Planning and Environmental Consultants

Environmental Impact Assessment Report (EIAR)

Lackareagh Wind Farm, Co. Clare

Chapter 13 – Landscape & Visual - Part 2

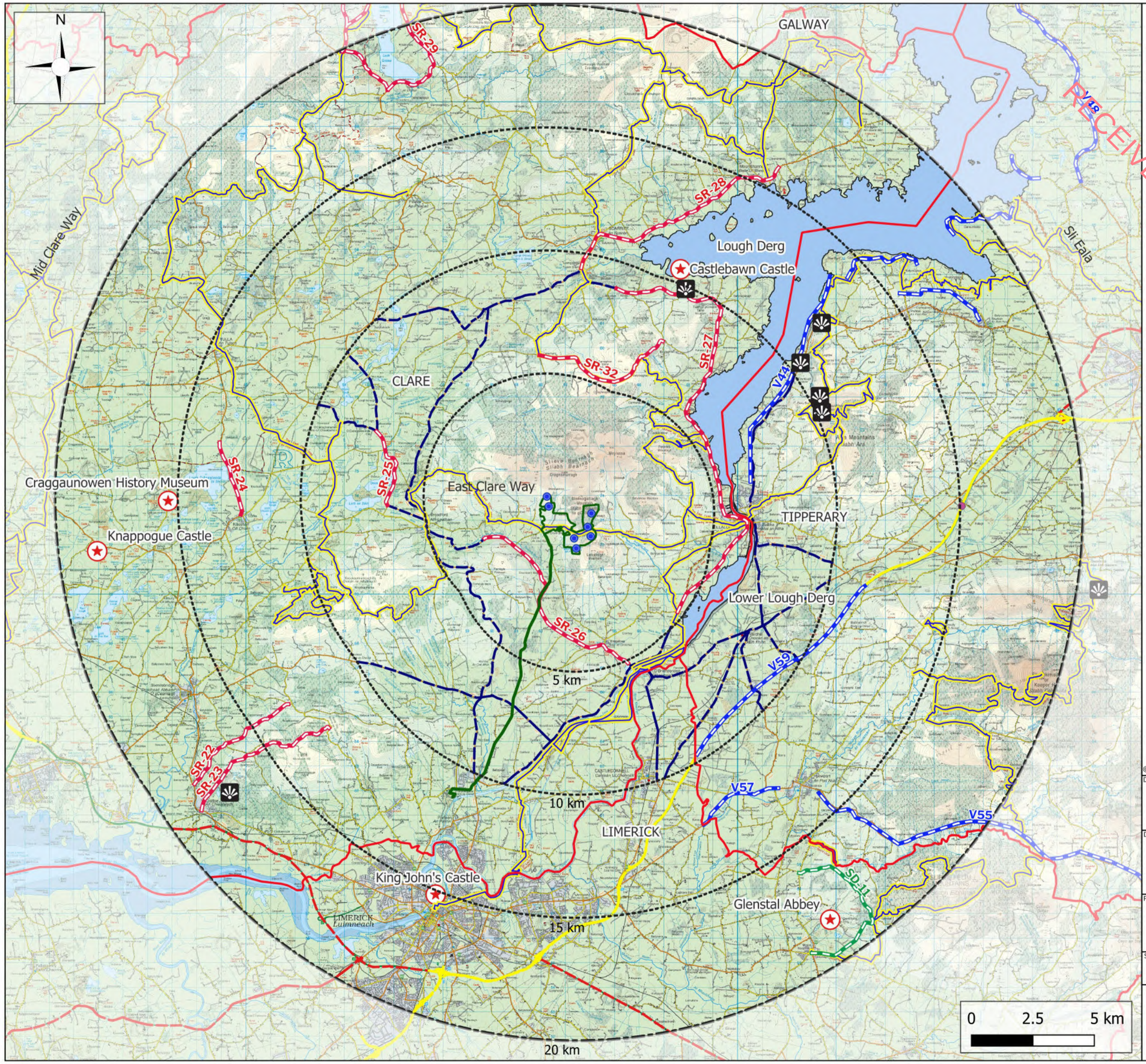
13.5 Visual Baseline

The main purpose of establishing the 'Visual Baseline' is to identify the key visual receptors that should be considered for assessment within the LVIA Study Area. The visual baseline exercise uses ZTV mapping and on-site visibility appraisals to scope out receptors from further assessment.

