

Mynydd Llanhilleth Wind Farm

Appendix 6G: LANDMAP Geological Aspect Areas Assessment of Effects

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LANDMAP GAA Filtering Process

- 1.1 In accordance with best practice guidance, the following filtering process has been applied to this Geological Aspect Areas (GAA) detailed assessment set out herein. The filtering process in **Table EDP 1.1** GAA Filtering Process below has been informed by Natural Resources Wales' (NRW) guidance *Using LANDMAP in Landscape and Visual Impact Assessments TGN46*¹ in combination professional judgement to make the assessment proportionate.

Table EDP 1.1 GAA filtering process.

Filtering Steps
Filter 1: Identify aspect areas that overlap fully, partially or are adjacent to the development site boundary;
Filter 2: Identify Geological Landscape aspect areas from filter one that record a special relationship with other aspect areas in the (LANDMAP survey question Q2);
Filter 3: Retain aspect areas that are within the ZTV; and
Filter 4: Retain all aspect areas irrespective of evaluation and identify those with High or Outstanding Value with respect to LANDMAP question 33 and 31.

- 1.2 GAA within or adjacent to the Site are assessed below in detail as these 'host' aspect areas are the only ones with potential for direct landscape effects. Non-host GAA identified and incorporated into the appraisal are discussed and assessed in groups according to distance, and primary direction from Site (NW, NE, SE and SW), rather than as individual aspect areas as potential effects upon these GAA would primarily be in the form of visual influences resulting from a similar direction of view where the proposal is visible. This approach is considered to provide a method of identifying the effects anticipated in a manageable, systematic, and proportionate assessment.

GAA Assessment Overview

- 1.3 The filtering process resulted in 7no. GAA requiring assessment. The unique area ID for each GAA along with their classifications and overall evaluations are illustrated respectively on **Figure 6.30** and **6.31**, and these are summarised in **Table EDP 1.2**.

¹ Natural Resources Wales. (2021). Using LANDMAP in Landscape and Visual Impact Assessments TGN46.

Table EDP 1.2: GAA on or within the Site.

(7) GAA ASSESSED	GAA ID	GAA NAME
1	BLNGWGL022	N/A
2	BLNGWGL023	N/A
3	TRFNGL003	Cwm y Glyn
4	TRFNGL014	Cwm Du
5	TRFNGL013	Plas y Coed
6	TRFNGL015	Waun Wen
7	TRFNGL016	Mynydd Farteg Fach

- 1.4 As well as assigning overall evaluation to a given aspect area, LANDMAP also ascribes a value (LANDMAP Q16). The 'value' findings set out for each aspect area have been interpreted and overall sensitivity ascribed to a given aspect area or group herein following the LVIA methodology contained at **Appendix 6A** of the Environmental Statement.
- 1.5 The criteria set out in published LANDMAP Aspect Area Assessments which has been interpreted to determine value and susceptibility to change in this study are as follows:

Table EDP 1.3: LANDMAP GAA key criteria.

LANDMAP Question	Key Characteristics
Cl_3	Level 3 Classification
Q7	Notable subsidiary Level 3 components
Q8	Notable Level 4 Components
Q9	Active geological and geomorphological processes
Q10	Components of significant hydrological importance
Q11	Significant pedological processes or have had a landscape forming effect?
Q12	Current mineral extraction?
Q13	Historic mineral extraction?
Q14	Are there SSSI/GCR sites here?
Q15	Are there geological SINc, 2nd tier, or RIGS sites
Q16	Value
Q18	Trend
Q17	Condition
Q23	Significant threats to the current integrity and condition
Evaluation Matrix	
Q29	Research Value
Q29a	Educational Value
Q30	Historical Value
Q31	Rarity/uniqueness
Q33	Overall Evaluation
Q34	Justification for overall evaluation

GAA Assessment of Effects

(1) BLNGWGL022

Table EDP 1.4: BLNGWGL022 LANDMAP summary.

