Hanson UK

Penderyn Quarry

Landscape & Visual Impact Assessment

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1.0 Introduction

1.1.1 WYG is instructed by Hanson UK to prepare this Landscape and Visual Impact Assessment (LVIA) which relates to a planning application to work the easternmost section of the southern boundary of the Penderyn Quarry freehold land ownership area. The Quarry is currently subject to four planning permissions for quarrying, as illustrated on **Figure TYG 1b**. Permission reference CV14033 (September 1995) is the predominant permission, with a schedule of conditions which covers the quarrying activities across the full site. However, permission 1/8523 dated 29/6/1972 includes Condition 8 which states that:

"No quarrying operations of any kind shall be carried out by virtue of this permission in the area hatched red on the attached plan".

1.1.2 The area referred to is hatched in red on **Figure TYG 1b**. The stated reason for the condition is to "*preserve the amenities of this part of the National park both during and after quarrying operations and to minimise the eventual loss of pasture*."

1.1.3 It is presumed that the reference to "amenities" in the reason for Condition 8 relates to a perception of landscape effects associated with the removal of part of the Twyn-y-Glog ridge line. However, planning permission reference 1/2427, which adjoins permission 1/8523 on its western side, permits the removal of the central and western sections of the ridge; this area is hatched in green on **Figure TYG 1a**.

1.1.4 The proposed area of quarrying includes the removal of the eastern section of the ridge located within the area hatched in red on **TYG 1b** and as illustrated on Figure **TYG 10**. It is also proposed that permission to quarry along the western and central section of the Twyn-y-Glog ridgeline, the southern edge of permission ref 1/2427, will be relinquished within a Section 106 planning agreement; this area is hatched in green on **TYG 1a**.

1.1.5 Throughout the assessment, reference is made to **'Scenario B'** which comprises the proposed south eastern extension to the quarry and the retention of the central and western areas of the Twyn y Glog ridgeline, and **'Scenario A'** which comprises the currently permitted quarry development scheme which would result in the removal of the central and western areas of the Twyn y Glog ridgeline. It should be noted that whilst the proposed new quarrying within Scenario B represents a small lateral expansion of the currently existing quarry footprint, if permission is granted and the central and western areas of the Twyn-y-glog Ridge are retained then there will be an overall reduction in the permitted extraction area at the site of 0.58 Ha.

1.1.6 This Landscape and Visual Impact Assessment (LVIA) considers the landscape and visual effects of 'Scenario B', which comprises quarrying within the 'red hatched area' and also the effects of not quarrying the 'green hatched area', with the overall

conclusion based on the balance between these associated effects. Landscape and visual mitigation measures have where possible been incorporated into the design of the working scheme.

1.2 Scope of the assessment

1.2.1 This landscape and visual assessment (LVIA) considers the effects of quarrying operations for 'Scenario A' and 'Scenario B', as well as the future restoration of Penderyn Quarry, on the landscape of the site and its context. In this LVIA, effects on features identified as important to the scenic quality, or effects on the landscape character of the site and its setting are assessed. Effects on people's views of the site and its setting, or visual amenity, are also assessed.

1.2.2 The objectives of the assessment are to:

- Describe and evaluate the landscape of the site and surrounding landscape context and the visual amenity of people in the surrounding area, which might be affected by the proposed development;
- Examine the development proposals and analyse the potential effects on the landscape and visual amenity associated with the quarry operation and restoration, and whether they are likely to be significant;
- Set out mitigation measures which could be implemented in order to avoid, reduce or offset adverse effects, especially those identified as significant, and, where possible, incorporate these in the quarry design;
- Describe any enhancements of the landscape or visual amenity incorporated in the development proposals, and
- Provide an assessment of the significance of the landscape and visual effects of quarrying 'Scenario A' with integral mitigation measures in place and the effects of not quarrying the 'green hatched area.

1.2.3 This LVIA forms part of an Environmental Impact Assessment (EIA) that is being submitted to the BNPA.

Study area

1.2.4 The study area for the different aspects of the LVIA varies for direct and indirect landscape effects and visual effects. The study area for the various elements of the assessment did not exceed the area shown on **Figure L2**, landscape appraisal, and **Figure L8** designations.

1.2.5 Penderyn Quarry will continue to change the character of the landscape during quarrying activities. Changes of this nature will directly affect the site within the planning application boundary and may impact indirectly upon adjacent areas due to changes in landscape setting. The study area for the assessment of direct landscape impacts thus includes the site which would be directly affected, the western and central

section of Twyn-y-Glog ridgeline to be excluded from the quarry works, and the wider landscape/townscape setting and context, which may be indirectly affected.

Spatial scope

1.2.6 The study area for the assessment of visual amenity includes those areas from which Penderyn Quarry would potentially be a perceptible element in the view. For the purpose of this assessment the outer limit was defined by a radius of 5km from the site boundary. Beyond this distance the site is obscured by intervening landform, vegetation, or is not a perceptible feature in the view.

Temporal scope

1.2.7 The landscape and visual impacts of Penderyn Quarry would vary through time. The assessment therefore considers the effects on the landscape and views during quarrying and restoration of the site. The assessment of visual impact considers effects during quarrying, restoration and 10-15 years after restoration is complete.

1.2.8 The LVIA is presented with separate sections dealing with effects on landscape, effects on visual amenity, and cumulative effects. The LVIA is illustrated by plans and photographs as follows and reproduced in **Appendix 3**:

Figure L1	Site Location
Figure L2	Landscape Appraisal
Figure L3-1	Visual Appraisal
Figure L3-2	Zone of Theoretical Visibility
Figure L4	Assessment Photographs
Figure L5	Viewpoint Photographs
Figure L6	Site Context
Figure L7	Landscape Designations
Figure L8	Other Designations
Figure L9	LANDMAP
Figure L10	Restoration Strategy
Figure L11	Photomontages

1.2.9 Detailed information is presented in Appendices as follows:

Appendix 1	General Assessment Methodology
Appendix 2	Landscape Policies
Appendix 3	Figures

1.3 Assessment methodology

1.3.1 The methodology used for assessing the landscape and visual effects is based on the recommendations in Guidelines for Landscape and Visual Impact Assessment 3rd Edition, published by The Landscape Institute and the Institute of Environmental Management & Assessment in 2013 (GLVIA3). A summary of the general methodology used is set out in **Appendix 1**.

1.3.2 The assessment process comprises a combination of desk studies and field surveys, with subsequent analyses, and involved:

- A review of landscape designations and planning policies for the landscape, and of other landscape studies relevant to the area, including LANDMAP;
- A survey of the site and landscape context study areas and inspection of views of the site from publicly accessible viewpoints, including a photographic survey. The viewpoint surveys were carried out on 15th May 2018;
- Evaluation of the features and elements of the landscape and their contribution to the landscape character, context and setting, based on these studies with a particular focus on the Twyn-y-Glog ridgeline;
- Analysis of the development proposals and consideration of potential landscape and visual effects of the proposed development;
- Assessment of the susceptibility and sensitivity of the landscape to the changes likely to arise from the development;
- Identification of the extent of theoretic visibility of the development and viewers, their susceptibility and sensitivity, and view locations, supported by a viewpoint analysis;
- Consideration of the proposals and the mitigation measures to avoid, reduce or offset adverse effects;
- Assessment of magnitude of change arising from the proposal, the degree and nature of effects on the landscape and on visual amenity and their significance, with the mitigation proposals in place.

Assessment and mitigation

1.3.3 The effects of the development, whether beneficial or adverse, may vary in nature and degree through its lifecycle and, where feasible, mitigation measures are proposed to be incorporated in the design of the development. Where design measures cannot address identified likely adverse effects, measures such as management of the operational processes may be proposed. The purpose of mitigation measures is first, to prevent or avoid the potentially adverse effects identified, and if that is not possible, to reduce the potential adverse effect. Where adverse effects are unavoidable, the purpose is to offset or compensate for the effect.

1.3.4 Mitigation measures are incorporated into the quarry scheme which aim to first, avoid potential effects, and second, reduce the degree of adverse effects which are

unavoidable. The effects assessed are those that remain after mitigation measures are put in place, defined as 'residual effects'. Details of the criteria for assessing landscape effects and visual effects are set out in those respective sections.

1.4 Weather

1.4.1 The weather is a factor affecting the assessment of, especially, visual impacts. The Met Office[1] publish average statistics for weather patterns for the region, monthly and annual, for maximum and minimum temperatures, days of air frost, hours of sunshine, amount of rainfall - both generally and the number of days when rainfall is above 1mm. For Tredegar, England SW & Wales S, the nearest Climate station to where the site is located:

- Rainfall above 1mm per day, which limits visibility, occurs on an average of 166.5 days in the year, about 45.6% of the year
- There are on average 58.7 days when air frost occurs, which can produce hazy conditions limiting visibility, about 16.1% of the year
- There is an average of 1381.2 hours of sunshine per annum for the station, less than the district regional average of 1519.7 hours.

1.5 Guidance etc.

1.5.1 In addition to GLVIA3, the Landscape Institute's Advice Note 01/11 Photography and Photomontage in Landscape and Visual Impact Assessment was referred to.

1.5.2 Relevant policy, landscape character assessments, and other contextual information sources were also referred to, including:

- LANDMAP
- Policies relevant to the landscape and visual amenity in national and regional policy including Brecon Beacons National Park Local Development Plan, A Management Plan for the Brecon Beacons National Park 2015-2020, and Brecon Beacons National Park Landscape Character Assessment.

Photography

1.5.3 Photographs have a special role in describing landscape character and illustrating key views. In order for photograph to be representative and to create an image that is as similar as possible to that which is seen with the human eye, the Landscape Institute (LI) advises using a lens with a focal length equivalent to 50mm for a 35mm Single

[1] The data quoted are those for Tredegar, England SW & Wales S, obtained from The Met Office website: https://www.metoffice.gov.uk/public/weather/climate/gcjw24krs [May 2018]

Lens Reflex (SLR) camera, and a horizontal field of view of a little under 40 degrees[2]. The camera used for the assessment photography was a Canon EOS 5D Mark iii digital SLR camera with a full frame sensor. Photographs were taken with a focal length of 50mm.

1.5.4 Landscape photography includes wide angle or panoramic views requiring a sequence of photographs to be taken across the view. Where this approach is taken, a series of overlapping photographs are digitally spliced together in Adobe Photoshop CS using a cylindrical projection to provide a panorama approximating to the normal field of view in a landscape context. Where necessary, the contrast and brightness of individual photographs is slightly manipulated in order to create a consistent panorama without visible joins. The viewpoint locations are shown on **Figure L3**.

2.0 Landscape Policies and Designations

2.1 National and local policy

Planning Policy Wales

2.1.1 Planning Policy Wales (PPW) Edition 9, November 2016, sets out the land use planning policies of the Welsh Government. It translates The Welsh Government's commitment to sustainable development into the planning system, to be taken into account when preparing development plans, so that it can play an appropriate role in moving towards sustainability. The key policies that are of relevance to the development include:

2.1.2 Chapter 5 Conserving and Improving Natural Heritage and the Coast:

- "The natural heritage of Wales includes its geology, land forms and biodiversity and its natural beauty and amenity. It embraces the relationships between landform and landscape, habitat and wildlife, and their capacity to sustain economic activity and to provide enjoyment and inspiration. The natural heritage and valued landscapes of Wales are not confined to statutorily designated sites but extend across all of Wales – to urban areas, the countryside and the coast. Attractive and ecologically rich environments are important, both for their own sake and for the health and the social and economic well-being of individuals and communities."

[2] The Landscape Institute, Landscape Institute Advice Note 01/11, Photography and photomontage in Landscape and Visual Assessment, March 2011, on LI website: https://www.landscapeinstitute.org/visualisation/ [Accessed May 2018]

2.1.3 Chapter 14 Minerals:

- "It is likely that society needs, and will continue to need for the foreseeable future, a wide range of minerals. The essential role of mineral planning authorities in relation to mineral working is to ensure that a proper balance is struck between that fundamental requirement, the need to ensure a prudent use of finite resources, and the protection of existing amenity and the environment. The key principles are:
  - to provide for an adequate supply of minerals that society needs now and in the future, together with protecting and improving amenity;
  - to protect things that are highly cherished for their intrinsic qualities, such as wildlife, landscapes and historic features; and to protect human health and safety by ensuring that environmental impacts caused by mineral extraction and transportation are within acceptable limits; and to secure, without compromise, restoration and aftercare to provide for appropriate and beneficial after-use;
  - to help conserve non-renewable resources for future generations through efficient use, recycling and waste prevention; to protect renewable resources from serious harm or pollution; and to promote the use of appropriate alternative materials;
  - to ensure an adequate supply of minerals that are needed at prices that are reasonable; and to safeguard mineral resources for future generations." (ref para 14.1.2)

2.1.4 In relation to minerals extraction in National Parks, PPW confirms that:

Minerals development should not take place in National Parks, Areas of Outstanding Natural Beauty (AONBs), Sites of Special Scientific Interest and National Nature Reserves, save in exceptional circumstances. All mineral applications must therefore be subject to the most rigorous examination and all major mineral developments demonstrated to be in the public interest before being allowed to proceed. Consideration will include an assessment of:

- the need for the development in terms of UK considerations of mineral supply;
- the impact on the local economy of permitting the development or refusing it;
- whether alternative supplies can be made available at reasonable cost, and the scope for meeting the need in some other way;
- the detrimental effect of the proposals on the environment and landscape and the extent to which that can be moderated, and/or the detrimental effect of the proposals on the nature conservation interest of the site in terms of habitat, protected species, bio-diversity; and
- in the case of extensions to existing quarries and other mineral extraction sites, the extent to which the proposal would achieve an enhancement to the local landscape and provide for nature conservation and biodiversity (ref para 14.3.2)

The final bullet point is important in terms of securing the retention of an important topographic feature within the National Park (Scenario B) which would be an 'enhancement' compared to the currently approved scheme (Scenario A).

2.1.5 Mineral Technical Advice Note 1 (MTAN) Wales: Aggregates (2004) contains an overarching objective in planning for aggregates provision "to ensure supply is managed in a sustainable way so that the best balance between environmental, economic and social considerations is struck, while making sure that the environmental and amenity impacts of any necessary extraction are kept to a level that avoids causing demonstrable harm to interests of acknowledged importance"

Local Policy

2.1.6 The site lies within the boundaries of Brecon Beacons National Park. Local planning guidance of relevance to the proposed development of the site is provided by the Brecon Beacons National Park Local Development Plan, adopted in 2013. Relevant policies relating to the proposed development are outlined below. Details of these policies can be found in **Appendix 2** of this report.

Brecon Beacons National Park Local Development Plan (2013)

- **SP1 National Park Policy**
  Development in the National Park will be required to comply with the purposes and statutory duty set out in legislation, and will be permitted where it:
  - a) conserves and enhances the Natural Beauty, wildlife and cultural heritage of the Park; and/or
  - b) provides for, or supports, the understanding and enjoyment of the special qualities of the National Park in a way that does not harm those qualities; and
  - c) fulfils the two purposes above and assists the economic and social well-being of local communities.

- **Policy 1 Appropriate Development in the National Park**
  All proposals for development or change of use of land or buildings in the National Park must comply with the following criteria, where they are relevant to the proposal:
  - i) the scale, form, design, layout, density, intensity of use and use of materials will be appropriate to the surroundings and will maintain or enhance the quality and character of the Park's Natural Beauty, wildlife, cultural heritage and built environment;
  - ii) the proposed development is integrated into the landscape to the satisfaction of the NPA through planting and appropriate management of native species or through the construction of appropriate boundary features;
  - iii) the proposed development does not have an unacceptable impact on the economic, social, cultural and linguistic vitality and identity of any community, either in its own right or through cumulative impact.

- iv) the proposed development promotes opportunities for the conservation and enhancement of bio/geodiversity through appropriate design and landscaping.
  As noted in paragraph 2.1.4, national planning policy relating to minerals in National Parks adds an important and relevant criterion relating to enhancements to the local landscape, which could be secured in this case via the 'Scenario B' scheme.

- **SP2 Major Development in the National Park – Strategic Policy**
  We want to rigorously apply the required tests in respect of major development in the National Park, which should only take place in exceptional circumstances where proven to be in the public interest. This will include an assessment of:
  - a) the need for the development, including any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
  - b) the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and
  - c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which these could be moderated.

- **Policy 21 Historic Landscapes:**
  Development which directly or indirectly either alone or in combination affects those areas listed within Part 2 of the 'Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales' will only be permitted if the essential integrity and coherence of the area, as defined in the Register, is preserved or enhanced.

A Management Plan for the Brecon Beacons National Park 2015-2020

2.1.7 This Management Plan develops the previous Plan by reviewing the policy context and updating actions reported under the six themes identified in 'Managing Change Together 2010-2015':

- Theme 1: Managing Park Landscapes to Maximise Conservation and Public Benefits (1st Purpose)
- Theme 2: Conserving and Enhancing Biodiversity (1st Purpose)
- Theme 3: Provide Opportunities for Outdoor Access and Recreation (2nd Purpose)
- Theme 4: Raising Awareness and Understanding of the Park (2nd Purpose)
- Theme 5: Building and Maintaining Sustainable Communities, Towns and Villages (Duty)
- Theme 6: Sustainable Economic Development (Duty)

2.1.8 In 'Appendix 3: Actions, Aims and Objectives' under 'Actions Theme 1: Managing Park Landscapes to Maximise Conservation and Public Benefits', the following relevant objectives set the framework for detailed lists of actions:

- 17: Reduce the damage done to the Park by mineral working whilst fulfilling the National Park Authority's obligation as a Mineral Planning Authority.

- 18: Apply Welsh Government's policies against mineral working in National Parks to the Brecon Beacons National Park's identified sand and gravel deposits.
- 19: Explore more local and sustainable options to supplement or replace the need for mineral resources.

2.2 Designations

2.2.1 Landscape designations provide an indication of landscape value. They are areas that have been recognised for the scenic beauty and recreational potential of the landscape. Designations are shown on **Figures L8-1** and **L8-2**.

National Park

The site is located within a nationally important landscape designation, the Brecon Beacons National Park. The Park was designated in 1957. It contains some of the most spectacular and distinctive upland formations in southern Britain. The Old Red Sandstone underlying much of the National Park has led to its distinctive geomorphology.