The key visual receptors identified for assessment in the visual baseline exercise are represented by 'Viewpoints'. Viewpoints are locations from which visual effects are assessed using photomontages (see *Appendix 13-1: LVIA Methodology*, Section 1.6: Photomontage Visualisations). To this end, the following visual receptors have been identified within the study area and are presented in this section in order of priority:

- Designated Scenic Routes and Views;
- OSi Viewing Areas;
- Settlements;
- Recreational routes and trails, including:
  - Waymarked walking routes;
  - Cycle routes;
  - Scenic drives and tourist routes;
- Recreational, cultural heritage & tourist destinations;
- Transport routes;
- Residential receptors:
  - See below Section 13.5.3: Residential Receptors and Visual Amenity.

Below, Figure 13-12 presents the 'Visual Baseline' map of all identified visual receptors within the Study Area and the subsequent Figure 13-13 is the same visual baseline map overlain with the Half-Blade ZTV. All receptors are listed in the tables in the following sections along with theoretical visibility at those locations indicated by the ZTV. During site visits conducted in 2022, 2023 and 2024, the likely visibility of the proposed turbines was appraised from receptors where the ZTV indicated theoretical visibility. In the case of there being either no theoretical visibility of the proposed turbines, or where on-site appraisal determined visibility of the proposed turbines to be very unlikely or very limited, visual receptors were scoped out from further assessment. Where appropriate, the specific reasons for scoping out a receptor are included in the tables below.



Map Legend

- Ireland OSi National County Borders
- LVIA Study Area (20km Boundary)
- EIAR Site Boundary
- Lackareagh Proposed Turbines

Scenic Routes and Views

- Co. Clare Scenic Routes
- Co. Limerick Scenic Views and Prospects
- Co. Tipperary Scenic Routes
- Co. Tipperary Scenic View

Other Receptors

- OSi Viewing Areas
- Waymarked Walking Routes
- Recreational & Tourist Destinations

Transportation Routes

- National Roads
- Motorways
- Regional Roads (only to 10km)

Drawing No.