LANDMAP Question	Key Characteristics	BLNGWGL022
Cl_3	Level 3 Classification.	Glacial mountain valley
Q7	Notable subsidiary Level 3 components.	Mineral workings Engineered features and reclaimed/infilled land Other Tectonically controlled topography Upland valley slope Upland plateau
Q8	Notable Level 4 Components.	Coal/mineral spoil tips Made ground Reclaimed land Slope Hill top Urban/industrial development
Q9	Active geological and geomorphological processes.	Fluvial
Q10	Components of significant hydrological importance.	Yes, Ebbw valley...
Q11	Significant pedological processes or have had a landscape forming effect?	Yes, High permeability soils.
Q12	Current mineral extraction?	No
Q13	Historic mineral extraction?	Yes, Coal
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC 2nd tier, or RIGS sites.	Yes Llanhilleth (Tirpentwys) (RIGSID 589): Carboniferous (Grovesend Formation).
Q16	Value	Moderate Outcrop of widespread Upper Pennant sandstones including Grovesend Fm...; extensive reclaimed/worked out opencast land... RIGS site is small and not a significant contributor to the landscape of the Aspect Area.
Q17	Condition	Fair Upland plateau and slopes, with reclaimed/worked out areas...
Q18	Trend	Constant
Q23	Significant threats to the current integrity and condition	Yes Inappropriate restoration of former mining and quarry sites leading to loss of notable geological features.

LANDMAP Question	Key Characteristics	BLNGWGL022
Evaluation Matrix		
Q29	Research Value	Moderate
Q29a	Educational Value	High
Q30	Historical Value	Moderate Outcrop of widespread Upper Pennant sandstones including Grovesend Fm...; extensive reclaimed/worked out opencast land...
Q31	Rarity / uniqueness	Moderate
Q33	Overall Evaluation	Moderate
Q34	Justification of overall evaluation	Outcrop of widespread Upper Pennant sandstones including Grovesend Fm...; extensive reclaimed/worked out opencast land. RIGS site is small and not a significant contributor to the landscape of the Aspect Area.

Table EDP 1.5: BLNGWGL022 assessment of effects.

(1) BLNGWGL022 summary description: <i>“E-W ridge of S- to SW-dipping Pennant sandstones of Hughes Beds and siltier Grovesend Fm (Upper Carboniferous), forming E side of NW-SE Ebbw valley and dissected by steep sided tributary valleys WNW-ESE to NW-SE... Sandstone plateau cut by major N-S fault with downthrow to W... Mine adits into Grovesend coals, and extensive areas of made ground and worked out opencast... Boulder clay on northern slopes of ridge.”</i>		
Value:	Susceptibility:	Overall Sensitivity:
Medium	High	High
Justification:		
<p>A previously worked (mined) landscape in fair condition with threats recognised to current integrity, primarily relating to inappropriate restoration of former mining and quarry sites leading to loss of notable geological features, but also notes with regards to tolerance to change to <i>“Ensure that no further features or natural systems of geological or geomorphological significance in the area are lost or damaged (e.g. due to development or forestry).”</i></p> <p>This GAA is located within the west of the Site. One turbine and associated infrastructure including access road improvements and underground cabling would be located within the GAA. Both direct and indirect effects upon the GAA are likely as a result of the Proposed Development.</p>		
Magnitude of Change:		
<p>There would be a direct landscape effect on this GAA whereby one turbine (Turbine 3) and associated infrastructure is proposed within the aspect area. The turbine is located on the top of Mynydd Llanhilleth at the eastern edge of this GAA. Direct effects of turbine foundations and road widening construction activities, including minor areas of land regrading would be incurred and would be permanent. Cabling would be underground with construction effects transient in nature following excavation and infill during construction phase only.</p> <p>The Proposed Development would have a minor physical effect on a very small area of the GAA and would be limited to the construction of concrete pad foundations for the turbine and access road widening. Cable routing would be infilled following construction. Changes to the geology of the GAA</p>		



would be minor and low from a land take perspective. Changes to hydrology would be low as new access routes within the GAA would be minimal, and the majority using existing routes which would be widened in parts, but associated ditches and water treatment would be similar. Cable routes would be buried and would be designed/mitigated to ensure future surface water flows are appropriately managed. Overall, the magnitude of change would be low .
Overall Effect:
Moderate/Minor and Not Significant. The nature of the direct physical effects would be permanent, and adverse.

