



Galileo 03 Ltd.

Mynydd Ty-talwyn Energy Park – Environmental Statement Volume II

Main Written Statement– Chapter 15: Intra-Project Combined
Effects

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15 INTRA-PROJECT COMBINED EFFECTS

15.1 Introduction

- 15.1.1 This chapter reports the likely intra-project combined environmental effects associated with the Proposed Development. Intra-project combined effects are the interaction and combination of different environmental residual (post-additional mitigation) effects from within the Proposed Development affecting a single receptor/resource.
- 15.1.2 It should be noted that inter-project cumulative effects (the combined residual (post-mitigation) effects of the Proposed Development and 'other existing development and/or approved development' on a single receptor/resource) are assessed in **ES Volume II, Chapters 5 to 14**.

15.2 Legislative Framework

- 15.2.1 This assessment has been undertaken in accordance with the requirements of EIA Regulations 2017. Schedule 4 paragraph (5)(e) of the EIA Regulations 2017 states that the ES must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape.
- 15.2.2 Regulation 5(2)(e) of the EIA Regulations 2017 requires applicants to assess "*the interaction between those factors*."

15.3 Environmental Baseline

- 15.3.1 The existing and future baselines for each environmental factor are presented in **ES Volume II, Chapters 5 to 14**.

15.4 Approach to Assessment

- 15.4.1 The approach to the assessment of intra-project combined effects has considered the changes in baseline conditions at common sensitive receptors (i.e., those receptors that have been identified as experiencing likely significant effects by more than one environmental factor) due to the Proposed Development. The assessment has been undertaken over two broad stages:

Stage 1: Screening

- 15.4.2 Screening has been undertaken to determine whether a sensitive receptor is exposed to more than one type of residual (post-additional mitigation) effect during the

construction, operation and/or decommissioning phases¹ of the Proposed Development. Those common sensitive receptors exposed to two or more types of residual effects with significance of 'slight/minor' or greater, have been taken forward to Stage 2 of the assessment.

- 15.4.3 If there is only one type of effect on a sensitive receptor (i.e. only one environmental factor assessment has identified effects on that sensitive receptor), then it has been considered that there are no potential intra-project combined effects, and the sensitive receptor has not been taken forward to Stage 2 of the assessment.

Stage 2: Assessment for intra-Project Combined Effects

- 15.4.4 A quantitative assessment of the overall significance of the intra-project combined effects on common sensitive receptors identified at Stage 1 has been undertaken, where possible, based on technical information provided in the environmental factor assessments (**ES Volume II, Chapters 5 to 14**), supporting appendices, as well as professional judgement. Given that the types of effects may be very different in some cases, a quantitative assessment has not always been possible, and where that is the case, it has been necessary to apply professional judgement in determining the significance of each individual effect.
- 15.4.5 The evaluation at the receptor level has considered:
- previously identified sensitivity/importance/value;
 - the magnitude of change at the common receptor; and
 - duration and reversibility of interaction.
- 15.4.6 The focus of the evaluation has been on determining a change in the level of effect likely to be experienced and whether this is significant or not.
- 15.4.7 The study area for the assessment of intra-project combined effects has been informed by the study areas and relevant guidance for the individual environmental factor assessments, described in **ES Volume II, Chapters 5 to 14**.

15.5 Assessment of Cumulative Effects

- 15.5.1 The Stage 1 Screening Assessment is presented in **Table 15.1** and **Table 15.2**.
- 15.5.2 The following factors have not been included in the operational screening in **Table 15.2**, as no effects greater than negligible (or equivalent) have been identified:
- **Water (ES Volume II, Chapter 6);**
 - **Ornithology (ES Volume II, Chapter 11); and**
 - **Traffic and Movement (ES Volume II, Chapter 12).**

¹ Due to the expected similarities of the likely effects of the Proposed Development during the construction phase and the decommissioning phase, these phases have been grouped in this assessment to avoid repetition. Where an effect is only relevant to one particular phase and not the other, this has been clearly stated.