The National Park Management Plan lists the following vision statements describing the overarching ambitions for the Park for the next 20 years:

- Recognised internationally and nationally for its value as a protected area, whose character continues to be shaped by the long-standing interactions between people and the processes of nature.
- Widely acclaimed for its natural beauty, geodiversity, biodiversity and cultural heritage while being a sought-after destination, providing an outstanding variety of sustainable opportunities for all to understand, enjoy and benefit from its tranquillity, rural character, Welsh way of life, sense of remoteness and other special qualities.
- Resilient, open and responsive to change - particularly climate change - and its stakeholders proactive in mitigating and adapting to the effects of undesirable change through local action.
- Less dependent upon external supply chains leading to increased food and energy security locally, improved quality of life, community cohesion and conservation of natural capital.
- A living landscape where people can earn a living from the land in an innovative and sustainable manner, for example through farming, but also in new ways such as through renewable energy production, for the benefit of the environment, economy and local communities.
- Managed sustainably (respecting the limits of the planet's natural resources, its environment and its biodiversity whilst having regard for social and economic concerns such that all actions taken to meet our needs today do not compromise the needs of future generations) through active partnerships. This will ensure it continues to be a source of inspiration and enjoyment for future generations.
- Monitored over the long term to improve future policy and management practice

Historic and cultural landscape designations

Listed buildings

2.2.2 Listed buildings are shown on **Figure L8-2**. The landscape setting of listed buildings is a consideration during the preparation of landscape and visual impact assessment. There are 8 listed buildings within 2km of the quarry site, including 2 at Bodwigiad around 300 metres from the southern boundary.

Scheduled Monuments

2.2.3 Scheduled Monuments are shown on **Figure L8-2**. The nearest to the quarry is a 10m diameter ring cairn located on a natural shelf on the south-east facing side of Twyn-y-Glog, about 150m from the application site. There are a further 8 scheduled monuments on Mynydd-y-glog, 6 of which are cairns.

Register of Landscapes of Special Historic Interest in Wales

2.2.4 East Fforest Fawr and Mynydd-y-glog is included within the Register of Landscapes of Special Historic Interest in Wales. It forms a narrow, but distinctive natural block of upland lying on the boundary between the former counties of Brecknock and Glamorgan. There is widespread and diverse, well-preserved archaeological evidence of occupation and land use from the prehistoric period to the recent past. There are several importance groups of ritual monuments and significant evidence of early agriculture and medieval settlements. There are numerous ring cairns throughout the area which are designated as Scheduled Monuments, as shown on **Figure L8-2**.

Ecological designations

Special Areas of Conservation / Sites of Special Scientific Interest

2.2.5 Land within Cwm Cadlan has been designated due to its ecological value and biodiversity, initially as an SSSI and more recently as a Special Area of Conservation (SAC), which covers the same area as the SSSI. These are not landscape designations, but collectively they contribute to the importance of the landscape. The extent of the SAC and SSSI is shown on **Figures L8-1** and **L8-2**.

Ancient woodland

2.2.6 Areas identified as ancient and semi-natural woodland are located some distance away from the site to the south and west. Two areas of Ancient Woodland are located within Cwm Cadlan at Coed Cae Ddu Farm and at Cae'r-Arglwydd.

National Nature Reserve

2.2.7 Cwm Cadlan NNR was notified in 2000 and incorporates the former Cwm Cadlan Grasslands SSSI and Glyn-Perfedd Meadow SSSI, but also other adjoining land, including land which extends up to the northern boundary of the site.

Public access

2.2.8 The principal attractions for informal outdoor recreation in the area include cycling and walking the network of cycle ways and public footpaths. Public rights of way and minor roads which extend from the settlements, provide good links to extensive areas of open access land. The extent of the open access land is shown on **Figure L2**; it includes common land and land managed by the Forestry Commission. These areas have access rights under the Countryside and Rights of Way Act, 2000.

Public rights of way (PRoW)

There is a sparse network of public footpaths within the context of the site. There are no public rights of way within the site boundary. To the east of the site a public footpath passes within 1km near Wernlas. The footpath crosses higher ground at Twyn Du before descending southwards and crossing the Nant Cadlan at Wernlas. The footpath proceeds in a south-easterly direction from this point, rising onto the higher ground of Mynydd-y-glog. Assessment Photograph 05 reproduces the view available from Wernlas.

Public footpaths cross the sloping agricultural pasture land to the west of the site extending westwards from the A4050 and minor roads at Pant Garw, Tor-y-foel and Ysgubor Fawr.

Open Access Land

2.2.9 Land with public access rights (open access land) includes extensive areas of Mynydd-y-glog and Cefn Cadlan to the south, east and north of the site. Areas of land with open access rights are shown on **Figure L2**.

National cycle routes

2.2.10 NCR 478 follows the route of a disused railway line between Hirwaun and Penderyn, joining the A4059 about 270m to the south of the quarry entrance.

2.3 Interim summary

Potential receptors

2.3.1 Landscape receptors include elements of the physical landscape or landscape fabric, for example vegetation, boundaries, land use, other landscape features and landform such as the Twyn-y-Glog ridgeline. These are combinations of features and patterns, which give rise to characteristics or landscape character that may be affected by ongoing quarrying.

2.3.2 Visual impact receptors include the public, residents, visitors / tourists and other groups of viewers, and the general visual amenity of the area. Examples of locations from where receptors may be viewing from are: residential properties, community facilities, places of work, recreational landscapes, public parks, public rights of way and cycle

routes, as well as from within valued landscapes and publicly accessible places, such as settlements, tourist attractions and recreation areas.

2.3.3 In summary, the potential landscape and visual receptors would include:

- landscape elements and features such as trees, hedges, ponds;
- vegetation patterns, landform and vegetation characteristics;
- the Twyn-y-Glog ridgeline;
- qualities such as tranquillity;
- landscape character;
- the character and setting of nearby properties and settlement;
- views from: properties; public rights of way; public open space and land with open access rights;
- landscape subject of designations, for example a National Park, and conservation areas.
- trees covered by tree preservation orders; and
- landscapes, gardens and parks of historic interest.

3.0 The Proposed Development

3.1.1 Details of the proposed development are provided on the planning application drawings and the Planning Statement accompanying the application. This section describes the main aspects of the proposed development which could potentially affect landscape and/or visual amenity. It also identifies features of the proposals which will assist in mitigating adverse landscape and visual impacts. This application relates to working the eastern part of the southern face of the quarry, the east of the ridgeline of Twyn-y-Glog, along which it is accessed.

Sources of potential effects on landscape and views

3.1.2 The main features of the development proposal which could potentially result in landscape and visual impacts are:

- extraction beyond the south eastern boundary of the existing quarry void;
- the effects of not quarrying the 'green hatched area', southern edge of permission ref 1/2427;
- ongoing operation of the quarry plant site including the drystone processing plant and road stone plant;
- site clearance operations involving soil stripping and its storage for re-use during site restoration;
- implementation, in the longer term, of a variety of restoration treatments, designed to create a range of conditions and habitats which would foster the biodiversity and geodiversity potential of the site. This will include the placement

of quarry waste on selected benches, the retention of crags and rock outcrops in appropriate locations and the creation of scree slopes; and

- restoration of the site to a wildlife enhanced feature, which recognises and exploits the biodiversity potential associated with worked-out quarries, and the range of habitats which can be created.

Mitigation measures

3.1.3 The potential for adverse effects on landscape and visual amenity have been recognised and mitigation measures incorporated in the scheme to avoid or reduce adverse effects or to offset or compensate for unavoidable adverse effects.

3.1.4 Mitigation measures incorporated into the scheme design include the decision to retain the western section of the Twyn-y-Glog ridgeline, retaining this features minimises potential impacts on both landscape and visual receptors. The upper quarry benches and faces along the southern side of the quarry would be restored during initial phases of quarrying, where consistent with operational requirements. A variety of treatments would be used to enhance the ecological and landscape value of the site.

4.0 Effects on the Landscape

4.1.1 This section deals with the effects on the landscape and its context of the proposed operation and restoration of the site.

4.2 Assessment criteria

4.2.1 The assessment process is described generally in section 1.3 above. The general methodology for assessing the effects is set out in **Appendix 1**, and the criteria used at each stage of the assessment of landscape effects are set out in the tables below.

4.2.2 In summary, the degree of the likely landscape effects of the proposed development is determined by relating the sensitivity of the receptors to the changes arising from the development proposals, and the degree and nature of the changes in the landscape arising from the proposals.

Sensitivity

4.2.3 As described in **Appendix 1**, the sensitivity of landscape receptors[3] is dependent on their value and susceptibility to, or ability to accommodate, the changes that would be brought about by the proposed development. The sensitivity of landscape receptors is assessed by combining professional judgments of the value attached to the landscape

[3] The term used for elements and aspects of the landscape that might be affected by the proposals and people with views of the development.

or its components, established in the baseline study, and their susceptibility to the type of change arising from the development, as follows:

4.2.4 The following categories of landscape sensitivity to change are used, combining consideration of landscape value and susceptibility, with the criteria applied:

Table 4-1 Indicative criteria for assessing landscape sensitivity

Category	Indicative criteria
High sensitivity	A highly valued landscape e.g. of national or international importance, whose character or key characteristics are susceptible to change; Aspects of the landscape character are highly valued as "key characteristics" and susceptible to change, often identified in National or local character assessments; The landscape character is highly valued as intact and in good condition and particularly vulnerable to disturbance; A highly valued landscape with no or limited potential for substitution or replacement.
Moderate sensitivity	A landscape of local importance or value, whose character or key characteristics are susceptible to change; Other characteristics of the landscape character also valued in National or local character assessments and susceptible to change; The landscape character is valued for moderate condition and not particularly vulnerable to disturbance; A moderately valued landscape with some potential for substitution or replacement.
Lesser sensitivity	No or little evidence of value or importance attached to the landscape area, its features or characteristics; Few features, characteristics or qualities susceptible to disturbance or particularly susceptible to improvement or upgrading Good potential for substitution or replacement

4.2.5 These are the criteria against which receptors are considered in order to arrive at a judgement as to their sensitivity, but it is not necessary for all the criteria set out for a category to apply.

Magnitude of change

4.2.6 The degree of the likely landscape effects of the proposed development is determined by relating the sensitivity of the receptors to the changes arising from the development proposals, and the degree and nature of the changes in the landscape arising from the proposals.

4.2.7 The scale of magnitude of the changes is related to considerations of the size or scale of the change, the geographical extent of the area influenced, and the duration and reversibility of the change. The scale of magnitude of the changes is graded, as follows:

Table 4-2 Indicative criteria for assessing magnitude of landscape change

Magnitude of Change	Landscape Change
Great change	Major size or scale of change, affecting the landscape type or character of the area within which the proposal lies or extending over the wider area; likely to be longer term or permanently, with low prospect of reversibility
Medium change	Intermediate size or scale of change, affecting part of the landscape type or character of the area within which the proposal lies, or larger scale of change at the level of the site or immediate context; likely to continue into the medium term, with good prospect of reversibility
Small change	A minor proportion of the extent of the character type or area is affected or smaller scale of change over a larger extent; the changes occur at the level of the site or immediate context, and likely to be short term and reversible.
Negligible/no change	No apparent change to landscape characteristics

4.2.8 While GLVIA3 includes the duration of the change in the consideration of the magnitude of change, in some cases a major size or scale of change of shorter duration may be considered a "great change".

Assessing effects

4.2.9 The degree of effect, whether adverse or beneficial, is assessed by relating the sensitivity of the receptor and the magnitude of change, by considering the following indicative criteria:

Table 4-3 Indicative criteria for assessing landscape effects

Landscape effect	Indicative criteria
Major	Highly sensitive landscape completely degraded or greatly changed, with little or no scope for mitigation; Great improvement, sufficient to upgrade overall landscape character.
Moderate	Medium change to moderately sensitive landscape; lesser change to higher sensitivity landscape or greater change to less sensitive landscape.

Landscape effect	Indicative criteria
Minor	Localised or limited adverse change to the existing landscape character; greater change to less sensitive landscape; Considerable scope for mitigation; Localised improvement to the existing landscape.
Negligible	Little or no perceived change to the existing landscape character; The change is difficult to discern.

4.2.10 Intermediate conditions may be described, such as Moderate-Major, where the criteria for Moderate may be exceeded but not qualify as Major. Where the magnitude of change is "none", the effect would correspondingly be None.

4.2.11 Major effects are likely to be considered "significant", especially if or adverse and long term or not reversible, and Minor or Negligible effects as "not significant". The relative significance of intermediate effects is indicated in the assessment below, as are effects that are not significant. The significance of intermediate effects is determined on a case by case basis and, even if the effects are not considered significant, they may be important considerations in decision making about the proposed development.

4.2.12 Effects may be adverse or beneficial. In some instances, the effect may be offset by other considerations, for example, through the mitigation proposals, and the resulting effect is neither beneficial nor adverse.

4.3 Landscape baseline

4.3.1 The landscape baseline is a description and analysis of the existing landscape, against which the effects of the proposed development are assessed, first, by reference to landscape character assessments for the area in which the site is located, at national and local levels and, then, from site-specific surveys and analysis carried out for the purposes of this assessment.

LANDMAP

4.3.2 Landscape Assessment, following the LANDMAP methodology, has been undertaken for Rhondda Cynon Taf and the Brecon Beacons National Park. The assessment uses the Natural Resources Wales (NRW) / Wales Landscape Partnership Group approach which separates the defining aspects of the landscape into five categories, or aspects; geology, habitats, visual & sensory, historic cultural, and visual & sensory. It considers the relationship that exists between people and places; how people have given meaning to places through time and how the physical landscape has shaped their actions, or how their actions have shaped the landscape.

4.3.3 The LANDMAP information is set out below for the most relevant aspect areas. The findings of the LANDMAP studies have informed the baseline for the landscape and visual impact assessment.

Geological Landscape

4.3.4 Penderyn Quarry and Cwm Cadlan to the north is within Geological Landscape aspect area **CynonGL021: Penderyn**, which is defined as a 'dip slope of south dipping Dinantian limestones (Lower Carboniferous), with swallow holes, to south of Neath fault zone. Minor strike valley filled by boulder clay on Lower Limestone Shale Group forms part of Cwm Cadlan, with underground drainage. Limestone dip steepens westwards to zone of folding fault zone at Moel Penderyn & Neath-Mellte SSSI'. Reference is made to past and present quarrying activity in the area also; 'Large working limestone quarry & many disused limestone quarries'.

4.3.5 The management guidelines refer to the need to 'ensure that no significant features of geological or geomorphological significance are lost due to development / inappropriate restoration of working quarry and that SSSI is maintained in favourable condition by implementation of management plan'. The area is evaluated as Outstanding, due to it including 'important exposure of Lower Carboniferous limestone in working quarry and karstic features..... Moel Penderyn SSSI'.

4.3.6 The Twyn-y-Glog ridge defines the northern edge of the adjacent Geological Landscape aspect area to the south, **CynonGL019: Upper Cynon valley – East**. The aspect area extents towards the southeast and Aberdare. It is defined as the 'east side of upper Cynon valley, controlled by the Werfa fault, with steep upper parts cut into gently south dipping Pennant sandstones (Upper Carboniferous)'.

4.3.7 The management guidelines refer to the need to 'ensure that no significant features of geological or geomorphological significance are lost due to development, in particular karstic features which may be of regional importance (i.e. potential RIGS sites)'. A key element of the proposed scheme via 'Scenario B' is the retention of a 'significant feature of geomorphological interest' which would otherwise be lost via the approved 'Scenario A' development. The feature to be retained is within an Aspect Area evaluated as High, due to it including a 'Namurian, Basal Grit outcrop with important karstic features including prominent swallow holes which may be of RIGS importance'.

4.3.8 Aspect area **CynonGL022: Cefn Sychbant** is located to the northeast of the site, extending along the ridgeline. It is defined as an 'upland area in Old Red Sandstone (Devonian) south dip slope, passing eastwards into western side of Taff valley. Bounded to northwest by Neath fault zone. Extensive boulder clay cover with patches of peat'. The area is evaluated as Moderate, due to it being 'underlain by very widespread Old Red Sandstone geology'

4.3.9 Aspect area **CynonGL023: Neath Fault Zone** extends along Cwm Cadlan to the north of the site, and includes the northern-most part of the site. It is defined as the 'upland

eastern part of east-northeast trending Neath fault zone, with complex fold & fault pattern developed in Old Red Sandstone (Devonian), Dinantian, Namurian & lower Coal Measures (all Carboniferous)'.

4.3.10 The aspect area is evaluated as Outstanding. Long-term management guidelines refer to the need to 'ensure that no significant features of geological or geomorphological significance are lost due to development and that SSSI is maintained in favourable condition by implementation of management plan'.

Landscape Habitats

The site and the adjacent part of Cwm Cadlan to the north are within Landscape Habitat aspect area **CynonLH047**, which has a level 3 classification of Dry (Relatively) Terrestrial Habitats/Grassland & Marsh/Marsh/Marshy Grassland. The area currently includes unimproved acid grassland (13%), semi-improved neutral grassland (4%), improved grassland (27%), marshy grassland (31%) and spoil (5%). The aspect area description highlights that 'stock grazing will prevent the grassland from reaching higher levels of ecological value.' The international importance of two habitats present is referred to; these are Purple moor-grass meadows and Western acidic oak woodland. The aspect area is evaluated as Outstanding due to the presence of Priority habitat and protected species making part of the Aspect area worthy of SAC status.

Aspect area **CynonLH051** is located to the south of the site; it has a level 3 classification of Dry (Relatively) Terrestrial Habitats/Grassland & Marsh/Marshy Grassland. The area currently includes semi-natural broadleaved woodland (7%),

semi-improved neutral grassland (12%), improved grassland (27%), marshy grassland (38%) and not accessed land (6%). The international importance of one habitat present is referred to, Purple moor-grass meadows. The aspect area is evaluated as High due to the presence of a 'noteworthy large area …. supporting a rare and much declined Butterfly species'.

The un-enclosed upland landscape of Cefn Sychbant is within aspect area **CynonLH045**, defined as coastal and marine habitats / mosaic. The area currently includes unimproved acid grassland (30%), marshy grassland (35%), dry acid heath (13%), dry heath/acid grassland mosaic (12%) and acid/neutral flush (2%). The international importance of Dry heaths, purple moor-grass meadows and blanket bog habitats is highlighted, however 'the area is not of such high value to key species however and does not appear to be worthy of designation'. The aspect area is evaluated as High.