(2) BLNGWGL023

Table EDP 1.6: BLNGWGL023 LANDMAP summary.

LANDMAP Question	Key Characteristics	BLNGWGL023
CI_3/Q5	Level 3 Classification	Glacial mountain valley
Q7	Notable subsidiary Level 3 components	Upland plateau Other Tectonically controlled topography Upland valley slope
Q8	Notable Level 4 Components	Coal/mineral spoil tips Slope Hill top Urban/industrial development
Q9	Active geological and geomorphological processes.	Fluvial
Q10	Components of significant hydrological importance.	Yes, Ebbw valley...
Q11	Significant pedological processes or have had a landscape forming effect?	Yes, High permeability soils.
Q12	Current mineral extraction?	No
Q13	Historic mineral extraction?	Yes, Sandstone, coal...
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC, 2nd tier, or RIGS sites?	Yes Llanhilleth (Tirpentwys) (RIGSID 589): Carboniferous (Grovesend Formation).
Q16	Value	Moderate Outcrop of widespread Upper South Wales Pennant - Grovesend fms with coal workings... Very minor part of RIGS in Aspect Area.
Q17	Condition	Good Upland plateau with limited development on valley sides.
Q18	Trend	Constant



LANDMAP Question	Key Characteristics	BLNGWGL023
Q23	Significant threats to the current integrity and condition.	Yes Upland plateau with limited development on valley sides - ensure that no significant features of geological or geomorphological significance are lost should development expand...
Evaluation Matrix		
Q29	Research Value	Moderate Outcrop of widespread Upper South Wales Pennant - Grovesend fms with coal workings... Very minor part of RIGS in Aspect Area.
Q29a	Educational Value	Low
Q30	Historical Value	Moderate
Q31	Rarity/uniqueness	Moderate
Q33	Overall Evaluation	Moderate
Q34	Justification of overall evaluation	Outcrop of widespread Upper South Wales Pennant - Grovesend fms with coal workings... Very minor part of RIGS in Aspect Area.

Table EDP 1.7: BLNGWGL023 assessment of effects.

(2) BLNGWGL023 summary description: <i>“Upland plateau of S- to SE-dipping upper Pennant sandstones and siltier Grovesend Fm (Upper Carboniferous), forming moderately steep E side of NW-SE Ebbw valley, dissected by steep NE-SW tributary valleys... Glacial sand/gravel in lower Cwm y Glyn valley floor... NE-SW Glyn fault controls Nant Gawn valley to Newbridge... N-S fault partly controlling main Ebbw valley... Disused quarries in sandstone, workings into Grovesend coals in northern part...”</i>		
Value:	Susceptibility:	Overall Sensitivity:
Medium	High	High
Justification:		
A previously worked (mined) landscape in good condition. Identified threats to this upland plateau with limited development on valley sides landscape include to <i>“ensure that no significant features of geological or geomorphological significance are lost should development expand.”</i>		
This GAA is located within the west of the Site. One turbine and associated infrastructure including access road improvements and underground cabling would be located within the GAA. Only direct physical effects upon the GAA are likely as a result of the Proposed Development.		



Magnitude of Change:
<p>There would be a direct landscape effect on this GAA whereby one turbine (Turbine 8) and associated ancillary is proposed within the aspect area. The turbine is located towards the top of Cefn Crib at the north-eastern edge of this GAA. Direct effects of turbine foundations and road widening construction activities, including minor areas of land regrading would be incurred and would be permanent. Cabling would be underground with permanent effects resulting from soil disturbance, albeit it would be infilled and not visible from a landscape and visual perspective following construction.</p> <p>The Proposed Development would have a minor physical effect on a very small area of the GAA and would be limited to construction of concrete pad foundations for the turbine and access road widening. Cable routing would be infilled following construction. Changes to the geology of the GAA would be minor and low from a landtake perspective. Changes to hydrology would be low as new access routes within the GAA would be minimal, and the majority using existing routes which would be widened in parts, but associated ditches and water treatment would be similar. Cable routes would be buried and would be designed/mitigated to ensure future surface water flows are appropriately managed. Overall, the magnitude of change would be low.</p>
Overall Effect:
<p>Moderate/Minor and Not Significant. The nature of the direct effects would be permanent, and adverse.</p>

(3) TRFNGL003 Cwm y Glyn

Table EDP 1.8: TRFNGL003 Cwm y Glyn LANDMAP summary.