Table 15.1 Screening of the Interaction Between Common Sensitive Receptors and Residual Effect: Construction and Decommissioning Phases

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
Land (potential contamination)	X										N
Land (mineral safeguarding)	X										N
Soil	X										N
Groundwater (quantity and quality)	X										N
Groundwater (abstraction points)	X										N
Water Framework Directive (WFD) water body of Kenfig - headwaters to tidal (Nant Craigyraher, Nant Iorweth-goch and Afon Cynffig) and on-site hydrologically connected watercourses		X									N
WFD water body of Llynfi - Lletty Brongu STW to conf with		X									N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
Ogmore (Nant y Gadlys, Nant Cedfyw and Afon Llynfi) and on-site hydrologically connected watercourses											
WFD water body of Ogmore - confluence with Llynfi to tidal limit (downstream Afon Llynfi) and on-site hydrologically connected watercourses		X									N
Possible Bronze Age burial mounds in Solar Parcel I			X								N
The medieval road of Ffordd-y-Gyfraith and its former branches to the British Fortified Residence and Mynydd Baeden			X								N
Enclosure E1 in Solar Parcel F			X								N
Enclosure E2 and associated features E3, E?4			X								N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
and E?5 in Solar Parcels H & I											
Enclosure E6 in Solar Parcel G			X								N
Linear anomalies L1–L18 inclusive, representing possible evidence of human activity, period unknown			X								N
Smaller discrete anomalies U1–U7 inclusive, representing possible evidence of human activity, period unknown			X								N
Magnetic enhancement anomalies ME1–ME11 inclusive, representing possible evidence of human activity, period unknown			X								N
British Fortified Residence GM086			X								N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
Mynydd Ty Talwyn Ancient Farms GM092			X								N
Mynydd Ty Talwyn Ancient Farms GM093			X								N
Earthwork and Platform Houses N of Nant Fadog GM340			X								N
Church of St Cynwyd			X								N
Llangynwyd Conservation Area				X							N
Landscape features - hedgerows				X		X					Y
Bannau Brycheiniog National Park				X							N
Gower National Landscape				X							N
Historic landscapes				X							N
Local landscape designations (including Special Landscape Areas)				X							N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
National landscape character areas				X							N
Local landscape character				X							N
Local landscape character areas (LANDMAP)				X							N
Margam Park Deer Park				X							N
Settlement of Llangynwd (Pont Rhyd-y-cyff) – western hamlet				X							N
Settlement of Llangynwd (Pont Rhyd-y-cyff) – eastern hamlet				X							N
Settlement of Lletty Brongu				X							N
Settlement of Bettws				X							N
Settlement of Cefn Cribwr				X							N
Settlement of Kenfig Hill and Pyle				X							N
Settlement of Coedhirwaun				X							N
Settlement of Pen-y-fai				X							N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
Wales Coastal Path				X							N
Cistercian Way				X							N
Users of on-Site / adjacent Public Rights of Way (PRoW) (including Ogwr Ridgeway Walk)				X				X	X		Y
Users of Cycle Routes				X							N
Users of the M4				X							N
Users of A48				X							N
Users of A4063				X				X			Y
Users of A4107				X							N
Users of A473				X							N
Users of A4061				X							N
Users of A4229				X							N
Users of B4281				X				X			Y
Users of B4265				X							N
Users of B4524				X							N
Ty'nton (NSR1)					X						N
Gilfach Ganol Farm					X						N
Gilfach Uchaf Farm					X						N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
The Windsor Barn					X						N
Maescadlawr Farm					X						N
Cwmrisca Farm					X						N
Ton Phillip Farm					X						N
Baiden Farm					X						N
Penttla					X						N
Ty Talwyn Farm					X						N
Brynfro Farm					X						N
NPT Watercourses SINC						X					N
Cwm Nant Gwyn SINC						X					N
Nant Cwm-bach SINC						X					N
Gilfach Uchaf SINC						X					N
NPT Ancient Semi-Natural Woodland SINC						X					N
Woodland						X					N
Hedgerows						X					N
Fungi – County Level						X					N
Fungi – Local Level						X					N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
Great Crested Newt						X					N
Bats (Roosting)						X					N
Bats (Foraging and Commuting)						X					N
Hazel Dormouse						X					N
Otter						X					N
Invasive Non-native Species						X					N
Eglwys Nunydd Reservoir SSSI							X				N
Aberbaiden Farm Meadows SINC							X				N
Lletty Brongu SINC							X				N
Tylacoch South SINC							X				N
Raptors							X				N
Waders and wildfowl							X				N
Teal							X				N
Nightjar							X				N
Breeding Bird Assemblage							X				N
Wintering Bird Assemblage							X				N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance										
	Land and Soils	Water	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Ornithology	Traffic and Transport	Population	Climate	Taken forward to Stage 2?
Users of New Road								X			N
Residents/ pedestrians in Aberkenfig								X			N
Residents/ pedestrians in Tondur								X			N
Residents/ pedestrians in Coytrahen								X			N
Residents / pedestrians in Llangynwyd along the A4063								X			N
Tourism									X		N
Business									X		N
Employment, Skills and Labour Market									X		N
Workforce spending and Gross Value Added (GVA)									X		N
Atmosphere										X	N