Figure 13-12

Drawing Title

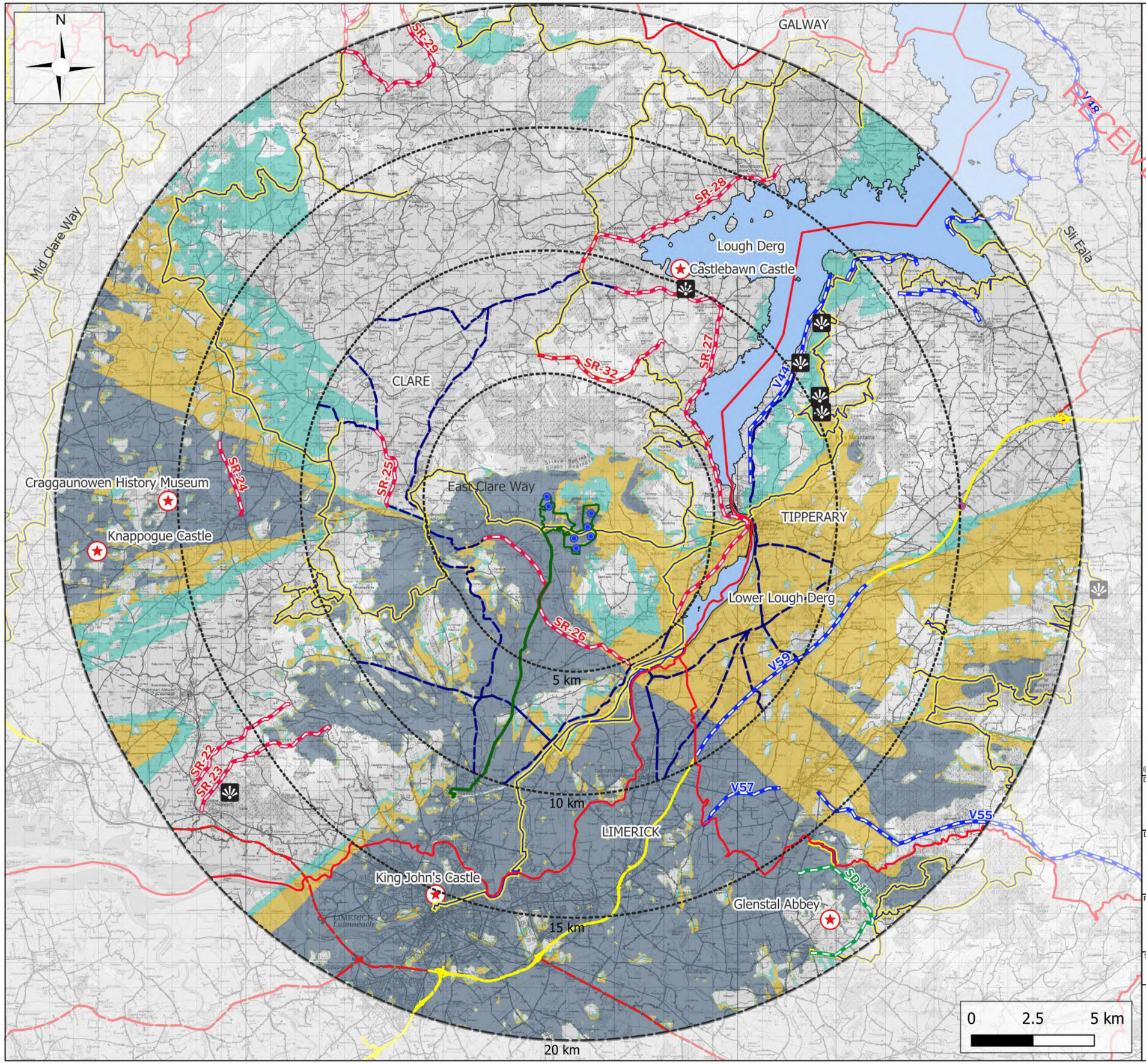
Visual Baseline Map

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

MKO



Map Legend

- Ireland OSi National County Borders
- LVIA Study Area (20km Boundary)
- EIAR Site Boundary
- Lackareagh Proposed Turbines

Scenic Routes and Views

- Co. Clare Scenic Routes
- Co. Limerick Scenic Views and Prospects
- Co. Tipperary Scenic Routes
- Co. Tipperary Scenic View

Other Receptors

- OSi Viewing Areas
- Waymarked Walking Routes
- Recreational & Tourist Destinations

Transportation Routes

- National Roads
- Motorways
- Regional Roads (only to 10km)

Zone of Theoretical Visibility (ZTV)

- 1-2 Turbines Theoretically Visible
- 3-4 Turbines Theoretically Visible
- 5-7 Turbines Theoretically Visible

Drawing No.

Figure 13-13

Drawing Title

ZTV & Visual Baseline Map

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

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13.5.1 Visual Receptors

The following subsections present the scoping tables for all visual receptors, including: designated Scenic Routes and Views; OSi Viewing Areas; settlements; recreational routes; cultural heritage, recreational & tourist destinations; prominent transport routes.

13.5.1.1 Designated Scenic Routes and Views

According to the CCDP, LDP and TCDP, a total of 17 no. designated Scenic Routes and/or Views are existent within the LVIA Study Area; these were previously identified in the above Section 13.4.1: Landscape Designations and Policy Context and previously mapped above in the Landscape Policy Context Map (see previous Figure 13-5).

Below, Table 13-9 displays the scoping of all identified receptors (scoped in or out for assessment), along with a description of each item, the direction of view indicated by the policy documents and whether it is directed towards the proposed turbines, the nature of theoretical visibility, and whether the receptor was scoped in for assessment.