Historic Landscape

4.3.11 The site is within Historic Landscape aspect area **CynonHL176: Penderyn**, which is classified as rural environment/agricultural/other fieldscapes. It is described as 'a large rural aspect area characterised by regular fieldscapes interspersed with natural woodland. The dominant field boundary within the aspect area is drystone boulder dykes and earth and stone banks, although deteriorated post and wire fencing has patched some breaches in the afore mentioned boundaries. The aspect is bounded to

the north and east by the interface between the unenclosed upland of Cefn Cadlan, Cefn Sychbant and Mynydd-y-glog, and Cwm Cadlan's enclosed fieldscape'. The eastern and northern area of this aspect belong to the Registered Historic Landscape **HLW(MGl/P)3: Fforest Faw**r, 'an area first manipulated in the Neolithic and Bronze Ages. These periods are represented by the numerous lithic monuments'.

4.3.12 The area is evaluated as Outstanding as 'an important, multi-period landscape with significant evidence of prehistoric funerary activity/field clearance incorporated into a later medieval/post medieval fieldscape, with substantial remains of 18th-20th century industrial activity superimposed onto this landscape'.

4.3.13 The landscape context of the site is within Historic Landscape aspect area **CynonHL580: Mynydd-y-glog and Cefn Cadlan**, which is classified as rural environment / non agricultural / marginal land. It is described as 'The visually imposing northwards-facing escarpments and adjoining dramatic mountain masses of the Black Mountains, the Brecon Beacons, Fforest Fawr and the Black Mountain together form a vast natural ridge and physical barrier that divides South from Mid-Wales'.

4.3.14 The area is evaluated as Outstanding, as 'an extensive unspoilt area of unenclosed moorland which survives in a remarkably good condition, with an exceptionally widespread distribution of archaeological remains representing the occupation of this area from the early prehistoric period through to the recent past'.

Cultural Landscape

4.3.15 The site is within Cultural Landscape aspect area **CynonCL044**, which is defined as a landscape which 'typifies the contrast between high moorland to the north of the Coal Measures and A465 trunk road, and the deeply incised valleys to the south'. The area is evaluated as Outstanding, being 'a component part of the wider Brecon Beacons National Park, itself a widely recognised cultural area of outstanding designated landscape'.

4.3.16 Beyond the site boundary to the west is Cultural Landscape aspect area **BrcknCL501**: **Waterfall Country**, which has a level 4 classification of Associations/ Notional Expressions/ Customs/ Leisure/Recreation. The description for the area notes that 'The combination of waterfalls, rivers, the variety of scenery and their importance as a visitor attraction over the past 200 years has given the area great significance. During the 19th and 20th centuries it was also a small scale centre of industry with quarrying, mining and explosives production. The intricate and complex geology of the area has been the subject of study for some 100 years'

Visual & Sensory Aspect

4.3.17 The majority of the site is within Visual and Sensory aspect area **CynonVS833: Penderyn**, which has a level 3 classification of Upland/Hills, Lower Plateau & Scarp Slopes/Hillside & Scarp Slopes Mosaic. The area is described as 'upper valley sides with strong upland feel-both from the strong visual link that exists and the rough grazing

with some woodland/conifer elements, slight urban feel on lower slopes but dominant character is that of an upland area, visual detractors include pylons and the sharply defined urban edge, noise and movement from the A465, scattered farmsteads'. A field pattern / mosaic is formed through mixed boundary treatments. The overall evaluation is Moderate due to the 'valley sides with pattern of field boundaries/woodland, but detractive elements e.g. urban edge, pylons traffic noise, of local importance'.

4.3.18 The eastern part of the site is within Visual and Sensory aspect area **CynonVS735: Cadair Fawr**, which has a level 3 classification of upland/exposed upland/ plateau/ upland grazing. The area is described as a 'dramatic landscape of rough grazed grassland with rock outcrops and some marshy areas lying between approximately 300m and 485mAoD. Wind noise is a dominant aesthetic factor which evokes particular experience of exposure and wildness. Spectacular upland views dominated by large expanse of sky/clouds. Strong visual link with Brecon Beacons'. A noted field boundary type in the area is stone walling. The overall evaluation is High due to the 'attractive largely unspoilt upland area with strong sense of place and good views'.

4.3.19 Beyond the site boundary to the northwest is Visual and Sensory aspect area **BrcknVS473: Hepste Valley**, which has a level 3 classification of Upland/Upland Valleys/Open Upland Valleys. The area is described as 'a shallow upland pastoral valley with a strong visual connection with the surrounding moors, though it is relatively sheltered. The pastures are retreating with encroachment of moorland vegetation in the upper parts of the valley. Here fences replace hedgerows giving a more open character to the landscape. The riparian corridor of the river with trees is more prominent lower down. Hedgerows are often outgrown and also have trees which contribute to enclosure. Small stands of conifers are associated with dwellings. Clustered farm buildings nestle in the valley floor. Waterfalls are located on the river adding to its interest'. A field pattern / mosaic is formed through hedgerows and trees.

4.3.20 The overall evaluation is High noting that 'The valley is attractive with scenic quality based on its relatively unspoilt upland pastoral mosaic landscape character. The river is enhanced by waterfalls which are a general feature of the wider area but are otherwise rare. The treed character acts as a foil to the bleak upland moorland to the north'.

LANDMAP Summary

4.3.21 A summary of the LANDMAP classification and evaluation for the aspect areas within which the site is located, and for the adjacent aspect area is provided in Table 4-4. Plans showing the extent and location of the relevant aspect areas are reproduced on **Figure L9**. A key element of the proposed scheme via 'Scenario B' is the retention of a 'significant feature of geomorphological interest' which would otherwise be lost via the approved 'Scenario A' development. The feature to be retained is within an Aspect Area evaluated as High, due to it including a 'Namurian, Basal Grit outcrop with important karstic features including prominent swallow holes which may be of RIGS importance'. Given the prominence of the western and central section of the Twyn-y-glog ridge

within the landscape and the naturally occurring rock outcrops which occur, this feature will make a large contribution to the High Landmap evaluation for the Aspect Area.

Table 4-4 Summary of LANDMAP classification and evaluation

LANDMAP Aspect	Aspect area including the site		Nearest adjacent aspect area	
	Classification	Evaluation	Classification	Evaluation
Geological Landscape	Tectonically controlled topography (CynonGL021: Penderyn)	Outstanding	Mountain and upland valley / Glaciated mountain terrain / Glacial mountain valley (CynonGL019: Upper Cynon valley - East)	High
			Mountain and upland valley/Undulating upland terrain and dissected plateau/Upland plateau (CynonGL022: Cefn Sychbant)	Moderate
			Tectonically controlled topography / Tectonically controlled topography / Tectonically controlled valley (Valley following folds, fault controlled gorges, or scarps) (CynonGL023: Neath Fault Zone)	Outstanding
Landscape Habitat	Dry (Relatively) Terrestrial Habitats /Grassland & Marsh/Marsh/ Marshy Grassland Bracken (CynonLH047)	Outstanding	Dry (Relatively) Terrestrial Habitats/Grassland & Marsh/Marsh/Marshy Grassland (CynonLH051)	High
			Costal & Marine Habitats/Mosaic/Mosaic (CynonLH045)	High
Cultural Landscape	Associations/ Notional Expressions /Institutions/ Land Divisions (CynonCL044)	Outstanding	Associations/Notional Expressions/Customs/Leisure/Recreation (BrcknCL501)	High
Historic Landscape	Rural environment/ Agricultural/Other fieldscapes (CynonHL176)	Outstanding	Rural environment/Non-agricultural/Marginal Land (CynonHL580)	Outstanding

LANDMAP Aspect	Aspect area including the site		Nearest adjacent aspect area	
	Classification	Evaluation	Classification	Evaluation
Visual and Sensory	Upland/Hills, Lower Plateau & Scarp Slopes/ Hillside & Scarp Slopes Mosaic (CynonVS833)	Moderate	Upland/Upland Valleys/Open Upland Valleys (BRCKNVS473)	High
	Upland/Exposed Upland/Plateau/Upland Grazing (CynonVS735)	High		

Brecon Beacons National Park Landscape Character Assessment (2012)

4.3.22 The most recently published Landscape Character assessment of relevance to the site is the **Brecon Beacons National Park Landscape Character Assessment**, which was published in August 2012. The site is located overlapping the edge of **Landscape Character Area 4: Waterfall Country and Southern Valleys,** and **Landscape Character Area 3: Fforest Fawr**. The distinctive characteristics of the former are identified as:

- A complex underlying geology. Carboniferous limestone in the north with extensive cave systems. Elsewhere, predominantly sandstones and mudstones of the Marros Group and South Wales Lower Coal Measures.
- A dramatic landform of steep, enclosed valleys, separated by ridges of flatter, higher land.
- A series of fast-flowing, rocky streams and rivers running along the valley floors, often in shallow gorges. Numerous waterfalls – some spectacular- particularly at changes in geology.
- Land use predominantly pastoral agriculture, but with extensive areas of forestry, particularly in the south of the area.
- Limestone walls and hedgebanks enclosing irregular fields in valleys, with some hedges (predominantly beech or hawthorn). Higher land less enclosed, with more use of post-and-wire fencing.
- A well-wooded landscape, with ancient broad-leaved woodland in valleys and along streams, with blocks of conifer plantation on higher land.
- Key Semi-Natural Habitats of Principal Importance to Wales including broadleaved woodland, wet woodland, a range of grasslands (calcareous, neutral and acid), fens, limestone pavement and wet heath.

- A range of historic features in the landscape giving the area a strong sense of time-depth and reflecting the LCA's past use for settlement, agriculture, transport and industry.
- Settlements include villages of Ystradfellte and Penderyn, plus numerous scattered farms. Development concentrated in valley floors, particularly along the A4067 and A4059. Some intervisibility with settlements, roads and other development beyond the National Park boundary
- Limestone geology, field patterns and woodland creating a strongly textured landscape in the valleys, with grey and green the dominant colours. Higher areas are more open and simple in composition, with dark blocks of conifers contrasting in colour with the surrounding grassland.

4.3.23 The distinctive characteristics of Character Area 3 Fforest Fawr are:

- Complex underlying geology, with the Senni and Brownstones formations of the Old Red Sandstone in the north, a broken band of Carboniferous Limestone across the middle, and Marros Group sandstones and mudstones in the south. All three units form north-facing escarpments, that of the Old Red Sandstone being the most imposing.
- A glaciated landscape with a steep northern escarpment and a series of elevated summits. Cwms, and deep valleys are separated by intervening ridges (generally running north-south). Landform in the south of the LCA is less dramatic, forming a gently sloping plateau dissected by river valleys.
- Steep, fast flowing and rocky mountain streams (often spring-fed, or sourced from upland bogs), flow into larger rivers in valley bottoms. Ystradfellte Reservoir located near centre of LCA.
- Predominantly unenclosed moorland used for open grazing, with some forest blocks, particularly in the south and west of the LCA.
- Trees almost entirely coniferous, planted in forestry blocks often with sharp outlines. Distinctive coniferous shelter belts in the northern part of the area.
- Very few field boundaries, but dry-stone walls marking estate boundaries are distinctive to this LCA. Occasional post-and-wire fences.
- Semi-Natural Habitats of Principal Importance to Wales including marshy grassland, dry heath, acid/ neutral flushes and small areas of blanket bog. Vegetation composition reflects variations in underlying geology.
- Extensive prehistoric ritual landscapes, particularly in the south-east. Also evidence of Roman road, medieval settlements, industrial archaeology, WW2 defences and estate influences.
- A very lightly-settled landscape today, with occasional estate cottages and farms at its periphery. However in the past it has been much more densely settled, and the landscape contains evidence of settlement over millennia.
- An elevated, simple and expansive landscape, with colours and textures varying subtly with the underlying geology. Much of the LCA remains inaccessible except on foot, giving a sense of tranquillity, remoteness and relative wildness.

4.3.24 The feature to be retained within Scenario B provides a visual representation of the underlying geology. As a naturally occurring rock outcrop the western and central part of the Twyn-y-glog ridgeline is a rugged feature within the landscape which reinforces the upland character relative sense of 'wildness'.

4.4 Landscape appraisal

4.4.1 The features described below are located on **Figure L2** - Landscape Appraisal; **Figure L3.1** - Visual Appraisal; and **Figure L6** - Site Context. Photographs illustrating many of the features described below, are included on **Figures L4** and **L5.** The photograph locations are shown on **Figure L3**.

4.4.2 The landscape appraisal was undertaken in 2010 and reviewed and updated in May 2018, and provided a broad overview of the landscape character of the wider area. The main features of the landscape including settlement pattern, topography, vegetation and recreation are summarised below.

Settlement

4.4.3 The settlement pattern of the area is strongly influenced by topography, which is typical of the South Wales Valleys. The valley floor is the main focus of development with Hirwaun, the largest town in the area, located entirely on the River Cynon valley floor. Hirwaun is located 2.5km to the south of the quarry, forming the northern extent of continuous settlement along the Cynon Valley heading southwards towards Aberdare.

4.4.4 There are several villages and groups of dwellings within the context of the quarry. The village of Penderyn is closest village to the quarry with properties along its eastern edge located adjacent to the quarry entrance. Further settlement to the south along the A4059 is 0.75km from the quarry; this includes the Penderyn Distillery/visitor centre and Penderyn Primary School.

4.4.5 A number of properties are located near to the boundary of the quarry. To the north of the site at Cwm Cadlan there are five properties within 0.5 km of the quarry. Gelli-neuadd is located just under 200m from the quarry boundary and approximately 1070m from the application site boundary. Gelli-dafolog and Ynys-wendraeth are more distant at 0.5km. To the east, upstream along the Nant Cadlan are Glyn Perfedd and Garw-dyle. These properties are located within 200m of the quarry boundary and between 0.4-0.6km from the application site boundary, but intervening landform and vegetation along the northern boundary of the quarry provide a greater degree of separation.

4.4.6 To the south of the quarry lies the farmstead of Bodwigiad. It is approximately 300m from the quarry boundary and 750 metres from the application site boundary, separated from the quarry void by mature vegetation and the Twyn-y-Glog ridgeline. On higher ground to the south-west there are several properties including Ysgubor Fawr, Penyrithyn, the Red Lion Inn public House, and St Cynog's Church and Rectory. These dwellings are typically 0.75km from the quarry plant site.

Topography

4.4.7 Penderyn Quarry lies within an upland landscape of incised valleys and broad ridgelines. The landscape character of the area is strongly influenced by the pattern of topography as shown on **Figure L3**. Lower lying areas within valleys are typically below 100m AoD and ridgelines are above 300m AoD. Higher ground within the Brecon Beacons National Park rises to over 400m AoD at Mynydd Sychbant to the north-east of the site, but this is an exception; land between 200 and 350m AoD is more typical.

4.4.8 The Cynon Valley at Hirwaun has a relatively wide valley floor which is entirely developed. Tributaries to the River Cynon have narrow valleys with steeper side slopes. At Penderyn the valley has wooded steep valley sides and a narrow valley floor. The valley is incised into a prominent ridgeline running east to west. Cefn Sychbant, Mynydd-y-glog and Twyn-y-Glog ridge form the eastern section of the ridge and Moel Penderyn to the west of the village forms the western continuation of the ridge.

Vegetation pattern

4.4.9 Vegetation is a locally important landscape feature in a number of locations. The hilltops and ridgelines are typically used for livestock grazing without field enclosures, although there are extensive coniferous plantations to the east and west of the site; refer to **Figure L1**. Post and wire fences form the sub-divisions to these open areas.

4.4.10 In contrast to the extensive areas of rough pasture, typical of the upland, deciduous woodland and small groups of trees are common within the valleys. This contrast is reinforced further by the small-scale field pattern, also focused in the valleys. Overgrown hedgerows and hedgerow trees merge with small areas of deciduous woodland in views to create a well wooded character in the valleys. Fields have a variety of boundary types including tall, overgrown and discontinuous hedgerows, fences and dry stone walls. The levels of maintenance for walls, hedges and fences vary considerably from one area to the next.

4.4.11 The location of ancient woodland is shown on **Figure L8.1**, which includes many of the more significant areas of woodland to the south and west of the site. There are many other smaller areas of deciduous woodland including the areas along the valley to the north and west of the site.

Public access

4.4.12 There is a sparse network of public footpaths within the context of the site. These routes are closest to the site at Wernlas, 700m away from the site to the north-east, and at the dismantled railway near Bodwigiad, 300m south of the plant site.

4.4.13 Land with public access rights (open access land) includes extensive areas of Mynydd-y-glog and Cefn Cadlan to the south, east and north of the site. Areas of land with open access rights are shown on **Figure L2**.

4.5 Application site context appraisal

The landscape context of the site

4.5.1 The application site boundary is shown on **Figure L6**. The site covers the south eastern part of the quarry land and is located within the freehold land ownership boundary and within the boundary fence of Penderyn Quarry. There is a restored quarry waste tips to the south of the application site and the existing extraction area is located to the north.

4.5.2 Mature trees and screen planting extend along the northern boundary of Penderyn Quarry from the plant site towards Glyn Perfedd. This vegetation links into the strong field pattern of hedgerows extending towards Garw-dyle and the northern boundary of the quarry. Land beyond the southern boundary of the quarry and application site is open land, extending towards the higher ground of Mynydd-y-Glog further to the east. In contrast, land to the south-west of the quarry around the farmstead of Bodwigiad has a strong field pattern of dry stone walls, overgrown hedgerows and small areas of woodland.

4.5.3 The application site consists of a narrow strip of upland grassland between the restored tip to the south-east and the existing quarry void to the north-west. A post and wire fence separate the site from the open moorland and the restored tip. The site slopes gently in a general south-westerly direction, from a high point of approximately 363.5m AoD in the north-east to a low point of about 350m AOD to the south-west.

4.5.4 The application site comprises the undisturbed eastern end of the Twyn-y-Glog ridgeline where it forms a broad shoulder of land to the south of the existing extraction area. To the west of the application site the central and western section of the Twyn-y-Glog ridgeline for a prominent ridge with naturally exposed rock outcrops.