Table 15.2 Screening of the Interaction Between Common Sensitive Receptors and Residual Effects: Operation Phase

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance							
	Land and Soils	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Population	Climate	Taken forward to Stage 2
Land (potential contamination)	X							N
Soil	X							N
Groundwater (quality and quantity)	X							N
Groundwater (abstraction points)	X							N
British Fortified Residence GM086		X						N
Mynydd Ty Talwyn Ancient Farms GM092		X						N
Mynydd Ty Talwyn Ancient Farms GM093		X						N
Earthwork and Platform Houses N of Nant Fadog GM340		X						N
Church of St Cynwyd		X						N
Llangynwyd Conservation Area		X	X					Y
Landscape features including hedgerows and woodland			X					N
Bannau Brycheiniog National Park			X					N
Gower National Landscape			X					N
Historic landscapes			X					N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance							
	Land and Soils	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Population	Climate	Taken forward to Stage 2
Local landscape designations (including Special Landscape Areas)			X					N
National landscape character areas			X					N
Local landscape character			X					N
Local landscape character areas (LANDMAP)			X					N
Settlement of Llangynwd (Pont Rhyd-y-cyff)			X					N
Cwm Cae-Lloi Castell House Nant Y Castell			X					N
1-2, 3, 4 Gilfach Cottage			X					N
The Windsor Barn Gilfach Uchaf Farm Gilfach Ganol Farm			X	X				Y
Ty Trisant Pentre Lodge Pant Isaf			X	X				Y
Baglan Villa 1, Rose Cottage			X					N
6, The Oaks			X					N
Ty Talwyn Farm The Old Stables			X	X				Y
Ffordd Y Gyfraith Farm Fairview			X					N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance							
	Land and Soils	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Population	Climate	Taken forward to Stage 2
Capel Bwthyn								
Brynhaulog, New Road			X					N
Swn Y Nant Foxglove Cottage			X					N
Maes Cadlawr Maes Cadlawr Farm			X	X				Y
Woodland Cottage			X					N
Brynfro Farm			X					N
Brynsiriol			X					N
Ty Ysgubor			X					N
Brynlwarch Farm			X					N
Cefn Ydfa Farm House			X	X				Y
Gelli Las Farm			X	X				Y
Ty Mel			X					N
Pen-twyn Farm				X				N
Cwmrisca Farm				X				N
Ton Phillip Farm			X	X				Y
Ty Gwalia			X					N
Cefn Parc Stud Farm			X					N
Ger Y Coed			X					N
Tynton Farm			X	X				Y
Foel Fach Farm			X					N
Gadlys Farm			X	X				Y
Bryn Cynan Farm			X	X				Y