LANDMAP Question	Key Characteristics	(3) TRFNGL003 Cwm y Glyn
CI_3/Q5	Level 3 Classification	Glacial mountain valley
Q7	Notable subsidiary Level 3 components	Upland escarpment Upland plateau Mineral workings
Q8	Notable Level 4 Components	Coal/mineral spoil tips Dry valley Glacial U-shaped valley
Q9	Active geological and geomorphological processes.	Minor fluvial
Q10	Components of significant hydrological importance.	No
Q11	Significant pedological processes or have had a landscape forming effect?	Yes High leaching potential, coarse soils except where covered by boulder clay.
Q12	Current mineral extraction?	No
Q13	Historic mineral extraction?	Yes Disused quarry and closed mine shaft, mine adit, coal mine waste tip
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC, 2nd tier, or RIGS sites?	No
Q16	Value	High



LANDMAP Question	Key Characteristics	(3) TRFNGL003 Cwm y Glyn
		U-shaped, fault controlled dry valley; Productive Coal Fm mine debris
Q17	Condition	Good Wooded valley slopes with old workings, open upland slopes.
Q18	Trend	Constant
Q23	Significant threats to the current integrity and condition.	Not known
Evaluation Matrix		
Q29	Research Value	High U-shaped, fault controlled dry valley; Productive Coal Fm mine debris.
Q29a	Educational Value	Unassessed U-shaped, fault controlled valley; Productive Coal Fm mine debris.
Q30	Historical Value	Moderate
Q31	Rarity / uniqueness	Moderate
Q33	Overall Evaluation	High
Q34	Justification of overall evaluation	U-shaped, fault controlled dry valley; Productive Coal Fm mine debris.

Table EDP 1.9: TRFNGL003 Cwm y Glyn assessment of effects.

(3) TRFNGL003 Cwm y Glyn summary description: <i>“Steep-sided, straight, U-shaped, essentially dry valley, cut into high-level plateau of west-dipping South Wales Pennant Fm. Valley controlled by NE-SW Glyn Fault. To northeast, valley floor eroded in Productive Coal Fm and floored by extensive head. Patches of alluvium from local drainage in valley. Disused quarries and closed coal mines and waste tips.”</i>		
Value:	Susceptibility:	Overall Sensitivity:
High	Low	Medium
Justification:		
A previously worked (mined) landscape in good condition. No identified threats to this GAA. This GAA is located within the south of the Site. No turbines or associated infrastructure including access road improvements and underground cabling are likely to be located within this GAA. As such, only indirect effects upon the GAA are likely as a result of the Proposed Development, which could include changes to water percolation through soils.		
Magnitude of Change:		
There would be no direct landscape effect on this GAA. The Proposed Development would have a very low magnitude of change on the GAA resulting from potential change in water flows and percolation of rainwater from adjacent areas.		
Overall Effect:		
Minor/Negligible and Not Significant. Effects would be indirect landscape effects, but permanent and adverse as a result of potential changes to hydrology resulting from physical changes within the Site.		



(4) TRFNGL014 Cwm Du

Table EDP 1.10: TRFNGL014 Cwm Du LANDMAP summary.

