

Table 6.17 Summary of Residual Landscape and Visual Effects			
Receptor	Sensitivity of Receptor	Magnitude of Effect	Effect (Summer year 15)
5. Llanberis / A4086	Medium- to High-Medium	Very Low	Neutral (not significant)
6. Pen-y-llyn	Medium-Low to High	No change	No effect
7. Cefn Du	High-Medium	Medium	Moderate adverse (significant)
8. Dinorwig	Medium to High	Low	Minor adverse (not significant)
9. Dolbadarn Castle	High	Very Low	Neutral (not significant)
10. PRoW, west of Llanberis	Medium	Very Low	Neutral (not significant)
11. Elidir Fach	High	Very Low	Neutral (not significant)
12. Hebron Station	High	Very Low	Neutral (not significant)

6.12 Summary and Conclusions

6.12.1 There will be no permanent significant effects on the LANDMAP Aspects, LCAs or landscape designations within the study area. This is primarily due to the limited visibility of the components of the development in the wider study area and the level and nature of mitigation proposed as an inherent part of the Development, helping the development integrate with the Glyn Rhonwy area.

6.12.2 There will be a permanent significant adverse residual effect on receptors at Viewpoint 7 due to the close proximity of the viewpoint to the dam and reservoir at Q1. No significant residual visual effects have been identified for the remaining viewpoints. This is due in part to the limited visibility of the components of the Development in the wider study area, with much screening provided by the topography of the study area and wooded nature

of the area immediately surrounding the site. There are also few places where both the upper and lower dams and reservoirs can be seen in combination. The mitigation measures proposed as an inherent part of the Development, notably the use of existing slate, will successfully integrate the development into the landscape context, further reducing its potential visual prominence.

6.13 References

Guidelines for Landscape and Visual Impact Assessment 3rd edition (GLVIA3), Institute of Environmental Management and Assessment, (2013).

An Approach to Landscape Character Assessment (2014) by Natural England;

The Landscape Institute (2011) Photography and photomontage in landscape and visual impact assessment.

Advice note 01/11 People, Places, Futures - The Wales Spatial Plan 2008 Update

Gwynedd Unitary Development Plan 2001-2016

Eryri Local Development Plan 2007 - 2022

Isle of Anglesey Local Plan (Adopted December 1996)

Anglesey Landscape Strategy Update 2011 (The Isle of Anglesey County Council)

Gwynedd Council Supplementary Planning Guidance: Landscape Character (November 2009)

Snowdonia National Park Authority Supplementary Planning Guidance: Landscapes of Eryri (September 2011)