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance							
	Land and Soils	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Population	Climate	Taken forward to Stage 2
Birchfield Mill			X					N
Heol-yr-Ysgol			X					N
Margam Park Deer Park			X					N
Settlement of Lletty Brongu			X					N
Settlement of Bettws			X					N
Settlement of Cefn Cribwr			X					N
Settlement of Kenfig Hill and Pyle			X					N
Settlement of Coedhirwaun			X					N
Settlement of Pen-y-fai			X					N
Wales Coastal Path			X					N
Cistercian Way			X					N
Users of on-Site / adjacent PRow (including Ogwr Ridgeway Walk)			X			X		Y
Users of Cycle Routes			X					N
Users of the M4			X					N
Users of A48			X					N
Users of A4063			X					N
Users of A4107			X					N
Users of A473			X					N
Users of A4061			X					N
Users of A4229			X					N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance							
	Land and Soils	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Population	Climate	Taken forward to Stage 2
Users of B4281			X					N
Users of B4265			X					N
Users of B4524			X					N
Cilduady Farm				X				N
Baiden Farm				X				N
The Poultry Farm				X				N
Penttila				X				N
Ffynnon Iago Farm				X				N
Troed Y Rhiw Farm				X				N
Nant Y Neuadd Farm				X				N
Near Pentre Farm				X				N
Tyn-y-Rheat Farm				X				N
Ty Trisant 2				X				N
Pentre Farm				X				N
Ton Mawr Farm				X				N
Brynfro Farm				X				N
Bats (roosting)					X			N
Bats (Foraging and Commuting)					X			N
Invasive non-native species					X			N
Tourism						X		N
Business						X		N

Receptor/receptor group	Residual effect of 'slight/minor' or greater significance							
	Land and Soils	Cultural Heritage	Landscape and Visual	Noise and Vibration	Terrestrial Ecology	Population	Climate	Taken forward to Stage 2
Employment, Skills and Labour Market						X		N
Workforce spending and GVA						X		N
Atmosphere							X	N

- 15.5.3 Only those receptors identified in the final column of **Table 15.1** and **Table 15.2** as needing to be assessed in Stage 2 of the intra-project effects combined assessment have been considered in **Table 15.3** and **Table 15.4**. The interaction between the residual effects on these receptors has been examined in order to determine an overall combined significance of all identified residual effects in interaction. This significance of the combined residual effect has been determined by professional judgement.

Table 15.3 Intra-project Combined Residual Effect Interactions During Construction and Decommissioning (Stage 2)

Receptor	Landscape and Visual	Terrestrial Ecology	Traffic and Transport	Population	Mitigation	Significant intra-project combined Effect?
Landscape features - hedgerows	The sensitivity of the existing landscape features are high sensitivity . Approximately 200 m of hedgerow would require removal due to the construction of the site access track and proposed infrastructure. However, 2.89 km of new hedgerow planting is proposed. Therefore, there is likely to be a minor moderate adverse effect on existing landscape fabric (includes hedgerows), which is considered to be not significant .	The network of hedgerows are of local importance, given they are species-poor and contain native species. Only small discrete sections of hedgerow (totalling 200 m) would be removed. However, 2.89 km of new hedgerow planting is proposed. Therefore, the residual effect is anticipated to be beneficial, permanent and significant at the Local level .	N/A – intra-project effect not applicable to this factor.	N/A – intra-project effect not applicable to this factor.	Habitat Management Plan secured via planning condition.	No likely significant combined effects are anticipated as, while the receptor is shared in both ES Volume II, Chapter 8: Landscape and Visual and ES Volume II, Chapter 10: Terrestrial Ecology , the receptor is considered differently, i.e., as a landscape feature of the Site or a habitat resource. The effects reported in one chapter would not change the scale or significance of the effect likely to be experienced in the other chapter.
Users of on-Site / adjacent PRow (including Ogwr Ridgeway Walk)	PRow users along the Ogwr Ridgeway Walk are considered to be a high sensitivity receptor. During construction and decommissioning, walkers would experience close-range views of construction/decomm	N/A – intra-project effect not applicable to this factor.	PRow users are considered as high sensitivity . Increased site traffic and disruptions to PRow could result in effects on perception of severance, pedestrian delay, non-motorised user amenity, fear and intimidation and road	Disruption to users of the Ogwr Ridgeway Walk that runs through Site. There would be a residual temporary, direct and short-term effect to the users of the Ogwr ridgeway walk. This is considered to be	Access management plan (AMP) secured via condition. Construction Traffic Management Plan (CTMP) secured via condition.	Users of on-site PRow would experience a change in views and disruption including possible delays and temporary diversions. The combined effect is anticipated to be temporary, short-term and significant .