LANDMAP Question	Key Characteristics	TRFNGL014 Cwm Du
CI_3/Q5	Level 3 Classification	Glacial mountain valley
Q7	Notable subsidiary Level 3 components	Upland plateau Mountain glacial-erosion terrain Mineral workings
Q8	Notable Level 4 Components	Cwm/corrie Glacial U-shaped valley Opencast mine, gravel or sand pit Coal/mineral spoil tips Reclaimed land
Q9	Active geological and geomorphological processes.	None
Q10	Components of significant hydrological importance.	No
Q11	Significant pedological processes or have had a landscape forming effect?	Yes High-low permeability soils
Q12	Current mineral extraction?	No
Q13	Historic mineral extraction?	Yes Disused quarry, reclaimed opencast mine, closed mine shaft, coal mine waste tip...
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC, 2nd tier, or RIGS sites?	No
Q16	Value	High U-shaped valley in Pennant succession, with eroded cirque at head. Extensive old coal mining workings.
Q17	Condition	Fair Valley floor with restored opencast, workings.
Q18	Trend	Declining Old mine workings becoming overgrown and at risk from inappropriate restoration.
Q23	Significant threats to the current integrity and condition.	Yes Inappropriate restoration of former mining and quarry sites leading to loss of notable geological features: No net loss of key. Geological/geomorphological features should be considered acceptable.

LANDMAP Question	Key Characteristics	TRFNGL014 Cwm Du
Evaluation Matrix		
Q29	Research Value	High U-shaped valley in Pennant succession, with eroded cirque at head. Extensive old coal mining workings.
Q29a	Educational Value	Moderate Extensive old coal mining workings.
Q30	Historical Value	Moderate Extensive old coal mining workings.
Q31	Rarity/uniqueness	Moderate Extensive old coal mining workings.
Q33	Overall Evaluation	High U-shaped valley in Pennant succession, with eroded cirque at head. Extensive old coal mining workings.
Q34	Justification of overall evaluation	U-shaped valley in Pennant succession, with eroded cirque at head. Extensive old coal mining workings.

Table EDP 1.11: TRFNGL014 Cwm Du assessment of effects.

(4) TRFNGL014 Cwm Du summary description: <i>“U-shaped valley dissected in high level plateau formed by gently SW-dipping South Wales Pennant Fm, partly covered by glacial till... Steep valley sides and valley head eroded into sandstones; eroded cirque at head, boulder clay on upper slopes... Lower valley slopes and floor formed by Productive Coal Fm; floor partly covered by alluvium... W-E Trevechin Fault cuts the valley side... Disused mine shafts, restored opencast and disused quarries present... Waste tips in valley floor.”</i>		
Value:	Susceptibility:	Overall Sensitivity:
High	High	High
Justification:		
<p>A previously worked (mined) landscape in fair condition. Identified threats to this upland plateau includes <i>“Inappropriate restoration of former mining and quarry sites leading to loss of notable geological features: No net loss of key geological/geomorphological features should be considered acceptable.”</i></p> <p>This GAA is located within the north-east of the Site. Three turbines and associated infrastructure including construction compound, access road improvements, and underground cabling would be located within the GAA. Direct physical effects upon the GAA are likely as a result of the Proposed Development.</p>		
Magnitude of Change:		
<p>There would be a direct landscape effect on this GAA whereby two turbines and associated ancillary infrastructure including the construction compound is proposed within the aspect area. The Site (and turbines) are located within the western extent this GAA. Direct effects of turbine foundations, material storage and movement, and road widening, including minor areas of land regrading would be incurred and would be permanent. Cabling would be underground with permanent effects resulting from soil disturbance albeit that it would be infilled and not visible from a landscape and visual perspective following construction.</p>		

<p>The Proposed Development would lead to minor physical changes to very small areas of the GAA and would be limited to construction of concrete pad foundations for Turbines 1 and 2 and the access road widening. Cable routing would be infilled following construction. Changes to the geology of the GAA would be minor and low from a land take perspective. Changes to hydrology would be low as new access routes within the GAA would be minimal, and the majority using existing routes which would be widened in parts, but associated ditches and water treatment would be similar. Cable routes would be buried and would be designed/mitigated to ensure future surface water flows are appropriately managed. Overall, the magnitude of change would be low.</p>
<p>Overall Effect:</p>
<p>Moderate/Minor and Not Significant. The nature of the direct effects would be permanent, and adverse.</p>

(5) TRFNGLO13 Plas y Coed

Table EDP 1.12: TRFNGLO13 Plas y Coed LANDMAP summary.