Table 13-9: Scoping of Designated Scenic Routes and Views in the LVIA Study Area

Map Ref.	Description	Direction of View	Directed to Turbines?	Theoretical Visibility	Scoped In
Up to 5km					
C-SR-26	Co. Clare scenic route approx. 8.8km, orientated NW-SE. R466 between Broadford and O'Briensbridge.	Not specified in the policy.	Turbines are visible to the N, within the Glenomra Valley.	Full (5–7 turbines).	Yes.
5–10km					
C-SR-25	Co. Clare scenic route approx. 3.4km, orientated N-S. Views in and out of Doon Lough.	Not specified.	No.	None.	No.
C-SR-27	Co. Clare scenic route orientated primarily N-S. R463 from O'Briensbridge through Killaloe to outside Ogonnelloe. The major portion, approx. 17.7km is located W of Lough Derg and S of Killaloe within 5–10km of the site.	Not specified.	No. On-site appraisal indicates views directed to the S towards Lough Derg and	Major portion: None. Minor portion: Partial (3–4 turbines).	No. On-site appraisal from driving the minor portion of the scenic route indicates heavy

Map Ref.	Description	Direction of View	Directed to Turbines?	Theoretical Visibility	Scoped In
	The minor portion, approx. 1.6km is within 5km of the site.		River Shannon.		roadside screening from that portion, thus the actual visibility was none.
C-SR-32	Co. Clare scenic route approx. 6km, orientated E-W. Road from Church at Ballylaghan crossroads as far as the crossroads at Caherhurly (part of the East Clare Way).	Not specified.	No.	None.	No.
T-V-44	Co. Tipperary scenic route approx. 8.8km, orientated SW-NE. Views W and sections of the road to the E of the R494.	West. The primary view is of Lough Derg.	No. The site is situated to the SW, not in the view.	Primarily none. Intermittent areas of low (1–2 turbines) theoretical visibility are indicated.	Yes.
T-V-59	Co. Tipperary scenic route, orientated SW-NE. Views of surrounding landscape from M7 including Annaholty and Rossfinch. Major SW portion is approx. 6.1km within 5–10km of the site. Minor NE portion is approx. 3.6km within 10–15km.	Surrounding landscape.	Views to the NW are directed towards to turbines.	Major portion: Ranges from partial to full. Minor portion: Ranges from none to partial.	Yes.
10–15km					
C-SR-24	Co. Clare scenic route approx. 3km, orientated N-S.	Not specified.	No. Indicates to the west,	Full.	Yes. Views of the site

Map Ref.	Description	Direction of View	Directed to Turbines?	Theoretical Visibility	Scoped In
	Views in and out of Lough Cullaunyheeda.		looking away from the site toward the lake.		may be existent to the east looking into Glenomra Valley.
C-SR-28	Co. Clare scenic route approx. 9.8km, orientated SW-NE. R463 from Tuamgraney to Mountshannon.	Not specified.	No.	None.	No.
T-V-57	Co. Tipperary scenic route approx. 3.5km, orientated W-E. View west on the Cork Road approach to Newport.	West.	No.	Full.	No, as the site is situated to the north, not in the view.
15–20km					
C-SR-22	Co. Clare scenic route, orientated SW-NE. From Brickhill Bridge northeast to road junction at Reaskcamoge. The major portion, approx. 3.3km is within 15–20km of the site. The minor portion, approx. 1.7km is within 10–15km of the site.	Not specified.	No.	Major portion: None. Minor portion: None.	No.
C-SR-23	Co. Clare scenic route, orientated SW-NE. Road from Cratloe north-east through Gallows Hill to Glennagross. The major portion, approx. 3.8km is within 15–20km of the site.	Not specified.	Views to the NE are directed towards the site.	Major portion: None. Minor portion: Full.	No. On-site appraisal indicates heavy visual screening by forestry in the portion with full

Map Ref.	Description	Direction of View	Directed to Turbines?	Theoretical Visibility	Scoped In
	The minor portion, approx. 3.0km is within 10–15km of the site.				theoretical visibility.
C-SR-29	Co. Clare scenic route approx. 6.6km wrapping around in a circular route. Roads surrounding Lough Graney.	Not specified.	No.	None.	No.
L-SR-01	Co. Limerick scenic drive, known as 'Slieve Felim Drive', within 15–20km of the site. Road NE of Murroe curving to the W, gives access to Slieve Felim hiking area. The major portion, approx. 4.3km is the south part of the curve. The minor portion, approx. 3.2km is the north part of the curve.	General views along the road.	No. General views are of the surrounding wooded areas.	Major portion: None. Minor portion: Full.	No. Visibility is not anticipated due to the distance from the site and the hiking area being heavily wooded.
T-V-45	Co. Tipperary scenic route approx. 3.3km, orientated W-E. Views along lakeside roads north of Portroe.	General views along the roads.	No. The primary view is of Lough Derg.	None.	No.
T-V-46	Co. Tipperary scenic route approx. 1.2km, orientated W-E. Views west, south of Dromineer.	West.	No. The primary view is of Lough Derg.	Intermittent areas of none to low.	No.
T-V-55	Co. Tipperary scenic route, orientated NW-SE. North and south of the R503 from Newport to Ballycahill.	N and S.	Views travelling to the N are directed towards	Major portion: Ranges from none to partial.	No. On-site appraisal indicated no actual visibility