Receptor	Landscape and Visual	Terrestrial Ecology	Traffic and Transport	Population	Mitigation	Significant intra-project combined Effect?
	commissioning activities along the section passing through the Site. These phases would substantially alter the experience of walking this section of the route, resulting in a temporary, indirect, short-term major residual effect which is significant.		safety. The magnitude of impact is low with minor adverse effects. These are considered to be not significant.	slight adverse and not significant .		
Users of A4063	Users of the A4063 are considered to be of low sensitivity. During construction, road users would have highly filtered and intermittent views of construction activities, primarily glimpses of tall cranes during turbine erection, visible above or between trees where gaps in the woodland allow. Lower-level construction activities would be likely to be entirely screened by the roadside woodland even in the section closest to the Site. The residual effect would be temporary, indirect,	N/A – intra-project effect not applicable to this factor.	Users of the A4063 are considered to be of low sensitivity. Due to the increased construction/decommissioning traffic movements, it is anticipated that a minor adverse, temporary and reversible residual effect would occur in relation to severance, driver delay, pedestrian delay, user amenity and road user and pedestrian safety. This residual effect is not significant.	N/A – intra-project effect not applicable to this factor.	Construction Traffic Management Plan (CTMP) secured via condition.	Users of the A4063 would experience both traffic related effects and highly filtered changes in view. These effects are not anticipated to result in significant intra-project combined effects on this receptor group as a result of the construction and decommissioning phases of the Proposed Development and the residual effect would be no worse than moderate to minor adverse and not significant.

Receptor	Landscape and Visual	Terrestrial Ecology	Traffic and Transport	Population	Mitigation	Significant intra-project combined Effect?
	short-term and moderate to minor adverse which is not significant .					
Users of B4281	Users of the B4281 are considered to be of low sensitivity. During construction and decommissioning, road users would have clear views of on-going construction/decommissioning activities, particularly from the northern edge of Kenfig Hill where the road climbs toward the Site with few intervening visual barriers. The residual effect would be temporary, indirect, short-term and moderate adverse which is significant.	N/A – intra-project effect not applicable to this factor.	Users of the B4281 are considered to be of medium sensitivity. Due to the increased construction/decommissioning traffic movements, it is anticipated that a minor adverse, temporary and reversible residual effect would occur in relation to severance, driver delay, pedestrian delay, user amenity and road user and pedestrian safety. This residual effect is not significant.	N/A – intra-project effect not applicable to this factor.	Construction Traffic Management Plan (CTMP) secured via condition.	Users of the B4281 would experience both traffic related effects and changes in view. However, consideration has been given to the duration of the effects and how these views would be experienced as part of a wider journey. With this in mind, given the temporary nature of the effect and the transient way in which it would be experienced, the intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than moderate adverse, which is significant.