LANDMAP Question	Key Characteristics	TRFNGLO13 Plas y Coed
Cl_3/Q5	Level 3 Classification	Upland plateau Glacial mountain valley
Q7	Notable subsidiary Level 3 components	Mineral workings Upland plateau
Q8	Notable Level 4 Components	Glacial U-shaped valley Opencast mine, gravel or sand pit Coal / mineral spoil tips Reclaimed land
Q9	Active geological and geomorphological processes.	None
Q10	Components of significant hydrological importance.	No
Q11	Significant pedological processes or have had a landscape forming effect?	Yes High permeability coarse soils
Q12	Current mineral extraction?	Yes partly reclaimed opencast mine, working mine adits
Q13	Historic mineral extraction?	Yes Disused quarry, closed mine shaft, mine adit, coal mine waste tip
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC, 2nd tier, or RIGS sites?	Yes Llanhilleth (Tirpentwys) (RIGSID 589, part) Carboniferous (Grovesend Formation).
Q16	Value	High Upland plateau in Pennant succession with Mynyddislwyn coal, dissected by glacial valley; coal tips. Key RIGS site.
Q17	Condition	Fair



LANDMAP Question	Key Characteristics	TRFNGL013 Plas y Coed
Q18	Trend	Constant Wooded lower valley slopes, partially restored opencast, lake, coal workings - no significant changes noted.
Q23	Significant threats to the current integrity and condition.	Not known
Evaluation Matrix		
Q29	Research Value	Moderate Upland plateau in Pennant succession with Mynyddislwyn coal, dissected by glacial valley; coal tips. Key RIGS site.
Q29a	Educational Value	High Upland plateau in Pennant succession with Mynyddislwyn coal, dissected by glacial valley; coal tips. Key RIGS site.
Q30	Historical Value	Moderate Upland plateau in Pennant succession with Mynyddislwyn coal, dissected by glacial valley; coal tips.
Q31	Rarity/uniqueness	Moderate Upland plateau in Pennant succession with Mynyddislwyn coal, dissected by glacial valley; coal tips.
Q33	Overall Evaluation	Moderate
Q34	Justification of overall evaluation	Upland plateau in Pennant succession with Mynyddislwyn coal, dissected by glacial valley; coal tips. Key RIGS site.

Table EDP 1.13: TRFNGL013 Plas y Coed assessment of effects.

(5) TRFNGL013 Plas y Coed summary description: <i>“High-level plateau formed in South Wales Pennant Fm along axis of regional Gelligaer synform, dissected by U-shaped, steep-sided valley with bends... Partly restored opencast coal mine north of Cefn-y-Crib with working mine adits in the Mynyddislwyn seam... Valley floored with old waste tips... Several disused sandstone quarries....”</i>		
Value:	Susceptibility:	Overall Sensitivity:
Medium	High	High
Justification:		
Existing and previously worked (mined) landscape in fair condition. No identified threats to the GAA. This GAA is located within the south-eastern extent of the Site. Three turbines and associated infrastructure including access road improvements, and underground cabling would be located within the GAA. Direct effects upon the GAA are likely as a result of the Proposed Development.		



Magnitude of Change:
<p>There would be a direct landscape effect on this GAA whereby Turbines 4, 6 and 7 and associated ancillary features are proposed within the aspect area. The Site (and turbines) are located within the western extent of this GAA. Direct effects of turbine foundations, road widening and cabling, including minor areas of land regrading would be incurred and would be permanent. Cabling would be underground with permanent effects resulting from soil disturbance, albeit that it would be infilled and not visible from a landscape and visual perspective following construction.</p> <p>The Proposed Development would have a minor physical effect on a very small area of the GAA and would be limited to construction of concrete pad foundations for the turbine and access road widening. Cable routing would be infilled following construction. Changes to the geology of the GAA would be minor and low from a landtake perspective. Changes to hydrology would be low as new access routes within the GAA would be minimal, and the majority using existing routes which would be widened in parts, but associated ditches and water treatment would be similar. Cable routes would be buried and would be designed/mitigated to ensure future surface water flows are appropriately managed. Overall, the magnitude of change would be low.</p>
Overall Effect:
Moderate/Minor and Not Significant. The nature of the direct effects would be permanent, and adverse.