4.6 Landscape baseline summary

4.6.1 A number of landscape receptors have been identified during the landscape appraisal, including elements of the physical landscape or landscape fabric, for example landform, vegetation and field pattern. These features combine to create a distinct landscape character, which is itself a receptor. In this case, it should be noted that the existing quarry, has for the most part, reached its maximum permitted limits, with the notable exception of the permitted area of quarrying along the western and central sections of the Twyn-y-Glog ridgeline.

4.6.2 The landscape appraisal has identified the following landscape receptors which are considered sensitive to ongoing quarrying at Penderyn:

- The character of the landscape is partly derived from the vegetation pattern including the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn. The site is located at the

transition in this vegetation pattern. The site is located within two LANDMAP Visual and Sensory aspect areas: **CynonVS833 - Penderyn** and **CynonVS735 - Cadair Fawr**. The summary descriptions for both areas make reference to vegetation pattern and the contrast between the open uplands and the strong field pattern of the valley side slopes. Therefore, the degree of impact on the landscape resource of the area would relate in part to the impacts on this pattern.

- The character of the landscape is linked to the pattern of landform and prominent landmark topography. Penderyn quarry is located at the east end of the prominent ridgeline of Mynydd-y-Glog. The Twyn-y-Glog ridgeline defines the boundary between the LANDMAP Geological Aspect Areas CynonGL021: Penderyn and CynonGL019: Upper Cynon valley – East, evaluated as Outstanding and High. The management guidelines refer to the need to 'ensure that no significant features of geological or geomorphological significance are lost due to development'. Specific reference is made to the 'Namurian, Basal Grit outcrop with important karstic features including prominent swallow holes which may be of RIGS importance'.
- Recreation and enjoyment of publicly accessible places is inextricably linked to the landscape character of the wider area. The landscape amenity, as experienced by people who use the public footpaths, roads and open access land, within the immediate vicinity of the site and to a lesser extent nearby residents, is considered sensitive. People would be aware of ongoing quarrying activities and site restoration.

4.7 Landscape value

4.7.1 The characteristics, sensitivities and guidelines in the existing character assessments at national and local level and the site-specific analyses carried out for the purposes of this LVIA were taken into account as indicators of the aspects of the landscape important to the character, and evaluated according to the following criteria:

Table 4-5 Indicative criteria to determine landscape value

Value	Criteria
High Value	Landscapes subject to international, national or local designations, **and** non-designated landscapes where the following considerations apply: Areas of landscape whose character is judged to be intact and in good condition; Scenic quality, wildness or tranquillity, and/or natural or cultural heritage features make a particular contribution to the landscape; There are important cultural and artistic associations; They are representative of typical character of the area or have a character or elements that are valued for their rarity; Particular components may be identified as important contributors to the landscape character;

Value	Criteria
	The landscape is valued for recreational activities where experience of the landscape is important.
Low Value	Areas of landscape whose character is in poor condition; Scenic quality, wildness or tranquillity, and/or natural or cultural heritage features are not key characteristics of the landscape; Cultural and artistic associations are absent; They are not representative of typical character of the area, but are also not valued for rarity; Particular components may be identified as important contributors to the landscape character; There is little scope for recreational activities where experience of the landscape is important.

4.7.2 Intermediate levels of value may be assessed, where the value falls between high and low, e.g. "medium".

4.7.3 The features/ elements/ characteristics identified as important or "key" to the landscape character of the site, as identified in section 4.6 are:

- the vegetation pattern including the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn;
- the pattern of landform and prominent landmark topography of the Twyn-y-Glog Ridgeline; and
- the landscape amenity, as experienced by people who use the public footpaths, roads and open access land within the immediate vicinity of the site and to a lesser extent nearby residents.

4.8 Effects on the landscape

4.8.1 This section examines the nature and significance of the landscape effects arising as a result of the proposed development with reference to:

- effects on landscape fabric within the site, its features and qualities;
- effects on landscape character, including consideration of effects on designated landscapes;
- effects relating to the retention of the western section of the Twyn-y-Glog ridgeline (via the 'Scenario B' proposal); and
- effects on the landscape setting of settlements, public rights of way and roads.

Effects on landscape features qualities

4.8.2 Effects of the landscape fabric may occur where there are either direct or indirect physical changes to the landscape. Direct changes to landscape fabric would only occur within the application boundary.

Effects on Landscape Character

4.8.3 The effect of the proposed development on landscape character will depend on the key characteristics of the receiving landscape; the degree to which the proposed development is considered consistent with or at odds with them, and how the proposed development would influence the landscape context, affected by:

- the distance from the site;
- weather conditions; and
- the 'fit' of the proposed development within the landscape pattern and characteristics.

Sensitivity

4.8.4 The sensitivity of landscape receptors is judged by considering their value, assessed in the baseline description above, and their susceptibility to the changes arising from the proposed development. The receptors, their value and susceptibility are set out in the following table, with the resultant judgement of their sensitivity to the proposed development:

Table 4-6 Sensitivity of landscape receptors

Receptor	Value	Susceptibility	Sensitivity
Landscape features and qualities	Vegetation pattern - High	Outside but adjacent to the site boundary - Moderate	High
	Landform - High	'Scenario B' – retention of more prominent section of Twyn-y-Glog Ridge - Medium	Medium-High
	Landform - High	'Scenario A' —loss of more prominent section of Tywn-y-Glog Ridge - High	High
Landscape amenity – public access	Access land - High	Adjacent to site boundary but little use - Moderate	Moderate
	Public rights of way - High	None in or adjacent to the site - Low	Lesser
Landscape amenity - Setting to settlement	Local residences - High	Nearest property of Garw-dyle 400m away - Moderate	Moderate

Receptor	Value	Susceptibility	Sensitivity
Designated Landscapes	Brecon Beacons National Park - High	Site within national park - High	High
	Historic landscape - Medium	Fringes of site covered by designation - Moderate	Moderate
	Cwm Cadlan NNR and SSSI - High	Near to site boundary - Moderate	Moderate

Magnitude of change

Landscape features and qualities

4.8.5 The hedgerows and small woodlands form an important part of the character of the of the farmland around the quarry, as does the open nature of the moorland of the uplands areas. The scale of change on the integrity these features as a result of the proposed operational activities would be **negligible,** while the proposed restoration would create a **small** scale of change.

4.8.6 The quarrying proposals under 'Scenario B' retain the notable features of the topography of the area, the prominent western and central section of the Twyn-y-Glog ridge being retained, the scale of change experienced by the landform of the area is therefore **negligible** both during operation and after restoration. The magnitude of change would be **large** based on the 'Scenario A' scheme which allows the removal of the western and central section of the Twyn-y-Glog.

Landscape amenity

4.8.7 The scale of change on the setting of public rights of way in the area would be **negligible** in both the short and long term as the quarry is not a notable feature within their setting. The setting of the access land adjacent to the site boundary would also experience a **negligible** scale of change during both the operation of the quarry and after the restoration, as topography screens its setting from the areas of the quarry in which the changes would take place.

4.8.8 The scale of change experienced on the setting of residential properties within the context of the site would be **small** during the operational period as the changes would be consistent with the existing situation. In the long term the scale of change would be **negligible** as the restoration proposals would be interpreted as part of their setting.

4.8.9 The magnitude of change on the setting of access land would be **large** based on the 'Scenario A' scheme which allows the removal of the western and central section of the Twyn-y-Glog.

Designated landscapes

4.8.10 The Brecon Beacons National Park would experience a **small** scale of change during both the operational phase and after restoration as although the changes would occur

within the national park, they are both a very small part of it and would affect a small part of the area.

4.8.11 The Historic Landscape that covers the north-east of the study are, including some small areas within the fringes of the site, would experience a **small** scale of change on its setting during both the operational period and after restoration, as the quarry occupies a small part of its area and is on the edge of the designated area.

4.8.12 Cwm Cadlan NNR and SSSI would experience a **negligible** scale of change on their setting both during the operation of the quarry and after restoration as the setting of the sites is screened from the quarry by intervening topography and vegetation.

Assessment

4.8.13 Consideration of the magnitude of the changes due to the development is combined with consideration of the sensitivity of landscape receptors affected by the development to assess the degree and nature of the effect, and its significance, at each stage of the lifecycle of the development.

Landscape features and qualities: vegetation pattern

4.8.14 The character of the landscape is partly derived from the vegetation pattern including the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn. This pattern is regarded as a receptor of high sensitivity due to its importance within the LANDMAP assessment of the area and its contribution to landscape character within the Brecon Beacons National Park.

4.8.15 Quarrying within the application area to the southeast of the existing workings at Penderyn Quarry will result in a lateral advance of the south-eastern face to the east of the Twyn-y-Glog ridge. This minor increase in the footprint of the quarry excavation area would not result in the loss of existing woodland or hedgerows that contribute to vegetation pattern of the area or to a perceptible change to the form of the ridgeline.

4.8.16 Existing planting undertaken along the northern edge of the quarry and adjacent to the quarry plant site is contributing to the vegetation pattern of the area. The continued establishment of this vegetation will make a positive contribution to the vegetation pattern of the area. Natural regeneration along the upper benches within the quarry void would also reinforce this pattern.

4.8.17 The impact on the vegetation pattern would be **negligible** during quarrying. Natural regeneration along the quarry benches and continued establishment of existing screen planting would result in a positive contribution to the vegetation pattern in the longer term. Following restoration of the site there would be a **minor beneficial** impact on the vegetation pattern of the area.

Landscape features and qualities: landform

4.8.18 The character of the landscape is linked to the pattern of landform and prominent landmark topography. The Twyn-y-Glog ridgeline is locally important, being an important element of the wider pattern of landform and providing screening of quarrying activities from the south. The pattern of landform and specifically the Twyn-y-Glog ridgeline is a receptor of high sensitivity.

4.8.19 The proposed quarrying scheme based on Scenario B minimises adverse impacts on the Twyn-y-Glog ridge. This section of the ridge is a landmark feature in the wider landscape, reflected within the LANDMAP study. The management guidelines within that study relating to aspect area **CynonGL021: Penderyn** refer to the need to 'ensure that no significant features of geological or geomorphological significance are lost due to development / inappropriate restoration of working quarry…' The quarrying proposals retain the crest and southern flank of the Twyn-y-Glog ridge, minimising the potential for adverse landscape impacts, and ensuring the retention of an acknowledged feature of geomorphological significance.

4.8.20 During the initial phases of quarrying, the face to the north-east side of the Twyn-y-Glog ridge would advance southwards. The scale of movement would be inconsequential in relation to the scale of the ridgeline and it would not extend through the crest of the ridge as viewed from the south. The proposals would retain the integrity of the ridge along with its contribution to the pattern of landform.

4.8.21 Once quarry faces reach their final position the restoration proposals would commence where these areas are no longer required for access. A range of restoration treatments would be applied to the benches and other locations outside the operational area of the quarry. The treatments would involve the emplacement of quarry waste and soils onto the surface to facilitate natural regeneration, which would occur along benches once they reach their final position. This would soften the appearance of the benches, which could otherwise appear out of character with the natural rock outcrops where these occur in the wider landscape. Where rock faces are retained in more prominent locations, these would have a naturalistic form, similar to naturally occurring rock faces. The scheme would result in a **negligible** impact on the landform pattern of the area during quarrying and following restoration of the site.

4.8.22 The proposed Scenario A quarrying scheme would remove the western and central section of the Twyn-y-Glog ridge. The scheme would result in a **locally substantial** adverse impact on the landform pattern of the area during quarrying and following restoration of the site. This effect is caused by the loss of the prominent section of the ridge, which is a landmark feature in the wider landscape.

Landscape amenity: Access land, public rights of way and residential properties

4.8.23 Recreation and enjoyment of publicly accessible places is inextricably linked to the landscape character of the wider area. The potential adverse impacts on the amenity

of the nearby residents during quarrying operations are reduced by the inclusion of mitigation measures within the design of the quarry.

4.8.24 Ongoing quarrying at the site would be a perceptible element to the setting of public footpaths and roads within the immediate vicinity of the site. There would also be a perceived change to the setting of residential properties to the north of the site within Cwm Cadlan and on higher ground to the west of Penderyn. Adverse impacts would only occur where the quarry is a perceptible element in the setting of the property.

4.8.25 During the quarrying under Scenario B, the south-eastern advance of the quarry face would not result in a change in the impact on landscape amenity. The overall area of disturbance would not increase to a degree that would be perceptible within the wider landscape and the quarry plant would continue to operate as it does currently. Ongoing activity and disturbance within the site as a consequence of the proposals would result in a **minor adverse** impact on landscape amenity.

4.8.26 This level of impact would steadily reduce as screening vegetation establishes and following restoration towards a **negligible** impact. At this stage vegetation would have developed along upper benches within the application site and quarrying activity would have ceased. The quarry site would steadily become integrated into its landscape setting.

4.8.27 The Scenario A quarry would be a more prominent feature in the landscape and disturbance would be perceptible within the wider landscape, particularly to the south. Ongoing activity and disturbance within the site as a consequence of the Scenario A quarrying scheme would result in a **moderate adverse** impact on landscape amenity, increasing to **substantial** within 1km of the Twyn-y-glog Ridge.

Designated Landscapes

4.8.28 The nationally designated Brecon Beacons National Park, in which the site is situated, is considered a receptor of high sensitivity. The boundary of the East Fforest Fawr and Mynydd-y-glog Landscape of Special Historical interest in Wales approximately follows the boundary of the existing quarry, while Cwm Cadlan SSSI and NNR lies close to its northern boundary. These designated sites are considered landscape receptors of moderate sensitivity, as although near to the site, the quarry site is excluded from the designated areas. Adverse landscape impacts would occur where the proposed development would have a direct impact on the setting of these designated landscape.

4.8.29 Advancing of the quarry face to the east of the Twyn-y-Glog ridgeline under Scenario B would not create a perceptible change to the footprint of the quarry. Therefore, the impact of the proposals on the setting of designated landscapes during the operational phase would likewise not be distinguishable in the wider landscape, creating a **negligible** impact.

4.8.30 Following the conclusion of quarrying, the natural weathering of the exposed faces and the establishment and maturing of proposed vegetation throughout the quarry, the

impact created as a result of the additional quarrying to the east off the Twyn-y-Glog ridgeline would be **none**.

4.8.31 The Scenario A quarrying scheme would remove the western and central section of the Twyn-y-Glog ridge. The scheme would result in a large-scale change within the setting of the Landscape of Special Historical interest, resulting in a **minor adverse** effect on the nearest section of the East Fforest Fawr and Mynydd-y-glog Landscape of Special Historical interest to the quarry.

Table 4-7 Assessment of landscape effects (Scenario A – currently permitted scheme.)

Receptors	Sensitivity to changes arising from the proposals	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
Vegetation pattern	**High**	No change to vegetation pattern: **negligible**	Additional vegetation becoming established: **small**	Negligible - **not significant**	Minor beneficial - **not significant**
Landform	**High**	Notable landform form features to be removed: **medium**	Distinctive features removed: **medium**	Locally significant - **significant**	Locally significant - **significant**
Access land	**Moderate**	Setting no longer screened by topography - **medium**	Setting no longer screened by topography - **medium**	Moderate adverse - **not significant**	Moderate adverse - increasing to substantial within 1km of the Twyn-y-glog Ridge - **not significant**
Public rights of way	**Lesser**	Distant from site and quarry but becoming a more notable element within their setting - **small**	Changes would be perceptible to the setting of PROWS - **small**	Minor adverse - **not significant**	Negligible - increasing to substantial within 1km of the Twyn-y-glog Ridge - **not significant**
Local residents	**Moderate**	Would not be notably different from the existing situation - **small**	Changes would be interpreted as part of the setting – **negligible**	Minor adverse - **not significant**	Negligible - **not significant**
Brecon Beacons National Park	**High**	Small part of the BBNP and relatively contained - **small**	Small part of the BBNP and relatively contained - **small**	Minor adverse - **not significant**	Minor adverse - **not significant**
Historic landscape	**Moderate**	On the fringe of the designation and a small part of its setting - **small**	On the fringe of the designation and a small part of its setting - **small**	Minor adverse - **not significant**	Minor adverse - **not significant**

Table 4-8 Assessment of landscape effects (Scenario B - proposed development)

Receptors	Sensitivity to changes arising from the proposals	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
Vegetation pattern	**High**	No change to vegetation pattern: **negligible**	Additional vegetation becoming established: **small**	Negligible - **not significant**	Minor beneficial - **not significant**
Landform	**High**	Notable landform form features to be retained: **negligible**	Distinctive features retained: **negligible**	Negligible - **not significant**	Negligible - **not significant**
Access land	**Moderate**	Setting screened by topography - **negligible**	Setting screened by topography - **negligible**	Minor adverse - **not significant**	Negligible - **not significant**
Public rights of way	**Lesser**	Distant from site and quarry not a notable element within their setting - **negligible**	Changes would not be perceptible to the setting of PROWS - **negligible**	Minor adverse - **not significant**	Negligible - **not significant**
Local residents	**Moderate**	Would not be notably different from the existing situation - **small**	Changes would be interpreted as part of the setting – **negligible**	Minor adverse - **not significant**	Negligible - **not significant**
Brecon Beacons National Park	**High**	Small part of the BBNP and contained - **small**	Small part of the BBNP and contained - **small**	Negligible - **not significant**	None - **not significant**
Historic landscape	**Moderate**	On the fringe of the designation and a small part of its setting - **negligible**	On the fringe of the designation and a small part of its setting - **negligible**	Negligible - **not significant**	None - **not significant**

Landscape Effects Conclusions

4.8.32 The character of the landscape is linked to the pattern of landform and prominent landmark topography. The Twyn-y-Glog ridgeline is locally important, being an important element of the wider pattern of landform and under Scenario B would continue to provide screening of quarrying activities from the south. The impact on the landform pattern would be **negligible** during quarrying and following restoration of the site.

4.8.33 The character of the landscape is partly derived from the vegetation pattern including the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn. This pattern is regarded as a receptor of high sensitivity due to its importance within the LANDMAP assessment of the area and its contribution to landscape character within the Brecon Beacons National Park.