Table 15.4 Intra-project Combined Residual Effect Interactions During Operation Phase (Stage 2)

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
Llangynwyd Conservation Area	The Conservation Area is considered to be of high sensitivity. The Proposed Development will not physically affect the Conservation Area itself, but would visibly change its southern landscape setting through the introduction of various different forms of modern built development (wind turbines, solar arrays, and substation infrastructure). This will not compromise the ability to appreciate the geographical and topographical context of Llangynwyd village, but will erode the sense of historic rural remoteness experienced in certain views from within the Conservation Area. The residual effect is anticipated to be	The views from the Conservation Area are considered to be of high sensitivity. The Proposed Development would be clearly visible on the horizon to the south with all six turbines visible. The turbines would introduce prominent vertical elements into a view that currently has a largely undeveloped skyline. There would be limited visibility of the northern solar arrays and substation infrastructure from this location, but they would be much less prominent than the turbines due to their low profile and distance and due to the fact, they closely follow the Site's rolling landform. The residual effect is anticipated to be major adverse which is significant.	N/A – intra-project effect not applicable to this factor.	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed in addition to the proposed landscape planting.	No likely significant combined effects are anticipated as the changes in views set out in ES Volume II, Chapter 8: Landscape and Visual have inherently been considered within the setting assessment of ES Volume II, Chapter 7: Cultural Heritage .

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
	indirect, temporary and long-term and is considered to be slight or moderate adverse and not significant.					
The Windsor Barn Gilfach Uchaf Farm Gilfach Ganol Farm	N/A – intra-project effect not applicable to this factor.	This property is set down in a localised valley with views looking up towards the site and trees to the south. The wireline indicates T5 is the nearest turbine at approximately 1 km, with turbines T1, T2, T3 and T4 also being visible but with their towers partially screened. The residual effect is anticipated to be moderate adverse which is significant.	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at these receptors, which is not significant.	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor group would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than moderate adverse and significant.
Ty Trisant Pentre Lodge Pant Isaf	N/A – intra-project effect not applicable to this factor.	The properties have a moderate amount of vegetative cover upon their access/egress but there is potential for open views towards T6, which is the nearest turbine, and the blade tips of T3 and T4 appearing above the horizon but likely to be	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at these receptors,	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor group would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than moderate adverse and not significant.

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		screened by intervening woodland vegetation. The residual effect is anticipated to be moderate adverse which is not significant .	which is not significant .			
Ty Talwyn Farm The Old Stables	N/A – intra-project effect not applicable to this factor.	These dwellings are nestled within the hillside of Cefngelli and partially enclosed further by forestry and trees within the ground of the properties. T1 to T5 are likely to be obscured by landform and trees. T6 is theoretically visible, but likely to be screened by forestry and trees close to the dwellings. The residual effect is anticipated to be minor adverse which is not significant .	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at these receptors, which is not significant .	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor group would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than minor adverse and not significant .
Maes Cadlawr Maes Cadlawr Farm	N/A – intra-project effect not applicable to this factor.	The properties are set within the farmstead which includes numerous agricultural buildings. Situated on the north side of a valley cut by	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-project combined effect is not anticipated to