(6) TRFNGL015 Waun Wen

Table EDP 1.14: TRFNGL015 Waun Wen LANDMAP summary.

LANDMAP Question	Key Characteristics	TRFNGL015 Waun Wen
CI_3/Q5	Level 3 Classification	Glacial mountain valley
Q7	Notable subsidiary Level 3 components	Upland plateau Mineral workings
Q8	Notable Level 4 Components	Glacial U-shaped valley Landslip (ancient) Coal/mineral spoil tips
Q9	Active geological and geomorphological processes.	None
Q10	Components of significant hydrological importance.	Yes Peat extensive
Q11	Significant pedological processes or have had a landscape forming effect?	Yes High-low permeability soils
Q12	Current mineral extraction?	No
Q13	Historic mineral extraction?	Yes Disused quarry, closed mine shaft, mine adit and coal mine waste tip.
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC, 2nd tier, or RIGS sites?	Yes Big Pit (RIGSID 584, part): Carboniferous (Namurian/ Westphalian)/Industrial.



LANDMAP Question	Key Characteristics	TRFNGLO15 Waun Wen
Q16	Value	High High level plateau in Pennant succession dissected by U-shaped valleys, with landslips. Significant area included within RIGS site.
Q17	Condition	Good Open upland plateau and upper slopes.
Q18	Trend	Constant Open upland plateau and upper slopes.
Q23	Significant threats to the current integrity and condition.	Not known
Evaluation Matrix		
Q29	Research Value	Moderate High level plateau in Pennant succession dissected by U-shaped valleys, with landslips. Significant area included within RIGS site.
Q29a	Educational Value	High Significant area included within RIGS site.
Q30	Historical Value	High Significant area included within RIGS site.
Q31	Rarity/uniqueness	Moderate High level plateau in Pennant succession dissected by U-shaped valleys, with landslips.
Q33	Overall Evaluation	Moderate
Q34	Justification of overall evaluation	High level plateau in Pennant succession dissected by U-shaped valleys, with landslips. Significant area included within RIGS site.

Table EDP 1.15: TRFNGL015 Waun Wen assessment of effects.

(6) TRFNGL015 Waun Wen summary description: <i>“Dissected high-level plateau in gently SW-dipping South Wales Pennant Fm cut by NW-SE Clydach Bridge/Greenland Fault Zone... Area consists of heads of several W-E U-shaped valleys, with steep slopes and landslips below Pennant sandstones... Peat in upland areas, head on slopes... Disused mine shafts, adits and quarries with waste tips..”</i>		
Value:	Susceptibility:	Overall Sensitivity:
High	Low	Medium
Justification:		
A previously worked (mined) landscape in good condition. No identified threats to this high-level plateau.		
This GAA is located outside of the main site area; however, the proposed access route passes through its southern extent. Enabling infrastructure including improvements (widening) to access roads and movement of construction materials would occur within this GAA. Direct effects upon the GAA are likely as a result of the Proposed Development.		
Magnitude of Change:		
There would be a direct landscape effect on this GAA and road widening construction activities including minor areas of land regrading would be incurred and would be permanent.		
The Proposed Development would have a minor physical effect on a very small area of the GAA and would be limited to access road widening. Changes to the geology of the GAA would be minor and low from a landtake perspective. Changes to hydrology would be low as new access routes within the GAA would be minimal, and the majority using existing routes which would be widened in parts, but associated ditches and water treatment would be similar. Overall, the magnitude of change would be low .		
Overall Effect:		
Minor and Not Significant. The nature of the direct effects would be permanent, and adverse.		

(7) TRFNGL016 Mynydd Farteg Fach

Table EDP 1.16: TRFNGL016 Mynydd Farteg Fach LANDMAP summary.