4.8.34 The vegetation pattern of the site and its context, which includes the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn, is a sensitive landscape receptor. The impact on the vegetation pattern would be **negligible** during quarrying. Natural regeneration along the quarry benches and continued development of existing screen planting would result in a positive contribution to the vegetation pattern in the longer term. Following restoration of the site there would be a **minor beneficial** impact on the vegetation pattern of the area.

4.8.35 Landscape character contributes significantly to landscape amenity, as experienced by people who use the public footpaths, roads and visit open access land within the immediate vicinity of the site and to a lesser extent nearby residents. The impacts on landscape character and its contribution to landscape amenity vary from **minor adverse** to **negligible** depending on the distance between the site and the susceptibility of the receptor to landscape change.

4.8.36 The setting of nationally designated landscapes are highly sensitive landscape receptors. However, as the proposed quarrying would create an imperceptible additional impact on the footprint, scale and activity at the quarry, the impact on the setting of these landscape receptors would vary from **negligible** during operation to **none** in the long term, following the establishment of the restoration proposals for the quarry site.

4.8.37 The Scenario A quarrying would remove a prominent section of the Twyn-y-Glog ridgeline resulting in adverse effects on the pattern of landform and landscape character, particularly to the south of the quarry. The Scenario A quarrying would result in **locally significant** adverse effects on landscape receptors.

5.0 Effects on Visual Amenity

5.1.1 This section deals with the effects on visual amenity, arising from changes in the views available to people in the surrounding area.

5.2 Assessment criteria

5.2.1 The assessment process is described in **Appendix 1**. The criteria for assessing the likely effects of the proposed development are set out below.

Visual Sensitivity

5.2.1 The sensitivity of viewers is affected by the susceptibility of the viewer to changes in views and visual amenity and the value attached to particular view locations and views. The context of the location contributes to susceptibility, for example, people viewing from residential properties or from a valued landscape are likely to be more susceptible to change than people viewing from an industrial context. Particular views may have importance and be valued as part of the experience of a valued landscape or promoted recreation facility or route.

5.2.2 The following criteria for visual sensitivity, combining susceptibility and value considerations, are used:

Table 5-1 Indicative criteria for assessing visual sensitivity

Category	Indicative criteria
High sensitivity	Viewers in residential or community properties with open views of the site Views experienced by many viewers Daily, prolonged or sustained views available over a long period, or where the view of the landscape is an important attractant A view from a landscape, recreation facility or route valued nationally or internationally for its visual amenity
Moderate sensitivity	Viewers in residential or community properties with partial or largely screened views of the site Frequent open views available of the site Viewers are pursuing activities such as sports or outdoor work, where the landscape is not the principal reason for being there or the focus of attention is only partly on the view A view of the site from other valued landscapes, or a regionally important recreation facility or route
Lesser sensitivity	A view of low importance or value, or where the viewer's attention is not focused their surroundings

Category	Indicative criteria
	A view of the site from a landscape of moderate or less importance Occasional open views or glimpsed views available of the site passing views available to travellers in vehicles A view available to few viewers

Magnitude of change

5.2.3 The degree of the likely visual effects of the proposed development is determined by relating the sensitivity of the receptors and the changes in the landscape or view of the landscape to which they will be subjected. The scale of magnitude of the changes in visual amenity is evaluated in terms of size or scale, the geographical extent of the area influenced, duration and reversibility, as follows:

Table 5-2 Indicative criteria for assessing magnitude of visual change

Magnitude of Change	Visual Change
Great change	Major size or scale of change, affecting a large proportion of the angle of the view or affecting views from a wide area; continuing into the longer term or permanently, with low prospect of reversibility
Medium change	Intermediate size or scale of change, affecting part of the angle of the view or affecting views from the wider context, or larger scale of change in views from within the site or immediate context; continuing into the medium term, with good prospect of reversibility
Small change	A minor proportion of the angle of view is affected or the contribution of the changed elements or characteristics to the composition of the view is not important; the changes are viewed from longer distances, are short term and reversible
Negligible/no change	Barely perceptible change or the change is difficult to discern; No change in the view or the changes due to the development are out of view.

Assessing effects

5.2.4 The degree of effect, whether adverse or beneficial, is assessed by relating the sensitivity of the receptor and the magnitude of change, using the following indicative criteria:

Table 5-3 Indicative criteria for assessing visual effects

Visual effect	Indicative criteria
Major	Large or very large change or visual intrusion experienced by highly sensitive viewers or from highly sensitive public viewpoints The proposal would cause a great deterioration in the existing view Large or very large improvement in the view, sufficient to upgrade overall visual amenity
Moderate	Medium change or visual intrusion experienced by moderately sensitive viewers; lesser change to higher sensitivity viewers or greater change to less sensitive viewers
Minor	Small or localised visual intrusion in the existing view, especially for less sensitive viewers Localised reduction in visual intrusion, or improvement in the view
Negligible	The change in the view is imperceptible or difficult to discern

5.2.5 Major effects are likely to be considered "significant", especially if long term or permanent, and slight or negligible effects as "not significant". The relative significance of intermediate effects is indicated in the assessment below, as are effects that are not significant. The significance of intermediate effects is determined on a case by case basis and, even if the effects are not considered significant, they may be important considerations in decision making about the proposed development.

5.2.6 In addition to these criteria, in some instances the effect may be discernible or greater, but offset by other considerations, for example, through the mitigation or restoration proposals, and the resulting effect is neither beneficial nor adverse.

5.3 Visual baseline

Zone of Theoretical Visibility (ZTV)

5.3.1 **Figure L3.2** shows show the predicted extent of the ZTV for the ground surface of the application site, including the screening effect of woodland and buildings. The computer generated ZTV is based on a digital terrain model generated from the 5m grid interval Ordnance Survey OS Terrain 5® dataset, with viewer eye-height of 2m. The ZTV illustrates the screening effects of the woodland and buildings and is based upon the data in the Ordnance Survey OS Open Map Local ESRI® Shapefile. Woodlands have been modelled at a mean average height of 10m and buildings at the notional 7m high building. The screening effects of other surface features such as individual trees and hedgerows are not taken into consideration.

5.3.2 For the visual impact assessment, a ZTV study area of a between 2km and 4km from the site was investigated and mapped (**Figure L3.2**). Potentially sensitive visual receptors include residents, people visiting areas covered by landscape designations, areas or sites of historic interest, public footpaths, bridleways and cycle routes, and visitor attractions.

5.3.3 During the field study the ZTV was used as a starting point and features such as vegetation, buildings or localised topographic variation, which define actual visibility, were identified. Representative viewpoints were then selected for the visual impact assessment.

5.3.4 The locations of viewpoints studied relate to the "receptors", that is, residents and users of the landscape, and locations from which they may have views towards or of the site.

Viewpoint study

5.3.5 The visual appraisal drawing, **Figure L3.1**, illustrates the location of the proposed development at a scale of 1:25,000. **Figure L3.1** also shows the locations of the assessment and viewpoint photographs, which are reproduced on **Figure L3.2**.

5.3.6 A total of 12 views were taken to illustrate the site and its appearance in publicly available views (**Figures L4 & L5**). From the viewpoint studies, a representative selection of 6 views are taken forward to the visual impact assessment (see **Figures L4-1 to -3**).

5.3.7 Views of the site can be divided up into: distant views from the south, from Penderyn and from the higher ground to the south of the A465; Views from the A4059 north of Penderyn, as the road crosses the national park; views from the west, from areas of public access on the slopes of Moel Penderyn; Near views from the south, from the open access land on the slopes of Mynydd-y-glog; and views from Cwm Cadlan.

Distant views from the south

5.3.8 The ZTV on **Figure L3.2** identifies views of the ground level of the site being theoretically available from an extensive area to the south extending along the Cynon Valley and rising on the north facing slopes of Hirwaun Common. **Viewpoint Photographs 01 & 02** on **Figure L5.1** are distant views towards the site from the south. **Viewpoint Photograph 01** is taken from 4.3km to the south of the site at a similar elevation to the plant site. The Twyn-y-Glog ridgeline and existing vegetation near Bodwigiad obscures the majority of the quarry from view. The upper faces along the northern side of the quarry near Garw-dyle are just visible, although at this distant these appear similar in colour and texture to the rock exposures along the Twyn-y-Glog ridgeline. Nearer views available of the site are from less elevated locations within the Cynon Valley. At the A4049 crossing of the mineral railway to the north-west of Hirwaun, **Viewpoint Photograph 02**, the Twyn-y-Glog ridgeline and road side vegetation screens the quarry from view.

Views from the A4059 north of Penderyn

5.3.9 **Viewpoint Photograph 03** on **Figure L5.1** and **Assessment Photograph 02** on **Figure L4.1** are both taken from the A4059 main road where it heads northwards out of the village of Penderyn. The quarry plant is partly visible in **Viewpoint Photograph 03**, located shortly to the north of the village of Penderyn within the valley. Intervening landform and vegetation soften the appearance of the quarry and almost completely screen the processing plant. Where the A4059 rises onto the side slopes of Cefn Cadlan, glimpsed views of the active quarry faces along the western end of the Twyn-y-Glog ridgeline come into view along the horizon (**Assessment Photograph 02**). Quarry faces along the eastern end of the ridge, where the application site is located, are obscured by higher ground along the northern edge of the quarry. The plant site and lower section of quarry faces are obscured by intervening landform. Overall, the quarry is more noticeable in **Assessment Photograph 02**, due to its contrast with the foreground of Cefn Cadlan and landform which frames the quarry faces in the view.

Views from the west

5.3.10 Views are available towards Penderyn Quarry from elevated locations on the east facing side slopes of Moel Penderyn. **Assessment Photograph 01** on **Figure L4.1** is taken from the minor road near Pantcefnffordd at an elevated location. The quarry processing plant is screened by conifer plantation. Quarry faces along the eastern edge of the quarry rise above this plantation. Shadow cast onto the right-hand side of these faces increase their prominence in the view.

5.3.11 **Assessment Photograph 03** on **Figure L4.2** is taken from the minor road from Penderyn to Pantcefnffordd. Frequent mature trees and hedgerows obscure many potential views from this road but there are a few glimpsed views available. **Assessment Photograph 03** shows the view available between trees which frame the Twyn-y-Glog ridgeline. Disturbed ground within the site boundary of the quarry extends along the horizon formed by Twyn-y-Glog. Outcropping gritstone along the ridge and within the site boundary appear consistent with the context.

Near views from the south

5.3.12 **Assessment Photographs 05 & 06** on **Figure L4.3** are taken from lower lying areas to the south of the site. **Assessment Photograph 05** is taken from the A4059 main road where it passes through Penderyn, from which occasional glimpsed views towards the site are available. The Twyn-y-Glog ridgeline is an important feature in this view due to the light colour of the gritstone visible at the surface, although quarrying and tipping at the site has changed the profile and appearance of the ridge. Quarry faces along the north and eastern side of the void are obscured by Twyn-y-Glog ridgeline.

5.3.13 **Assessment Photograph 06** on **Figure L4.3** is taken from the open access land to the south of the site. The Twyn-y-Glog ridgeline is prominent in this view as it forms the horizon and has a distinct appearance due to exposed rock at the surface. The UHF transmitter and restored quarry tips along the southern boundary of the quarry are

visible near the horizon but quarry faces within the quarry are obscured by the Twyn-y-Glog ridgeline. The application site lies out of view behind a previously restored tip to the right of the ridge.

Views from Cwm Cadlan

5.3.14 The ZTV on **Figure L3.2** identifies views being theoretically available from the northern slopes of Cwm Cadlan. Views are available from the minor road which follows the northern side slopes of the valley. There are also views from the farmsteads and dwellings within the valley. The topography of the valley focuses views westwards towards Penderyn, although properties within the village are only visible in views from the lower part of the valley.

5.3.15 **Viewpoint Photographs 05 & 06** on **Figure L5.2** are taken from the upper part of the Cwm Cadlan valley as the defined fields change to unenclosed open land. The view in **Viewpoint Photograph 06** is taken from the minor road near Blaen-cadlan-uchaf. Mynydd-y-glog and Moel Penderyn are prominent in the middle distance, separated by the well wooded valley sides at Penderyn. The higher ground of Mynydd-y-glog obscures existing and ongoing quarrying at the site, which is located on the west facing slopes at the western end of the ridgeline.

5.3.16 **Viewpoint Photograph 05** shows the view progressing westwards along the minor road towards Penderyn. Mynydd-y-glog is prominent on the horizon in this view from Pont Ceunant-du. Woodland at Garw-dyle is visible at the western end of the ridgeline where it descends towards Penderyn. Quarrying at the site has changed the profile of the ridge, although the active faces are not visible from the viewpoint. Oblique and glimpsed views of quarry faces are available through the trees at Garw-dyle as the road descends through the valley to the west.

5.3.17 **Viewpoint Photograph 04** on **Figure L5.2** and **Assessment Photograph 04** on **Figure L4.2** are both taken from the minor road thorough Cwm Cadlan where it passes within 0.5km to the north of the quarry. The quarry plant and active faces along the southern side of the quarry are partly visible in these views along the horizon. In **Viewpoint Photograph 04** the quarry processing plant site is largely screened by intervening vegetation and landform. Upper faces of the quarry along the Twyn-y-Glog ridgeline are largely obscured by intervening vegetation and topography along the horizon. These faces are also largely obscured in **Assessment Photograph 04,** although the quarry processing plant is more prominent as its taller components can be seen against the sky. Intervening vegetation and the planted screen bund along the edge of the plant site help to soften its appearance. The restored quarry tip near Glyn Perfedd with screen planting along its southern edge almost completely screens the quarry faces along the Twyn-y-Glog ridgeline in this view. **Assessment Photograph 04** is similar to the view available from the residential properties at Gelli-neuadd.

5.4 Visual receptors

5.4.1 The assessment of visual effects is described by considering how the different groups of "visual receptors" may be affected. The following is a résumé of the viewers and locations from where views may be available, with references to the representative viewpoints or other photographs.

People in settlements and residential properties

5.4.2 Farmsteads are scattered throughout the farmland around Penderyn and Cwm Cadlan, although many of these properties are surrounded by out-buildings and trees, there are view available from them towards the site. Views towards the site from the main residential areas of Penderyn are screened by topography and vegetation. Residents with views towards the site from their properties are represented by Assessment Photographs 04 & 05. Viewpoint Photographs 02, 03, 04 & 05 are also indicative of the views that may be available to residents in the area.

Users of public rights of way and areas of public access

5.4.3 The area around the site has a sparse network of public rights of way, with those that do exist often being contained within vegetation. The ridgelines to the north and east of the quarry site, which are predominately open access land, afford unfiltered views towards the site. Receptors viewing from areas with public access are represented by Assessment Photographs 06. Viewpoint Photograph 06 also represents the views available to users of access land.

Road users

5.4.4 The majority of the roads in the study area follow the lower lying land in the valleys, in these areas views available to users of the roads are usually glimpsed and filtered. Where the roads climb out of the valleys, open and unfiltered views are available. The views available to passersby on public roads are represented by Assessment Photographs 01, 02, 03, 04 & 05, while Viewpoints Photographs 01, 02, 03, 04, 05 & 06 are also representative of views available to road users.

Views from other landscape interests

5.4.5 The site and the majority of the study area lie within the Brecon Beacons National Park, while the open ridgelines to the north-east are part of the East Fforest Fawr and Mynydd-y-glog Landscapes of Special Historic Interest in Wales. Views available to visitors to these areas are primarily from the higher open land, while in the valleys the views are generally filtered and glimpsed between and through vegetation. Assessment Photographs 01-06 are within the Brecon Beacons National Park while Assessment Photographs 02, 04 & 06 are also within the Landscapes of Special Historical Interest in

Wales. Assessment Photograph 04 is also indicative of the view from the Cwm Cadlan NNR and SSSI.

5.5 Visual baseline summary

5.5.1 A summary of the visual baseline information to be taken into account as part of the detailed assessment of the effects on visual amenity is as follows:

- Views of the working area of the quarry from within the Penderyn valley are heavily filtered by local vegetation and topography, notably the Twyn-y-Glog ridgeline;
- The most open views towards the quarry are available from the higher open land of the national park at Mynydd-y-glog, Cefn Cadlan and Moel Penderyn;
- Rights of way in the Penderyn valley are generally set within woodland or tree lined fields, which restricts the availability of external views towards the quarry site;
- The Brecon Beacons National Park covers all the areas described above, views available to visitors are therefore a combination of these;
- Views towards the site from the main residential areas in Penderyn are screened by vegetation and landform; and
- The availability of views towards the quarry from the scattered farmsteads in Cwm Cadlan are dependent on the screening provided by nearby features such as woodland, hedgerows and buildings.

5.6 Effects on visual amenity

Sensitivity

5.6.1 The sensitivity of views is affected by factors such as the distance to the viewer, the number of viewers affected and the importance of the site in the overall view. The context of the viewpoint may also contribute to the ability to accommodate change. For example, people viewing from residential properties or from a valued landscape might be regarded as less able to accommodate change, than those viewing from an industrial context.

5.6.2 The sensitivity of the visual receptors is assessed as follows:

- People in settlements and residential properties: high susceptibility to changes in their visual amenity; open unobstructed views including the site assessed as of high value: **high sensitivity**, and filtered, oblique or partial views of lesser value: **moderate sensitivity**;
- Users of public roads: low susceptibility to change in their visual amenity; open unobstructed views including the site assessed as of moderate value: **moderate sensitivity**, and filtered, oblique or partial views assessed as lesser value: **lesser sensitivity**.

- Users of public rights of way: medium susceptibility to change in their visual amenity; open unobstructed views including the site assessed as of moderate value: **moderate sensitivity**, and filtered, oblique or partial views assessed as lesser value: **lesser sensitivity**.
- Users of access land: high susceptibility to change in their visual amenity; open unobstructed views including the site assessed as of high value: **high sensitivity**, and filtered, oblique or partial views assessed as lesser value: **moderate sensitivity**.
- Visitors to the valued landscape: high susceptibility to change in their visual amenity; open unobstructed views including the site assessed as of high value: **high sensitivity**, and filtered, oblique or partial views assessed as moderate value: **moderate sensitivity**.