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		a local spring, the aspect of the land is to the east and southeast. A review of aerial photography shows that properties are of a generally northwest or north-north-westerly aspect, with their garden areas to their south side. There is some degree of enclosure by trees located along the small watercourse. However, oblique views, and views from the property curtilages, will extend to several of the proposed turbines situated on more elevated land to the south. The residual effect is anticipated to be major adverse which is significant . However, it is noted that the residents at these properties are financially involved with the Proposed Development.	PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at this receptor, which is not significant .			increase the scale of effect identified and would be no worse than major adverse and significant .
Cefn Ydfa Farm House	N/A – intra-project effect not applicable to this factor.	The property is located less than 1 km from the nearest turbine (T1). The	The operation of the Proposed Development would introduce new noise	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		wireline shows T1 to T5 would be visible, with T1 and T2 the most prominent on the skyline, occupying a moderate portion of the view to the west. The other turbines would be well screened by the intervening landform, which lessens the overall visibility. Some screening is provided by garden vegetation, which would partially mitigate the visual impact, but oblique views would still likely be available, and turbines noticeable, but more so from first floor level. The residual effect is anticipated to be moderate adverse which is significant .	generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at this receptor, which is not significant .			project combined effect is not anticipated to increase the scale of effect identified and would be no worse than moderate adverse and significant .
Gelli Las Farm	N/A – intra-project effect not applicable to this factor.	Similar to Cefn Ydfa FarmHouse, but at a slightly greater distance, this property would have partial views of the development to the west, although it is	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		afforded additional screening from the woodland lining Nant Cefnydfa. The wireline shows T1 to T5 would be visible, with T1 and T2 the most prominent on the skyline, occupying a moderate portion of the view to the west. The other turbined would be well screened by the intervening landform, which lessens the overall visibility. The visible turbines would still likely form prominent new elements above the treeline. Some filtering may also be provided by hedgerows and garden vegetation. The residual effect is anticipated to be moderate adverse , which is not significant .	and substation are anticipated to result in a minor adverse residual noise effect at this receptor, which is not significant .			effect identified and would be no worse than moderate adverse and not significant .
Ton Phillip Farm	N/A – intra-project effect not applicable to this factor.	This property is generally of north-south orientation whereby principal views are likely to be towards the coast to	The operation of the Proposed Development would introduce new noise generating sources within the Site. The	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-project combined effect is not

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		the south. Potential visibility of the proposed turbines is screened by the sharply rising landform, in combination with field boundary vegetation to the north of the dwelling. The residual effect is anticipated to be moderate - minor adverse , which is not significant .	wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at this receptor, which is not significant .			anticipated to increase the scale of effect identified and would be no worse than moderate - minor adverse and not significant .
Tynton Farm	N/A – intra-project effect not applicable to this factor.	This property is set down in a localised valley with trees to the south. There is open visibility from the access driveway to and from the property. At only 827 m from T5, this property would experience significant effects due to proximity. The wireline shows all six turbines would be visible on the horizon, with T5 appearing as a prominent vertical element. While the property benefits from some screening by valley vegetation,	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at this receptor, which is not significant .	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than moderate-major adverse and significant .

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		the scale and proximity of the turbines, particularly when viewed from the access track and more elevated parts of the property grounds, would create a significant visual effect. The property's setting within a small valley means that while some screening is provided by landform, the turbines would still be likely to be prominently visible on the skyline. The residual effect is anticipated to be moderate-major adverse , which is significant .				
Gadlys Farm	N/A – intra-project effect not applicable to this factor.	This property is located at under 1 km from the nearest turbine (T5). The wireline shows all six turbines would be visible on the horizon to the south, with T5 being the most prominent. The property has principal views oriented toward the Proposed	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at this receptor,	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than major adverse and significant .

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		Development, with garden areas that also face south. The turbines would appear as prominent vertical elements, substantially changing the character of views from the property. Limited intervening vegetation means the turbines would be clearly visible from main living areas and throughout the garden. The scale, proximity and movement of the turbines would create a significant visual effect. The residual effect is anticipated to be major, adverse and significant .	which is not significant .			
Bryn Cynan Farm	N/A – intra-project effect not applicable to this factor.	There is open visibility from the access driveway approaching the property. The wireline shows all six turbines would be visible on the skyline, with T5 at just over 1 km distance. The property's position provides clear views toward the Proposed	The operation of the Proposed Development would introduce new noise generating sources within the Site. The wind turbines, solar PV modules, BESS and substation are anticipated to result in a minor adverse residual noise effect at this receptor,	N/A – intra-project effect not applicable to this factor.	No additional mitigation is proposed.	This receptor would experience a change in view and noise levels. The intra-project combined effect is not anticipated to increase the scale of effect identified and would be no worse than moderate-