LANDMAP Question	Key Characteristics	TRFNGL016 Mynydd Farteg Fach
CI_3/Q5	Level 3 Classification	Glacial mountain valley
Q7	Notable subsidiary Level 3 components	Mineral workings
Q8	Notable Level 4 Components	Slope Glacial U-shaped valley Coal/mineral spoil tips Reclaimed land
Q9	Active geological and geomorphological processes.	Minor fluvial
Q10	Components of significant hydrological importance.	No
Q11	Significant pedological processes or have had a landscape forming effect?	Yes Low permeability soils
Q12	Current mineral extraction?	Yes Reclaimed opencast mine



LANDMAP Question	Key Characteristics	TRFNGL016 Mynydd Farteg Fach
Q13	Historic mineral extraction?	Yes Reclaimed opencast mine, closed mine shaft, mine adit, coal mine waste tip
Q14	Are there SSSI/GCR sites here?	No
Q15	Are there geological SINC, 2nd tier, or RIGS sites?	Yes Big Pit (RIGSID 584, part): Carboniferous (Namurian/Westphalian)/Industrial.
Q16	Value	High Productive Coal Fm; coal mines and tips including key RIGS site.
Q17	Condition	Fair Restored land, coal mines and tips in valleys.
Q18	Trend	Constant Restored land, coal mines and tips in valleys - no significant change noted.
Q23	Significant threats to the current integrity and condition.	Yes Inappropriate restoration of former mining and quarry sites leading to loss of notable geological features: No net loss of key geological/geomorphological features should be considered acceptable.
Evaluation Matrix		
Q29	Research Value	High
Q29a	Educational Value	High
Q30	Historical Value	Moderate
Q31	Rarity/uniqueness	Moderate
Q33	Overall Evaluation	High
Q34	Justification of overall evaluation	Productive Coal Fm; coal mines and tips including key RIGS site.

Table EDP 1.17: TRFNGL016 Mynydd Farteg Fach assessment of effects.

(7) TRFNGL016 Mynydd Farteg Fach summary description: <i>“Both steep and gentle valley slopes in lower reaches of U-shaped valleys (forming areas TRFNGL014 & TRFNGL015)... Formed by gently SW-dipping Productive Coal Fm below the Brithdir Coal, cut by NW-SE Clydach Bridge/Greenland Fault zone... Extensive head in valleys; area of boulder clay in upper Lwyd... Numerous disused mine shafts and adits, with restored opencast mine and waste tips...”</i>		
Value:	Susceptibility:	Overall Sensitivity:
High	Low	Medium
Justification:		
A current and previously worked (mined) landscape in fair condition. Inappropriate restoration of former mining and quarry sites leading to loss of notable geological features identified as threats to this GAA.		
This GAA is located outside of the main site area. The proposed access route passes through its southern extent. Enabling infrastructure including improvements (widening) to access roads and movement of construction materials would occur within this GAA. Direct effects upon the GAA are likely as a result of the Proposed Development.		
Magnitude of Change:		
There would be a direct landscape effect on this GAA and road widening construction activities including minor areas of land regrading would be incurred and would be permanent.		
The Proposed Development would have a minor physical effect on a very small area of the GAA and would be limited to access road widening. Changes to the geology of the GAA would be minor and low from a landtake perspective. Changes to hydrology would be low as new access routes within the GAA would be minimal, and the majority using existing routes which would be widened in parts, but associated ditches and water treatment would be similar. Overall, the magnitude of change would be low .		
Overall Effect:		
Minor and Not Significant. The nature of the direct effects would be permanent, and adverse.		

GAA Summary of Effects

- 1.6 The GAA study finds that of the GAA appraised, none would have significant effects as a result of the proposals as listed in **Table EDP 1.18**.

Table EDP 1.18: GAA summary of effects.

GAA ID	SENSITIVITY	MAGNITUDE OF CHANGE	ASSESSED LEVEL OF EFFECT	SIGNIFICANCE
BLNGWGL022	High	Low	Moderate/Minor	Not Significant
BLNGWGL023	High	Low	Moderate/Minor	Not Significant
TRFNGL003	Medium	Very Low	Minor/Negligible	Not Significant
TRFNGL014	High	Low	Moderate/Minor	Not Significant
TRFNGL013	High	Low	Moderate/Minor	Not Significant
TRFNGL015	Medium	Low	Minor	Not Significant
TRFNGL016	Medium	Low	Minor	Not Significant