Table 5-4 View with Scenario B development & magnitude of change

View-point Ref	View during operation	View after restoration	Magnitude of change
01 1.0 km from site boundary	Although the western face of the quarry is visible, activity within the quarry is screened by topography and intervening vegetation. No activity on the south face would be visible.	As future and proposed extraction areas in the quarry are screened from the viewpoint and the western face is too steep to establish vegetation, the view would remain as it currently is.	The scale of change both during the extraction period and after restoration would be **none**.
02 1.4 km from site boundary	The area of proposed extraction is screened by the bund on the northern edge of the quarry, while the Twyn-y-Glog ridgeline is prominent on the skyline to its right, behind the upper part of the southern quarry face.	Establishing vegetation on the bund to the north of the quarry will develop further, screening all of the eastern part of the quarry. The of the face on the northern side of Twyn-y-Glog would be the only remaining visible part.	The screening created by the bund would ensure that the scale of change during the operational phase would be **none**. Following restoration, the additional and maturing woodland would

			create a **small** scale of change.
03 0.8 km from site boundary	From this glimpsed and framed view the Twyn-y-Glog ridgeline forms a prominent feature on the skyline, it also screens the proposed area of extraction from view. A small section of the existing north face is visible.	The establishment of vegetation along the south-western side of the quarry would screen the small part of the northern face that is currently visible. The proposed extraction site would remain screened by the Twyn-y-Glog ridgeline.	As the area of proposed extraction is screened by the Twyn-y-Glog ridge-line, and this feature is to be retained, the scale of change during operation would be **none**. This would change to **negligible** in the long term as proposed screening vegetation becomes established.
04 0.3 km from site boundary	High ground to the north of the quarry screens the working faces in the eastern part of the quarry, including the area of proposed extraction. The southern face below the Twyn-y-Glog ridgeline is just visible above woodland.	Vegetation on the ridgeline to the north of the quarry will further develop, completely screening the quarry in the view.	The scale of change during the extraction phase would be **none** as quarrying activities would not be visible. The establishment and growth of screening woodland would create a **small** scale of change in the long term.
05 0.85 km from site boundary	The area of proposed extraction is screened by the Twyn-y-Glog	As the Twyn-y-Glog ridgeline would be retained, the view would remain unchanged in the long term.	The scale of change on the view both during the operational phase and after

	ridgeline from the viewpoint.		restoration would be **none**.
05 0.85 km from site boundary	The area of proposed extraction is screened by the Twyn-y-Glog ridgeline from the viewpoint.	As the Twyn-y-Glog ridgeline would be retained, the view would remain unchanged in the long term.	The scale of change on the view both during the operational phase and after restoration would be **none**.
06 0.4 km from site boundary	The restored tip to the south-east of the site and the Twyn-y-Glog ridgeline both screen the quarry and the proposed extraction area from the moorland to the south.	With the exception of some establishing woodland to the south-west of Twyn-y-Glog the view from the viewpoint would remain unchanged after restoration.	During the operation phase the scale of change would be **none**, changing to **negligible** in the long term as vegetation becomes established.

Magnitude of change

5.6.3 The representative views are described below with an analysis of the degree and nature of changes in them resulting from the development, to inform the assessment of effects.

Assessment

5.6.4 The visual effects assessment has been informed by the ZTV study shown on **Figure L3.2**. It identified a number of locations from which the proposed development might be theoretically visible. A selection of representative views to illustrate the views available at a range of distances and for different receptors are identified and described in section 5.3 and the sensitivity of the viewers (visual receptors) represented defined in section 5.6 above.

Assessment Photograph 01

5.6.5 View east from the minor road near Pantcefnffordd, approximately 2.0 km from the site at an elevation of 320 m AoD.

Existing View

5.6.6 The viewpoint represents the view available to passersby on the minor road and visitors to the national park. Receptors viewing from this location are considered of moderate sensitivity due to the prominence of the site in the view and the number of viewers. This view is across an upland landscape of grazing land. The minor road on which the viewpoint is located, extends away from the viewpoint towards a small conifer plantation in the near distance. This plantation partially obscures views over Penderyn towards Cefn Cadlan, Cwm Cadlan and the Mynydd-y-glog. The distinctive rocky slopes of Moel Penderyn are located to the extreme left of the view. The distant tops of the Brecon Beacons extend along the horizon in the centre of the view beyond Cefn Cadlan.

5.6.7 Penderyn Quarry is partly visible beyond the forestry plantation in the middle distance. The Twyn-y-Glog ridgeline, which extends down the right side of the quarry, and faces along the eastern side of the quarry are prominent in a gap between roadside vegetation. Shadow cast across the eastern quarry face decreases its prominence in the view. Overall the quarry is a small-scale feature in this view but it is a focal point in the view due to its contrast with the appearance of its upland setting.

View during quarrying

5.6.8 During the Scenario B quarrying, the existing south-eastern face beyond the Twyn-y-Glog ridgeline would be advanced. There will be no overall change in the extent of these faces in the view. Progressive restoration of these faces would soften their appearance during later phases of quarrying as vegetation establishes on the benches.

View after restoration

5.6.9 The main short term effect of the restoration strategy in this view would be the natural regeneration of the quarry benches. This planting would visually soften and reduce the extent of visible disturbance in the view following the restoration of the site.

5.6.10 In the long term, weathering of visible parts of quarry faces and natural regeneration of the benches would begin to soften the appearance of those faces visible along the southern side of the quarry. This would combine with the planting referred to above, to assist in the integration of the quarry into its landscape context in the view.

Assessment

5.6.11 The existing quarry is largely obscured by intervening higher ground. However, the relatively small part of the quarry faces which are visible result in visual intrusion. Under Scenario B the distant faces would be advanced towards the right, partly obscured by the Twyn-y-Glog.

5.6.12 Scenario A would result in the removal of the near section of the Twyn-y-Glog ridgeline resulting in continued disturbance in the view as these faces are advanced. These faces and the near section of the Twyn-y-Glog ridgeline would be retained under Scenario B bringing forward the start date for natural regeneration compared to Scenario A. During quarrying there would be a **minor adverse** impact resulting from

the extent of disturbance in the view resulting from both the Scenario B and Scenario A schemes.

5.6.13 Progressive restoration of the visible quarry benches would soften their appearance in the longer term and vegetation would establish on the quarry benches before the end of quarrying activity at the site. Visual impact would steadily reduce from **minor adverse** to **negligible** up to the restoration of the site. In the longer term following restoration, vegetation establishing on the quarry benches would soften their appearance and assist in the visual integration of the quarry in the view. Once scrub establishes on the benches there would be a **minor beneficial** impact on the view.

5.6.14 There is little difference in the visual effects upon visual receptors at this viewpoint between Scenario B and Scenario A.

Assessment Photograph 02

5.6.15 View south-east from the A4059 north of Penderyn, approximately 2.0 km from the site at an elevation of 280 m AoD

Existing View

5.6.16 Receptors viewing the site from this viewpoint are passersby on the A road and visitors to the national park, these receptors are considered to be of moderate sensitivity due to the prominence of the site in the view and the number of vehicle travellers and visitors. This view is across an upland landscape of unenclosed grassland. The A4059 main road passes through the view without highway boundaries. Stone walling and post and wire fencing are the main field boundary features of this area; examples of these are visible in the right of the view. The well wooded setting of Penderyn is visible in the right of the view with the ridgeline of Hirwaun Common visible in the distance beyond.

5.6.17 Penderyn Quarry is largely obscured by intervening landscape along the Cefn Cadlan ridgeline. Higher land to the east (left) of the quarry is visible along the horizon along with a proportion of the upper faces of the quarry along the Twyn-y-Glog ridgeline. These faces do not occupy a large proportion of the view but the view is focused towards these faces due to the landform and contrast with the foreground. Along the near edge of the site the top of screen planting is just visible above Cefn Cadlan.

5.6.18 Intervening higher ground obscures all parts of the quarry processing plant in this view.

View during quarrying

5.6.19 The quarry faces that would be advanced as a result of the Scenario B proposals are screened by Cefn Cadlan and the existing bund with its establishing planting on the northern side of the quarry. The face to the north of Twyn-y-Glog would remain unchanged, although progressive restoration of these faces will soften their appearance as vegetation establishes on the benches before the cessation of quarrying within the quarry void.

View after restoration

5.6.20 The main short term effect of the restoration strategy in this view would be the natural regeneration of the quarry benches. This planting would visually soften and reduce the extent of visible disturbance in the view following the restoration of the site.

5.6.21 In the long term, weathering of visible parts of quarry faces and natural regeneration of the benches would begin to soften the appearance of those faces visible along the southern side of the quarry. This would combine with the planting referred to above to assist in the integration of the quarry into its landscape context in the view.

Assessment

5.6.22 The existing quarry is largely obscured by intervening higher ground and existing trees along its northern edge. The relatively small part of the quarry faces which are visible, to the north of Twyn-y-Glog, result in visual intrusion. However, the proposed area of extraction is screened by intervening topography, resulting in operational phase creating an impact of **none** to receptors at the viewpoint.

5.6.23 The working of the proposed extension would not increase the proportion of the quarry visible in the view. Restoration of the visible quarry benches would soften their appearance in the longer term and vegetation would establish on the quarry benches before the end of quarrying activity at the site. The visual impact of the quarry would steadily reduce up to the restoration of the site. In the longer term following restoration, vegetation establishing on the quarry benches would soften their appearance and assist in the visual integration of the quarry in the view. Once scrub establishes on the benches there would be a **minor beneficial** impact on the view.

5.6.24 The Scenario A option would reduce the overall height of the faces as the western (right) section of the Twyn-y-Glog ridge is removed. This would result in little difference in the visual effects upon visual receptors at this viewpoint between Scenario B and Scenario A.

Assessment Photograph 03

5.6.25 View north-east from minor road near Pontbren Llwya, approximately 1.3 km from the site at an elevation of 260 m AoD;

Existing View

5.6.26 Receptors viewing from the viewpoint would be passersby on the minor road and visitors to the national park, there are also nearby residential properties from which a similar view many be available. However, due to the glimpsed, framed and oblique nature of the view, the receptors are considered to be of moderate sensitivity. The Twyn-y-Glog ridgeline forms the horizon in the centre of the view and Mynydd-y-glog is located to the right, largely obscured by vegetation. To the left of the ridgeline disturbed ground within Penderyn Quarry is visible, although the exposed rock appears consistent with the gritstone exposed along the adjacent ridgeline.

5.6.27 Below the Twyn-y-Glog ridgeline in the view is a well vegetated landscape of small fields defined by overgrown hedgerows and small groups of trees. These fields and woodland are near the Bodwigiad farmstead, which is obscured by the trees in the foreground.

View during quarrying

5.6.28 Ongoing quarrying at the site under Scenario B would result in no changes to the profile of the Twyn-y-Glog ridgeline, the proposed extraction site being beyond the ridge and screened by its landform, while the visibility of vehicle movement along the ridgeline would be consistent with existing permissions.

View after restoration

5.6.29 The restoration proposals within the quarry void would not be apparent in this view. Natural regeneration of disturbed ground along the southern boundary of the quarry would supplement the existing hedgerow in the long term.

Assessment

5.6.30 Existing quarrying is not an intrusive element in the existing view due to the Twyn-y-Glog ridge preventing views into the quarry void, although the movements of vehicles along the ridgeline are visible. The overall height of the ridge would not be lowered by the Scenario B scheme. There would be no other change in the appearance of the Twyn-y-Glog ridgeline.

5.6.31 The progressive restoration of the quarry faces and benches would be visible in the view. Following restoration of the site the visual impact would be **negligible**.

5.6.32 The Scenario A option would result in quarrying being visible to receptors at this viewpoint. The removal of the western section of the Twyn-y-Glog ridge would remove an important landmark feature. The visual effects of this Scenario A scheme would be **moderate adverse** due to a medium and permanent magnitude of change in this view.

Assessment Photograph 04

5.6.33 View south-east from minor road at Cwm Cadlan, approximately 1.0km from the site at an elevation of 260 m AoD.

Existing View

5.6.34 Receptors viewing the site from the viewpoint would be passersby on the minor road, nearby residents, and visitors to the national park. These receptors are considered to be of moderate sensitivity due to the prominence of the site in the view. The Cwm Cadlan valley forms the foreground of the view passing from left to right. Overgrown hedgerow field boundaries and small areas of scrub set within the wetland along the valley floor form the foreground of the view. Twyn-y-Glog ridgeline and the side slopes of Mynydd-y-glog rise towards the left of the view. The village of Penderyn is partly visible in the valley to the right of the view with higher ground at Moel Penderyn rising

further to the right. The ridgeline of Hirwaun Common is visible in the distance in the right of the view where is forms the horizon.

5.6.35 Penderyn Quarry is located in the centre of the view on the side slopes of Twyn-y-Glog ridgeline where the land rises away from the viewpoint, with the processing plant located amongst woodland on lower ground to its right. The haul road to the southern edge of the quarry is visible to the left of the processing plant. The upper parts of the southern faces of the quarry are visible to the left of this area, although the application site is screened from view. These faces are largely obscured by the restored tip and screen planting along the northern edge of the site.

5.6.36 Larger buildings within the processing plant, including the primary crusher and the road coating plant, rise above the intervening vegetation. This cluster of buildings appears out of character with its surroundings in the view.

View during quarrying

5.6.37 The proposed area of extraction under Scenario B lies beyond the existing screen bund and its planting along the northern edge of the quarry, it is therefore largely screened from view. The existing screen planting would continue to develop and eventually screen all of the visible faces within the quarry along the north side of Twyn-y-Glog.

View after restoration

5.6.38 In the long term, weathering of quarry faces and natural regeneration of benches within the quarry void would begin to soften the appearance of quarry faces. However, these faces would not be visible in this view. Vegetation establishing on the upper benches would merge with the existing screen planting along the northern edge of the site in the longer term, reinforcing the strong pattern of vegetation within Cwm Cadlan.

Assessment

5.6.39 Ongoing quarrying will result in continued disturbance to quarry faces along the southern edge of the site. Existing screen planting will continue to establish, which will offset potential adverse visual impacts resulting from the changes to these faces. There will be an overall reduction in the extent of disturbance in the view. Existing screen planting will also provide additional screening of the quarry plant during the remainder of the life of the quarry.

5.6.40 The Scenario B proposal would not create any additional impacts, any changes that may be visible would be interpreted as part of the existing scheme, creating a **negligible impact** during the operational phase.

5.6.41 Scenario A results in a **major adverse** impact on this view. However, this would reduce progressively to moderate adverse during initial phases of quarrying

5.6.42 The existing quarry plant site is a relatively intrusive element in the existing view due to the massing of buildings in a rural setting. The removal of these buildings following the cessation of quarrying will result in a major beneficial impact on visual amenity.

5.6.43 Progressive restoration of upper quarry faces will have softened their appearance considerably before quarrying activities are complete within the quarry void. Although, these faces will be obscured by the establishing screen vegetation along the near edge of the site in the view. The proposed extension would be interpreted as part of the existing scheme and would not create any additional impacts, therefore its impact is assessed as **negligible**.

5.6.44 The Scenario A option would reduce the overall height of the faces as the western (right) section of the Twyn-y-Glog ridge is removed. This would result in little difference in the visual effects upon visual receptors at this viewpoint between Scenario B and Scenario A.

Assessment Photograph 05

5.6.45 View north-east from A4059 main road at Penderyn Community Centre, approximately 1.4km from the site at an elevation of 235 m AoD.

Existing View

5.6.46 Receptors viewing the site from this viewpoint are residents in Penderyn, passersby by on the A1059, nearby residents and visitors to the national park. The Twyn-y-Glog ridgeline is located on the horizon in the centre of the view. Existing vegetation along the eastern side of the A4059 and along a dismantled railway line form a continuous band of vegetation between the Twyn-y-Glog ridgeline and the viewpoint. The contrast between this vegetation and the open land along the ridgeline focuses the view towards the ridge. Unenclosed grazing land to the right of the ridgeline form the side slopes the Mynydd-y-glog which forms the horizon. To the left of the ridgeline, a glimpsed view of disturbed ground within Penderyn Quarry is visible, although the exposed rock appears consistent with the gritstone exposed along the adjacent ridgeline.

View during quarrying

5.6.47 The proposed extraction under Scenario B would result in minor disturbances to the Twyn-y-Glog ridgeline, connected to its use for access to the proposed working area; refer to **Assessment Photomontage 01(B)** on **Figure 11.2**. There would be no other change in the appearance of the Twyn-y-Glog ridge.

View after restoration

5.6.48 The restoration proposals within the quarry void would not be apparent in this view. Natural regeneration of disturbed ground along the southern boundary of the quarry would supplement the existing hedgerow in the long term.

Assessment

5.6.49 Existing quarrying is not an intrusive element in the existing view due to the Twyn-y-Glog ridge preventing views into the quarry void. The quarry scheme would not result in changes to the profile of the ridge and the overall height of the ridge would not be lowered, nor would there be any other change in the appearance of the Twyn-y-Glog ridgeline.

5.6.50 The visual impact in this view would be **negligible** during quarrying as a result of there being no newly created impacts associated with the proposed extension. The progressive restoration of the quarry faces and benches would be visible in the view.

5.6.51 Following restoration of the site the visual impact would be **negligible**. The minor changes to the Twyn-y-Glog ridge profile would be difficult to discern in the long term.

5.6.52 The Scenario A option would result in quarrying being visible to receptors at this viewpoint. The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature. The visual effects would be **moderate adverse** due to a medium and permanent magnitude of change in this view; refer to **Assessment Photomontage 01(A)** on **Figure 11.1**.

Assessment Photograph 06

5.6.53 View north-west from open access rights to the south of the site, approximately 410m from the site at an elevation of 310 m AoD.

Existing View

5.6.54 Receptors viewing from this viewpoint would be users of the access land and visitors to the national park. The Twyn-y-Glog ridgeline forms the horizon across the central part of the view. Grazing land rises gently away from the viewpoint before becoming steeper where it forms the eastern side slopes of the ridgeline.

5.6.55 A restored quarry tip in the south-east corner of the site, and in front of the proposed extraction area, is visible on the skyline to the right of the Twyn-y-Glog ridgeline. To the left of the view the ridgeline slopes down towards the wooded valley around the village of Penderyn, allowing views towards more elevated land beyond. The existing features within the site of Penderyn Quarry are not currently visible in this view although the haul road that runs along the top of Twyn-y-Glog is perceptible along the ridgeline.