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		Development, with filtering by garden vegetation and field boundaries and wooded slopes of Nant y Gladys, which would partially reduce visibility of the turbines. The scale and proximity of the Proposed Development would create a significant visual effect, particularly from the access track and south-facing areas of the property. The turbines would form prominent vertical elements occupying a substantial portion of the view to the south-southwest. The residual effect is anticipated to be moderate-major, adverse and significant .	which is not significant .			major adverse and significant .
Users of on-Site / adjacent PRoW (including Ogwr Ridgeway Walk)	N/A – intra-project effect not applicable to this factor.	During operation, where the Ogwr Ridgeway Walk route passes through or close to the Site (within approximately 2 km), the turbines would appear as dominant vertical	N/A – intra-project effect not applicable to this factor.	The value (sensitivity) of users of the Ogwr Ridgeway Walk that runs through the Site as receptors is high . No direct changes (such as diversions) would occur during	AMP secured via condition. Planning obligation (Section 106 contributions).	Users of the PRoW within the Site would experience a change in views as well as improved maintenance and signage of PRoW. The intra-project combined effect is

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		elements at very close range, creating a dramatic change to the visual experience. From the section passing directly through the Site, walkers would experience turbines from multiple angles and perspectives as they move along the route. The solar arrays, BESS, and substation would also be clearly visible from sections of the route within and close to the Site, appearing as substantial new elements in the landscape. From elevated sections of the route, walkers would have clear views down onto the solar arrays, which would appear as distinct patterns contrasting with the surrounding moorland and grassland. The residual effect is anticipated to be major to major		the operation of the Proposed Development and maintenance agreements and signage will be agreed between the Applicant and Neath Port Talbot Council and Bridgend County Borough Council prior to implementation. Therefore, there is likely to be a permanent slight beneficial residual effect on walkers, cyclists and horse riders which is considered to be not significant. Recreational routes in the wider study area would not be affected by the Proposed Development.		not anticipated to increase the scale of effect identified and would not result in a significant intra-project combined effect on this receptor group.

Receptor	Cultural Heritage	Landscape and Visual	Noise and Vibration	Population	Mitigation	Significant intra-project combined Effect?
		moderate adverse and significant , for the Ogwr Ridgeway Walk.				

15.5.4 The assessment has concluded that the residual intra-project combined effects on the following receptors would be **significant**:

- Users of the Ogwr Ridgeway Walk (during construction and decommissioning) due to the short term changes in view across parts of the footpath as described in **ES Volume II, Chapter 8: Landscape and Visual**, the increased perception of severance, increased pedestrian delay and changes to user amenity, fear and intimidation and safety as described in **ES Volume II, Chapter 12: Traffic and Movement** and temporary disruption identified in as described in **ES Volume II, Chapter 13: Population**; and
- The Windsor Barn, Gilfach Uchaf Farm, Gilfach Ganol Farm Maes Cadlawr Farm, Cefn Ydfa Farm House Tynton Farm, Gadlys Farm, and Bryn Cynan Farm during operation due to the long term changes in view from these dwellings as described in **ES Volume II, Chapter 8: Landscape and Visual** (and supporting appendices), and an increase in noise as described in **ES Volume II, Chapter 9: Noise and Vibration**.

15.5.5 The assessment has concluded that the residual intra-project combined effects on all other receptors/receptor groups would be **not significant**.

15.6 Additional Mitigation

15.6.1 No additional mitigation measures are proposed for the intra-project combined effects identified, other than the measures described in **Table 15.3** and **Table 15.4**.

15.7 Difficulties and Uncertainties

15.7.1 No difficulties or uncertainties have been identified in the completion of the intra-project combined effects assessment, over and above those relevant difficulties and uncertainties documented in **ES Volume II, Chapters 5 to 14**.