View during quarrying

5.6.56 Proposed quarrying under Scenario B would result in barely perceptible changes to the crest of the Twyn-y-Glog ridgeline; refer to **Assessment Photomontage 02(B)** on **Figure 11.4**. The proposed working area would be screened from the viewpoint by the restored tip to the south-east of the site.

View after restoration

5.6.57 The progressive restoration of the upper quarry benches would not be apparent in this view.

Assessment

5.6.58 The small scale of change during quarrying and following restoration would be barely perceptible in this view. During Scenario B quarrying and following restoration there would be a **negligible** visual impact on this view.

5.6.59 Proposed quarrying under Scenario A would result in the removal of the western and central section of the Twyn-y-Glog ridgeline; refer to **Assessment Photomontage 02(A)** on **Figure 11.3**. This would result in the loss of a landmark feature and result in a significant change in the view.

Table 5-5 Assessment of visual effects (Scenario A - currently permitted scheme)

View-point	Viewers/ Visual Receptors & Sensitivity	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
01	Users of public roads, open views: **moderate sensitivity** Visitors to the BBNP, open views: **high sensitivity**	Working of the western end of the ridgeline would be visible view: **small-negligible**	Working of the western end of the ridgeline would be visible view: **small-negligible**	Minor adverse: **not significant**	Negligible: **not significant**
02	Users of public roads, open views: **moderate sensitivity** Visitors to the BBNP, open views: **high sensitivity**	Working of the western end of the ridgeline would be visible view: **small-negligible**	Working of the western end of the ridgeline would be visible view: **small-negligible**	Minor adverse: **not significant**	Negligible: **not significant**
03	Users of public roads, filtered, framed or oblique views: **lesser sensitivity** Visitors to the BBNP, filtered, oblique or framed views: **moderate sensitivity** People in residential properties, filtered, oblique or partial views: **moderate sensitivity**	The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature: **medium**	The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature: **medium**	Moderate adverse: **significant**	Minor-Moderate adverse: **not significant**
04	Users of public roads, open views: **moderate sensitivity** Visitors to the BBNP, open views: **high sensitivity** People in residential properties, open views: **high sensitivity**	Working of the western end of the ridgeline would be visible view: **small-negligible**	Working of the western end of the ridgeline would be visible view: **small-negligible**	Minor-Moderate adverse: **not significant**	Minor-Moderate adverse: **not significant**

View-point	Viewers/ Visual Receptors & Sensitivity	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
05	Users of public roads, filtered, framed or oblique views: **lesser sensitivity** Visitors to the BBNP, filtered, oblique or framed views: **moderate sensitivity** People in residential properties, filtered, oblique or partial views: **moderate sensitivity**	The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature: **medium**	The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature: **medium**	Moderate adverse: **significant**	Minor-Moderate adverse: **not significant**
06	Users of access land, open views: **high sensitivity** Visitors to the BBNP, open views: **high sensitivity**	The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature: **high-medium**	The removal of the western section of the Twyn-y-Glog ridge would remove a landmark feature: **high-medium**	Major adverse: **significant**	Major adverse: **significant**

Table 5-6 Assessment of visual effects (Scenario B – proposed development)

View-point	Viewers/ Visual Receptors & Sensitivity	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
01	Users of public roads, open views: **moderate sensitivity** Visitors to the BBNP, open views: **high sensitivity**	Working of the proposed extension site would be screened from view: **none**	The proposed extension site would be screened from view: **none**	Minor adverse to negligible: **not significant**	Minor beneficial: **not significant**

View-point	Viewers/ Visual Receptors & Sensitivity	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
02	Users of public roads, open views: **moderate sensitivity** Visitors to the BBNP, open views: **high sensitivity**	Working of the proposed extension site would be screened from view: **none**	Additional and maturing woodland: **small**	None: **not significant**	Minor beneficial: **not significant**
03	Users of public roads, filtered, framed or oblique views: **lesser sensitivity** Visitors to the BBNP, filtered, oblique or framed views: **moderate sensitivity** People in residential properties, filtered, oblique or partial views: **moderate sensitivity**	Working of the proposed extension site would be screened from view: **none**	Establishment of screening vegetation: **negligible**	Negligible: **not significant**	Negligible: **not significant**
04	Users of public roads, open views: **moderate sensitivity** Visitors to the BBNP, open views: **high sensitivity** People in residential properties, open views: **high sensitivity**	Working of the proposed extension site would be screened from view: **none**	Additional and maturing woodland: **small**	Negligible: **not significant**	Negligible: **not significant**
05	Users of public roads, filtered, framed or oblique views: **lesser sensitivity** Visitors to the BBNP, filtered, oblique or framed views: **moderate sensitivity**	Working of the proposed extension site would be screened from view: **none**	The proposed extension site would be screened from view: **none**	Negligible: **not significant**	Negligible: **not significant**

View-point	Viewers/ Visual Receptors & Sensitivity	Magnitude of change: during operation; recommended mitigation	Magnitude of change: after restoration; recommended mitigation	Degree & nature of effects & significance: during operation	Degree & nature of effects & significance: after restoration
	People in residential properties, filtered, oblique or partial views: **moderate sensitivity**				
06	Users of access land, open views: **high sensitivity** Visitors to the BBNP, open views: **high sensitivity**	Working of the proposed extension site would be screened from view: **none**	Establishment of screening vegetation: **negligible**	Negligible: **not significant**	Negligible: **not significant**

Visual Effects Conclusions

5.6.60 The visual appraisal, informed by the Zone of Theoretical Visibility (ZTV) study identified locations from which Penderyn Quarry is theoretically visible. Six viewpoints were identified as representative of the most sensitive views available and the impact of the proposed development were assessed against the baseline of the permitted scheme and existing quarry. The visual impact of the Scenario B scheme is assessed as varying between **minor adverse** to **negligible** during initial phase of quarrying, given the scale of the changes and the sensitivity of the views. The adverse effects relate to receptors located to the north and west where Scenario B would delay the restoration of faces due to ongoing quarrying southwards.

5.6.61 The proportion of the view occupied by quarrying would not increase for visual receptors under Scenario B. The retention of the western and central section of the Twyn-y-Glog ridge would avoid potential visual effects from the south, retaining a **locally significant** landscape feature which adds the visual diversity and attractiveness of views available from south.

5.6.62 The visual impacts would be of far greater significance for the Scenario A scheme, particularly in views towards the site from the south where the removal of the Twyn-y-Glog ridge would result in the loss of a landmark feature. The Scenario B scheme results in the western and central section of the Twyn-y-Glog ridge being retained, offering effective screening of the quarry void from the south. When assessed against Scenario A, the proposed quarry development, 'Scenario B', would mitigate the adverse effects on views towards the quarry from the south. This would significantly reduce the effects of the quarry on visual amenity for these receptors.

5.7 Mitigation measures

During the proposed quarrying operations (Scenario B)

5.7.1 The primary mitigation measure under the Scenario B proposal is to relinquish the rights to extraction of the western and central section of the Twyn-y-Glog ridgeline. This section of the ridge offers effective screening of the quarry operations from the south and the ridge itself is an important element in defining landscape character.

5.7.2 Secondary mitigation measures relating to the upper quarry benches and faces along the southern side of the quarry are based on progressive restoration, where consistent with operational requirements. A variety of treatments would be used to enhance the ecological and landscape value of the site. These are summarised below and described in detail in Section 6.0, and are shown on **Figure 10**.

Restoration

5.7.3 The final restoration and after use proposals for the site represent the principal long-term measure in mitigation of potential landscape and visual effects. They are

described in detail in Chapter 4.0 of the ES and are shown on **Figure 10.** In summary, the principal features of the restoration would be, as follows:

- There is significant potential for biodiversity enhancement during the restoration of the site, including quarry faces, benches and the quarry plant site. The upper quarry benches and faces along the southern boundary of the site would be progressively restored, subject to quarry operational requirements. A variety of treatments would be used to enhance the ecological and landscape value.
- Opportunities are available to retain attractive rock outcrops along the upper faces at the southern edge of the quarry as crags, and to retain naturally occurring crevices and pockets in which different types of vegetation can establish. Species rich limestone grassland will naturally colonise rocky outcrops. Quarry faces would generally be left to regenerate naturally, which will in part be encouraged by low scree slopes and crushed rock placed at the toe of faces.
- Restoration work would commence on the upper benches along the southern boundary of the quarry void as soon as practicable. This would occur once the upper faces have been worked to their final position and before the faces below reach their final position. A variety of bench treatments are proposed. Coarse rock and scree remaining from quarrying would either be retained on the bench as a substrate, or form the basis of one of the alternative treatments to provide a variable and uneven surface texture creating suitable ground condition to facilitate ecological succession. In selected locations soiling of sections of quarry bench would take place to allow native scrub to naturally regenerate. Natural regeneration of vegetation would be more desirable in terms of the likely species diversity that would result in the longer term.

5.7.4 Management of the site, including the establishing vegetation, would focus on its nature conservation interest and amenity potential, resulting in substantial beneficial impacts on the biodiversity of the site.

Mitigation Measures Conclusions

5.7.5 The primary mitigation measure under the Scenario B proposal is to relinquish the rights to extraction of the western and central section of the Twyn-y-Glog ridgeline. This section of the ridge offers effective screening of the quarry operations from the south and the ridge itself is an important element in defining landscape character.

5.7.6 The secondary mitigation measures focus on the opportunities for progressive restoration of the quarry faces and benches as the quarry development proceeds. Restoration work would commence on the upper benches along the southern boundary of the quarry void as soon as practicable. This would occur once the upper faces have been worked to their final position and before the faces below reach their final position. A variety of bench treatments are proposed, as discussed in Chapter 4.0 of the ES.

5.7.7 Finally, in the longer term, the overall site will be the subject of a detailed restoration scheme which will provide for the restoration and natural re-vegetation of the benches.

6.0 Summary and Conclusions

6.1 Summary of findings

The proposed development

6.1.1 Penderyn Quarry is situated towards the southern edge of the Brecon Beacons National Park, some 2.5km north of the settlement of Hirwaun. The site lies within an upland landscape of rough grazing with some woodland/conifer elements. It is defined as a 'valley sides with pattern of field boundaries/woodland, but detractive elements e.g. urban edge, pylons traffic noise, of local importance' within the LANDMAP assessment.

6.1.2 The application site boundary covers an area to the east of the main southern quarry faces, within the south-eastern corner of the area of freehold land ownership, forming a small lateral extension to the existing footprint of the quarry workings at the site. In view of the recognised ecological potential of restored mineral workings, the main objectives of the restoration proposals are ecological enhancement and nature conservation.

Landscape assessment

6.1.3 The character of the landscape is inextricably linked to the pattern of landform and prominent landmark topography. The Twyn-y-Glog ridgeline is locally important, being an important element of the wider pattern of landform and providing screening of quarrying activities from the south. The impact on the landform pattern would be **negligible** during the proposed development, 'Scenario B', following restoration of the site.

6.1.4 The character of the landscape is partly derived from the vegetation pattern including the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn. This pattern is regarded as a receptor of high sensitivity due to its importance within the LANDMAP assessment of the area and its contribution to landscape character within the Brecon Beacons National Park.

6.1.5 The vegetation pattern of the site and its context, which includes the contrast between the open uplands and the visually prominent field boundary vegetation within the valley at Penderyn, is a sensitive landscape receptor. The impact on the vegetation pattern would be **negligible** during the proposed development. Natural regeneration along the quarry benches and continued development of existing screen planting would result in a positive contribution to the vegetation pattern in the longer term. Following restoration

of the site there would be a **minor beneficial** impact on the vegetation pattern of the area.

6.1.6 Landscape character contributes significantly to landscape amenity, as experienced by people who use the public footpaths, roads and visit open access land within the immediate vicinity of the site and to a lesser extent nearby residents. The impacts on landscape character and its contribution to landscape amenity vary from **minor adverse** to **negligible** depending on the distance between the site and the susceptibility of the receptor to landscape change.

6.1.7 The setting of nationally designated landscapes are highly sensitive landscape receptors. However, as the proposed quarrying would create an imperceptible additional impact on the footprint, scale and activity at the quarry, the impact on the setting of these landscape receptors would vary from **negligible** during operation to **none** in the long term, following the establishment of the restoration proposals for the quarry site.

6.1.8 The Scenario A quarrying would remove a prominent section of the Twyn-y-Glog ridgeline resulting in **significant adverse** effects on the pattern of landform and landscape character, particularly to the south of the quarry. The Scenario A quarrying would result in **locally significant** adverse effects on landscape receptors. When assessed against Scenario A, the proposed quarry development, 'Scenario B', would mitigate the adverse effects on the local landform pattern. This would significantly reduce the effects of the quarry on landscape character.

Visual assessment

6.1.9 The visual appraisal, informed by the Zone of Theoretical Visibility (ZTV) study identified locations from which Penderyn Quarry is theoretically visible. Six viewpoints were identified as representative of the most sensitive views available and the impact of the proposed extension were assessed against the baseline of the permitted scheme and existing quarry. The visual impact of the Scenario B scheme is assessed as varying between **minor adverse** to **negligible** during initial phase of quarrying, given the scale of the changes and the sensitivity of the views.

6.1.10 The visual impacts would be of far greater significance for the Scenario A scheme considered, particularly in views towards the site from the south where the removal of the Twyn-y-Glog ridge would result in the loss of a landmark feature. The Scenario B scheme results in the western and central section of the Twyn-y-Glog ridge being retained, offering effective screening of the quarry void from the south. When assessed against Scenario A, the proposed quarry development, 'Scenario B', would mitigate the adverse effects on views towards the quarry from the south. This would significantly reduce the effects of the quarry on visual amenity for these receptors.

6.2 Policy considerations

6.2.1 The proposed extension to the quarry is in accordance with **Policy SP1** of the Brecon Beacons National Park Local Development Plan in that by creating no new adverse impacts, it assists in conserving the natural beauty of the park while the quarry's continued operation would support the economic well-being of the local area.

6.2.2 In accordance to **Policy 1**, the development proposals are 'appropriate to the surroundings', previously established planting is helping to 'integrate it into the landscape', and restoration scheme 'promotes opportunities for the conservation and enhancement of bio/geodiversity'

6.2.3 **Policy 21** require that development which directly or indirectly affects those areas listed within the 'Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales' will only be permitted if the essential integrity and coherence of the area, as defined in the Register, is preserved'. As there are no long-term adverse impacts identified associated with the protected landscape, this policy has been adhered to.

6.3 Designated landscapes

6.3.1 The site is situated within the Brecon Beacons National Park, the management plans for which states its overarching ambitions for the next 20 years. The development proposals are in accordance with these ambitions in that the continued operation of the quarry would create no new adverse impacts, so the National Park's 'value as a protected area' would be maintained. There would also be no further impacts on 'rural character, Welsh way of life and sense of remoteness'.

6.3.2 The integrity of the East Fforest Fawr and Mynydd-y-glog Landscape of Special Historic Interest would be maintained if permission is granted for Scenario B as this would not create any impacts that would have an adverse impact on either its setting. The Scenario A quarrying would remove a prominent section of the Twyn-y-Glog ridgeline resulting in **adverse effects** on the setting of the Landscape of Special Historic Interest in Wales.

6.4 Conclusions

6.4.1 The proposed quarry development based on Scenario B at Penderyn Quarry into the south-easternmost part of the freehold land ownership area would not create additional adverse impacts above those associated with the existing quarry workings at the site. It should be noted that whilst the proposed new quarrying within Scenario B represents a small lateral extension to the currently existing quarry footprint, if permission is granted and the central and western areas of the Twyn-y-glog Ridge are retained then there will be an overall reduction in the permitted extraction area at the site of 0.58 Ha. The proposed development would not result in additional impact on the landscape or on the views in the area.

6.4.2 The eventual footprint of quarrying under Scenario B would reduce through the retention of the western and central section of the Twyn-y-Glog ridgeline, an area to be excluded from quarrying within the proposed development. As a result of the retention of this locally important landform, the proposed development represents a significant reduction in the landscape and visual impact which would occur if the 'green hatched area' on **TYG 1a** was quarried, as is currently permitted. The retention of the Twyn-y-glog Ridge mitigates significantly adverse effects that would occur under the Scenario A proposal.

6.4.3 In contrast to what is proposed, the Scenario A quarrying involving the removal of a prominent section of the Twyn-y-Glog ridgeline would result in adverse landscape and visual impacts. The quarrying operations would be visible over a larger area than is currently the case, resulting in additional visual receptors being affected and the majority of receptors being affected adversely to a greater degree. It would also remove a prominent landmark feature resulting in **locally significant** adverse effects on landscape receptors.

Appendices

Appendix 1 - General Assessment Methodology

A1.1 The methodology used in this assessment has been based upon the recommendations in Guidelines for Landscape and Visual Impact Assessment 3rd Edition published by The Landscape Institute and the Institute of Environmental Management & Assessment in April 2013 (GLVIA3).

Landscape effects assessment

Establishing the landscape baseline

A1.2 Baseline studies for assessing the landscape effects included a mix of desk study and field work to identify and record the character of the landscape and the elements, features and aesthetic and perceptual factors which contribute to it.

A1.3 The elements that make up the landscape in the study area were recorded, including:

- physical influences - geology, soils, landform, drainage and water bodies;
- land cover, including different types of vegetation and patterns and types of tree cover;
- the influence of human activity, such as, land use and management, the character of settlements and buildings, the pattern and type of fields and enclosure; and
- the aesthetic and perceptual aspects of the landscape, e.g.: its scale, complexity, openness, tranquillity, wildness.

A1.4 The overall character of the landscape in the study area was considered, including the particular combinations of elements and aesthetic and perceptual aspects that make each distinctive, usually by identification as key characteristics of the landscape. Evidence about change in the landscape was considered, including the condition of the different landscape types and/or areas, and their constituent parts and evidence of current pressures causing change in the landscape.

Landscape value

A1.5 The European Landscape Convention promotes taking account of all landscapes, including ordinary or undesignated landscapes. The relative value attached to the landscape was considered at the baseline stage to inform the judgments about the effects likely to occur, whether to areas of landscape as a whole or to individual elements, features and aesthetic or perceptual dimensions, at the community, local, national or international levels.

A1.6 Landscape designation is a starting point in understanding landscape value but value may also be attached to undesignated landscapes. Special Qualities, reasons for designation, relevant policies in management plans or designation-specific policies in development plans, were consulted in assessing the relative value of the landscape within designated areas.

A1.7 Areas of landscape whose character is judged to be intact and in good condition, and where scenic quality, wildness or tranquillity, and natural or cultural heritage features make a particular contribution to the landscape, or where there are important associations, are likely to be highly valued. For "ordinary, everyday landscapes", the judgement was based upon the degree to which they are representative of typical character, the intactness of the landscape and the condition of its elements, scenic quality, sense of place, aesthetic and perceptual qualities.

A1.8 In Wales, the evaluation of the five aspects of the landscape described in LANDMAP was used, in conjunction with the criteria in Table A2- 1 below, where appropriate.

A1.9 When determining the landscape value the following elements were considered, in addition to consideration of values associated with designations:

- The importance of the landscape, or the perceived value of the landscape to users or consultees, as indicated by, for example, international, national or local designations;
- The importance of elements or components of the landscape in the landscape character of the area or in their contribution to the landscape setting of other areas;
- Intrinsic aesthetic characteristics, scenic quality or sense of place, including providing landscape setting to other places;
- Cultural associations in the arts or in guides to the area, or popular use of the area for recreation, where experience of the landscape is important;
- The presence and scale of detractors in the landscape and the degree to which they are susceptible to improvement or upgrading; and
- Conservation interests: The presence of features of wildlife, earth science or archaeological or historical and cultural interest can add to the value of the landscape as well as having value in their own right.

A1.10 The following table indicates the criteria used to determine the Landscape value:

Table A1- 1 Criteria to determine landscape value

Value	Criteria
High Value	Landscapes subject to international, national or local designations, **and** non-designated landscapes where the following considerations apply: Areas of landscape whose character is judged to be intact and in good condition; Scenic quality, wildness or tranquillity, and/or natural or cultural heritage features make a particular contribution to the landscape; There are important cultural and artistic associations; They are representative of typical character of the area or have a character or elements that are valued for their rarity; Particular components may be identified as important contributors to the landscape character;

Value	Criteria
	The landscape is valued for recreational activities where experience of the landscape is important.
Low Value	Areas of landscape whose character is in poor condition; Scenic quality, wildness or tranquillity, and/or natural or cultural heritage features are not key characteristics of the landscape; Cultural and artistic associations are absent; They are not representative of typical character of the area, but are also not valued for rarity; Particular components may be identified as important contributors to the landscape character; There is little scope for recreational activities where experience of the landscape is important.

A1.11 Where the value falls between high and low, an intermediate level of value is assigned, e.g. "medium".

A1.12 The landscape baseline report aims to:

- describe, map and illustrate the character of the landscape of both the wider study area and the site and its immediate surroundings;
- identify and describe the individual elements and aesthetic and perceptual aspects of the landscape, particularly those that are key characteristics contributing to its distinctive character;
- indicate the condition of the landscape, including the condition of landscape elements or features;
- project forward drivers and trends in change and how they may affect the landscape over time, in the absence of the proposal; and
- evaluate the landscape and, where appropriate, its components, aesthetic and perceptual aspects, particularly the key characteristics.

Assessing the Landscape Effects

A1.13 The baseline information about the landscape was combined with understanding of the details of the proposal to identify and describe the landscape effects. The landscape receptors were identified, that is, the components or aspects of the landscape likely to be affected, such as, overall character or key characteristics, individual elements or features, or specific aesthetic or perceptual aspects.

A1.14 Interactions between the landscape receptors and the components or characteristics of the development at its different stages were considered: construction and operation, and the different types of effect: direct and indirect, secondary, cumulative, short, medium and long- term, permanent and temporary, adverse and beneficial.

A1.15 Landscape effects considered included:

- change in and/or partial or complete loss of elements, features or aesthetic or perceptual aspects that contribute to the character and distinctiveness of the landscape;
- addition of new elements or features that will influence the character and distinctiveness of the landscape; and
- combined effects of these changes on overall character.

A1.16 The landscape effects were categorised as adverse, beneficial, or negligible in their consequences for the landscape, judged from the degree to which the proposal fits with existing character and the contribution the development makes to the landscape in its own right, even if in contrast to existing character.

A1.17 The assessment of the landscape effects was based on assessment of the sensitivity of the landscape receptors and the magnitude of the change in the landscape arising from the proposal.

Sensitivity of the landscape receptors

A1.18 The sensitivity of landscape receptors combines judgments of their susceptibility to the type of change arising from the development proposal and the value attached to the landscape.

A1.19 Susceptibility to change means 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.

A1.20 The value attached to the landscape receptors was established in the baseline study.

A1.21 The sensitivity of landscape receptors to change is categorised as high, moderate or lesser, in accordance with the criteria set out below to determine the susceptibility and value of the landscape receptor.

A1.22 When determining the landscape susceptibility, the following elements were considered:

- The ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the landscape character and/or the achievement of landscape planning policies and strategies;
- The degree to which the changes arising from the development would alter the overall character, quality/condition of a particular landscape type or area;
- The degree to which the changes arising from the development would alter individual elements or features or aesthetic and perceptual aspects important to the landscape character; and
- Existing landscape studies may identify the sensitivity of the landscape type or area or its characteristics to the general type of development that is proposed.

A1.23 The following table indicates the criteria used to determine the landscape susceptibility:

Table A1- 2 Criteria for landscape susceptibility

Susceptibility	Criteria
Very Susceptible	The changes arising from the development would alter the overall character, quality/condition of a particular landscape type or area. The changes arising from the development would alter or remove individual elements or features or aesthetic and perceptual aspects important to, or add new elements incongruous to, the landscape character. The proposed development would compromise the achievement of landscape planning policies and strategies for the landscape. The changes arising from the development would alter or remove elements or features or aesthetic and perceptual aspects important to the landscape character, or add new elements that would reinforce the key characteristics of the landscape character.
Not Susceptible	The changes arising from the development would not alter the overall character, quality/condition of a particular landscape type or area. The proposed development would not compromise the achievement of landscape planning policies and strategies for the landscape. The changes arising from the development would not alter or remove individual elements or features or aesthetic and perceptual aspects important to, or add new elements incongruous to, the landscape character.

Magnitude of Landscape Change

A1.24 Effects on landscape receptors are assessed in terms of size or scale, the geographical extent of the area influenced, and its duration and reversibility.

Table A1- 3 Considerations for assessing magnitude of landscape change

Consideration	Indicative criteria
Size or scale of change	Categorised on a scale of Large, Medium, Small, Negligible or None, based upon: The extent of existing landscape elements that will be lost (or added), the proportion of the total extent that this represents and the contribution of that element to the character of the landscape; The degree to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or additions of new ones;

Consideration	Indicative criteria
	Whether the effect changes the key characteristics of the landscape, which are critical to its distinctive character.
Geographical area over which the landscape would be changed	Categorised on a scale of: Small: at site level, within the development site itself or at the level of the immediate setting of the site; Medium: at the scale of the landscape type or character area within which the proposal lies; Large: where the development influences several landscape types or character areas.
The duration of the changes	The durations of changes due to the development are categorised as: Short term: zero to five years; Medium term: five to ten years; Long term: ten to twenty-five years Permanent: more than twenty-five.
Reversibility	The prospect and the practicality of the effect being reversed within twenty-five years

Significance of landscape effects

A1.25 Final conclusions about the degree of effect relate the separate judgements about sensitivity of the receptors and magnitude of the changes combined, based upon the following considerations:

- Major effect: irreversible adverse or beneficial effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes;
- Moderate effect: where effects are judged to be between the criteria for either Major or Minor effects;
- Minor effect: Reversible adverse or beneficial effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to, but are not key characteristics of the character of landscapes of community value;
- Negligible effects where there is little or no perceived change to the existing landscape character or the change is difficult to discern.

A1.26 The criteria for significance of landscape effects are based upon the following considerations:

- Major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance.
- Reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to, but are not key

characteristics of the character of landscapes of community value, are likely to be of least significance and may be judged not significant.
- Where assessments of significance place landscape effects between these extremes, judgments are made about whether they are significant.
- Where landscape effects are judged to be significant and adverse, proposals for preventing/avoiding, reducing or offsetting or compensating for them are set out (referred to as mitigation).

A1.27 The significant landscape effects remaining after mitigation are summarised as the final step in the process.

Visual effects assessment

Establishing the visual baseline

A1.28 Baseline studies for visual effects establish:

- the area in which the development may be visible
- the different groups of people who may experience views of the development
- the location where they will be affected
- the nature of the views at those points
- where possible, the approximate or relative number of the different groups of people who may be affected by the changes in views or visual amenity.

A1.29 In identifying important viewpoints, heritage assets in the vicinity of the proposed development and their settings were taken into account.

A1.30 The potential areas where the site and development proposal are likely to be visible were mapped. Landscape components affecting visibility, like buildings, walls, fences, trees, hedgerows, woodland and banks, were identified through field surveys and mapped.

A1.31 The people within the area who may be affected by the changes in views and visual amenity – the visual receptors – were identified:

- people living in the area
- people passing through on roads and the local lanes
- people visiting promoted landscapes or attractions
- people engaged in recreation of different types, including users of public rights of way, bridleways and access land.

A1.32 Views that form part of the experience and enjoyment of the landscape were noted, for example, from promoted paths, tourist or scenic routes and associated viewpoints.

A1.33 The proposed viewpoints were discussed with the local authority, and informed by the visual appraisal, field surveys, and by desk research on access and recreation, heritage assets and other valued landscapes, tourist attractions and destinations, popular vantage points, and relative distribution of population. Viewpoints were selected to represent the experience of different types of visual receptors.

A1.34 The details of viewpoint locations were mapped and catalogued, and the direction and area covered by the view recorded, sufficient to allow someone else to return to the location and record the same view. Photography was carried out in accordance with the Landscape Institute's guidance in Photography and Photomontage in landscape and visual impact assessment, Advice Note 01/11.

A1.35 The baseline report aims to describe, map and illustrate:

- the type and relative numbers of people (visual receptors) likely to be affected, making clear the activities they are likely to be involved in when enjoying the view;
- details of the viewpoints and of the visual receptors likely to be affected at each;
- the nature, composition and characteristics of the existing view, noting any particular horizontal or vertical emphasis, and any key foci; existing views have been illustrated in annotated photographs identifying important components of the view.
- elements, such as landform, buildings or vegetation, which may interrupt, filter or otherwise influence the views;
- whether or how the view may be affected by seasonal or weather variation.

Assessing the Visual Effects

Predicting and describing visual effects

A1.36 The baseline information about the visual receptors was combined with understanding of the details of the proposal to identify and describe the visual effects, considering:

- changes in views and visual amenity arising from elements of the development;
- the distance of the viewpoint from the development and whether the viewer would focus on the development due to its scale and proximity or whether the development would be only a small or minor element in a panoramic view;
- whether the view is stationary or transient or one of a sequence of views;
- the nature of the changes: changes in the skyline, creation of a new visual focus in the view, introduction of new elements, changes in visual simplicity or complexity, alteration of visual scale or the degree of visual enclosure; and
- seasonal differences in effects, arising from the varying degree of screening and/or filtering of views by vegetation in summer and winter.

A1.37 Categorising the visual effects as adverse or beneficial (or neutral) in their consequences for views and visual amenity was based on judgments about whether the changes affect the quality of the visual experience, and the nature of the existing views and the nature of the changes to the views.

A1.38 The visual effects were assessed, based on assessment of the nature of the visual receptors and their sensitivity, and the nature of the effect on views and visual amenity, that is, the magnitude of visual change.

Sensitivity of the visual receptors

A1.39 The people or groups of people likely to be affected at a specific viewpoint – the visual receptors – are assessed in terms of their susceptibility to change in views and visual amenity and the value attached to particular views.

A1.40 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 particular locations and the extent to which their attention or interest is focused on the views or the visual amenity they experience at particular locations.

A1.41 The visual receptors most susceptible to change include:

- residents at home;
- people engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focused on the landscape and on particular views;
- visitors to designated landscapes, heritage assets, or other attractions, where views of the surroundings are an important contributor to the experience;
- communities where views contribute to the landscape setting enjoyed by residents in the area.

A1.42 Visual receptors less susceptible to change include:

- people engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape;
- people at their place of work whose attention may be focused on their work or activity not on their surroundings and where the setting is not important to the quality of working life.
- travellers on road, rail or other transport routes, except along recognised scenic routes, where awareness of views is likely to be high.

A1.43 Judgments were made about the value attached to the views identified, taking account of recognition, for example, in relation to heritage assets, or through planning designations, appearance in guidebooks or on tourist maps, promotion of particular locations or provision of facilities provided for their enjoyment, such as parking places, sign boards and interpretive material, or references to them in literature or art.

A1.44 The sensitivity of visual receptors to change is categorised as high, moderate or lesser, in accordance with the criteria set out below.

Table A1- 4 Indicative criteria for visual sensitivity

Category	Indicative criteria
High sensitivity	Viewers in residential or community properties. Views experienced by many viewers. Daily, prolonged or sustained views available over a long period, or where the view of the landscape is an important attractant.

Category	Indicative criteria
	A view from a landscape, recreation facility or route valued nationally or internationally for its visual amenity.
Moderate sensitivity	Viewers in residential or community properties with partial or largely screened views of the site. Frequent open views available. Viewers are pursuing activities such as sports or outdoor work, where the landscape is not the principal reason for being there or the focus of attention is only partly on the view. A view from other valued landscapes, or a regionally important recreation facility or route.
Lesser sensitivity	A view of low importance or value, or where the viewer's attention is not focused their surroundings. A view from a landscape of moderate or less importance, or a locally important recreation facility. Occasional open views or glimpsed views available; passing views available to travellers in vehicles. A view available to few viewers.

Magnitude of visual change

A1.45 The visual effects identified are evaluated in terms of size or scale, the geographical extent of the area influenced, duration and reversibility.

Table A1- 5 Considerations for assessing magnitude of visual change

Consideration	Indicative criteria
Size or scale of change	Categorised on a scale of major, moderate, minor or none, based upon: The degree of the loss or addition of features in the view; The extent of changes in the composition of the view, including the proportion of the view occupied by the proposed development; The degree of contrast or integration of the changes with the existing or remaining landscape elements and characteristics; The nature of the view of the proposed development, whether full, partial or glimpsed, or the relative amount of time over which it will be experienced.
Geographical area over which the changes would be experienced	The geographic extent reflects: The extent of the area over which the changes would be visible; The angle of view in relation to the main activity of the receptor; The distance of the viewpoint from the proposed development.
The duration of the changes	Categorised as: Short term: zero to five years;

Consideration	Indicative criteria
	Medium term: five to ten years; Long term: ten to twenty-five years Permanent: more than twenty-five.
Reversibility	The prospect and the practicality of the effect being reversed within twenty-five years, or within a generation

Judging the overall significance of visual effects

A1.46 Final conclusions about the degree of visual effects relate the separate judgements about sensitivity of the receptors and magnitude of the changes, for example:

- Major effect: Large scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view, especially where affecting people who are particularly sensitive to changes in views and visual amenity or people at recognised and important viewpoints or from recognised scenic routes.
- Minor effect: limited or localised change, or reversible short term changes, in views available to people for whom the view of the landscape is not the principle focus of interest.
- As for landscape effects, where effects are judged to be between these extremes, they may be assigned moderate levels of effect.
- Negligible effect: The change in the view is imperceptible or difficult to discern.

A1.47 The following factors inform the judgment about the significance of visual effects:

- Major effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant.
- Major effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant.
- Large scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present within the view.
- As for landscape effects, where visual effects are judged to be significant and adverse, proposals for preventing/avoiding, reducing or offsetting or compensating for them are set out (referred to as mitigation).

A1.48 The significant visual effects remaining after mitigation are summarised as the final step in the process.

Appendix 2 - Policy

Brecon Beacons National Park Local Development Plan (2013)

A2.1 SP1 National Park Policy

A2.2 Development in the National Park will be required to comply with the purposes and statutory duty set out in legislation, and will be permitted where it:

- a) conserves and enhances the Natural Beauty, wildlife and cultural heritage of the Park; and/or
- b) provides for, or supports, the understanding and enjoyment of the special qualities of the National Park in a way that does not harm those qualities; and
- c) fulfils the two purposes above and assists the economic and social well-being of local communities.

A2.3 Policy 1 Appropriate Development in the National Park

A2.4 All proposals for development or change of use of land or buildings in the National Park must comply with the following criteria, where they are relevant to the proposal:

- i) the scale, form, design, layout, density, intensity of use and use of materials will be appropriate to the surroundings and will maintain or enhance the quality and character of the Park's Natural Beauty, wildlife, cultural heritage and built environment;
- ii) the proposed development is integrated into the landscape to the satisfaction of the NPA through planting and appropriate management of native species or through the construction of appropriate boundary features;
- iii) the proposed development does not have an unacceptable impact on the economic, social, cultural and linguistic vitality and identity of any community, either in its own right or through cumulative impact.
- iv) the proposed development promotes opportunities for the conservation and enhancement of bio/geodiversity through appropriate design and landscaping.
- V) the proposed development is within 400m of an area of accessible natural greenspace.

A2.5 SP2 Major Development in the National Park – Strategic Policy

A2.6 We want to rigorously apply the required tests in respect of major development in the National Park, which should only take place in exceptional circumstances where proven to be in the public interest. This will include an assessment of:

- a) the need for the development, including any national considerations, and the impact of permitting it, or refusing it, upon the local economy;

- b) the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and
- c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which these could be moderated.

A2.7 Policy 21 Historic Landscapes:

A2.8 Development which directly or indirectly either alone or in combination affects those areas listed within Part 2 of the 'Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales' will only be permitted if the essential integrity and coherence of the area, as defined in the Register, is preserved or enhanced.

Appendix 3 - Figures

The LVIA is illustrated by plans and photographs as follows and reproduced in **Appendix 3**:

Figure L1	Site Location
Figure L2	Landscape Appraisal
Figure L3-1	Visual Appraisal
Figure L3-2	Zone of Theoretical Visibility
Figure L4	Assessment Photographs
Figure L5	Viewpoint Photographs
Figure L6	Site Context
Figure L7	Landscape Designations
Figure L8	Other Designations
Figure L9	LANDMAP
Figure L10	Restoration Strategy
Figure L11	Photomontages