Map Ref.	Description	Direction of View	Directed to Turbines?	Theoretical Visibility	Scoped In
	The major portion, approx. 6.9km is within 15–20km and extends outside the Study Area. The minor portion, approx. 0.8km is within 10–15km.		the turbines.	Minor portion: Partial.	due the route having a very narrow field of view from outside Glenomra Valley at substantial distance.
T-V-60	Co. Tipperary scenic view. Views of landscape from M7 at Gortmore, SW of Nenagh.	Surrounding landscape.	Yes.	None.	No.

13.5.1.2 OSi Viewing Areas

According to the Ordinance Survey of Ireland (OSi) maps, 6 no. OSi Viewing Areas were identified within the LVIA Study Area; these are described in the table.

Below, Table 13-10 displays the scoping of all identified views, along with a description of the view, the direction of view indicated by the OSi data and whether it is directed towards the proposed turbines, the nature of theoretical visibility, and whether the receptor was scoped in for assessment.

Table 13-10: Scoping of OSi Viewing Areas in the LVIA Study Area

Map Ref.	Description	Direction and Range of View	Directed to Turbines?	Theoretical Visibility	Scoped In
Up to 5km					
	None.				
5–10km					
#201	OSi Viewing Area north of SR-27 on the western banks of Lough Derg in Co. Clare.	Radial view of Lough Derg from N to E. Distance: 9.9km to the nearest turbine (T3).	No.	None.	No.
10–15km					
#43	OSi Viewing Area on SR-44 (R494) in the hills	Radial view of Lough Derg from N to SW.	Views to the SW	None.	No.

Map Ref.	Description	Direction and Range of View	Directed to Turbines?	Theoretical Visibility	Scoped In
	at Castletown on the eastern banks of Lough Derg in Co. Tipperary.	Distance: 12.1km to the nearest turbine (T3).	would be directed to the turbines.		
#50	OSi Viewing Area on SR-44 (R494) in the hills at Townlough Lowe on the western side of Laghtea Hill, on the eastern banks of Lough Derg in Co. Tipperary.	Radial view of Lough Derg from NE to SW. Distance: 10.5km to the nearest turbine (T3).	Views to the SW would be directed to the turbines.	None.	No.
#58	OSi Viewing Area at the top of Mt. Tountinna on the eastern banks of Lough Derg in Co. Tipperary.	Radial, 360 degrees. Distance: 10.2km to the nearest turbine (T3).	Yes.	Low (1–2 turbines).	Yes.
#82	OSi Viewing Area on L2130 on the northern side of Mt. Tountinna, on the eastern banks of Lough Derg in Co. Tipperary.	Radial view of Lough Derg from W to E. Distance: 10.5km to the nearest turbine (T3).	No.	Low.	No.
15–20km					
#75	OSi Viewing Area east of SR-23 (L3038) in Cratloe Woods in Co. Clare.	View of forest and valley to the SW. Distance: 17.2km from the nearest turbine (T7).	No.	None.	No.

13.5.1.3 Settlements

In order to identify which settlements within the LVIA Study Area should be considered for VP selection, the settlement strategies and hierarchy set out in the core strategies of the CCDP, LDP and TCDP were consulted.

The settlement hierarchies of all three counties use differing classifications and naming conventions; therefore, MKO have created a standardised settlement hierarchy to enable cross-comparison of these population centres and clarity within the visual baseline mapping and throughout this assessment. Each settlement was given one of the following classifications according to its size, population density and existing designation in the relevant county development plan:

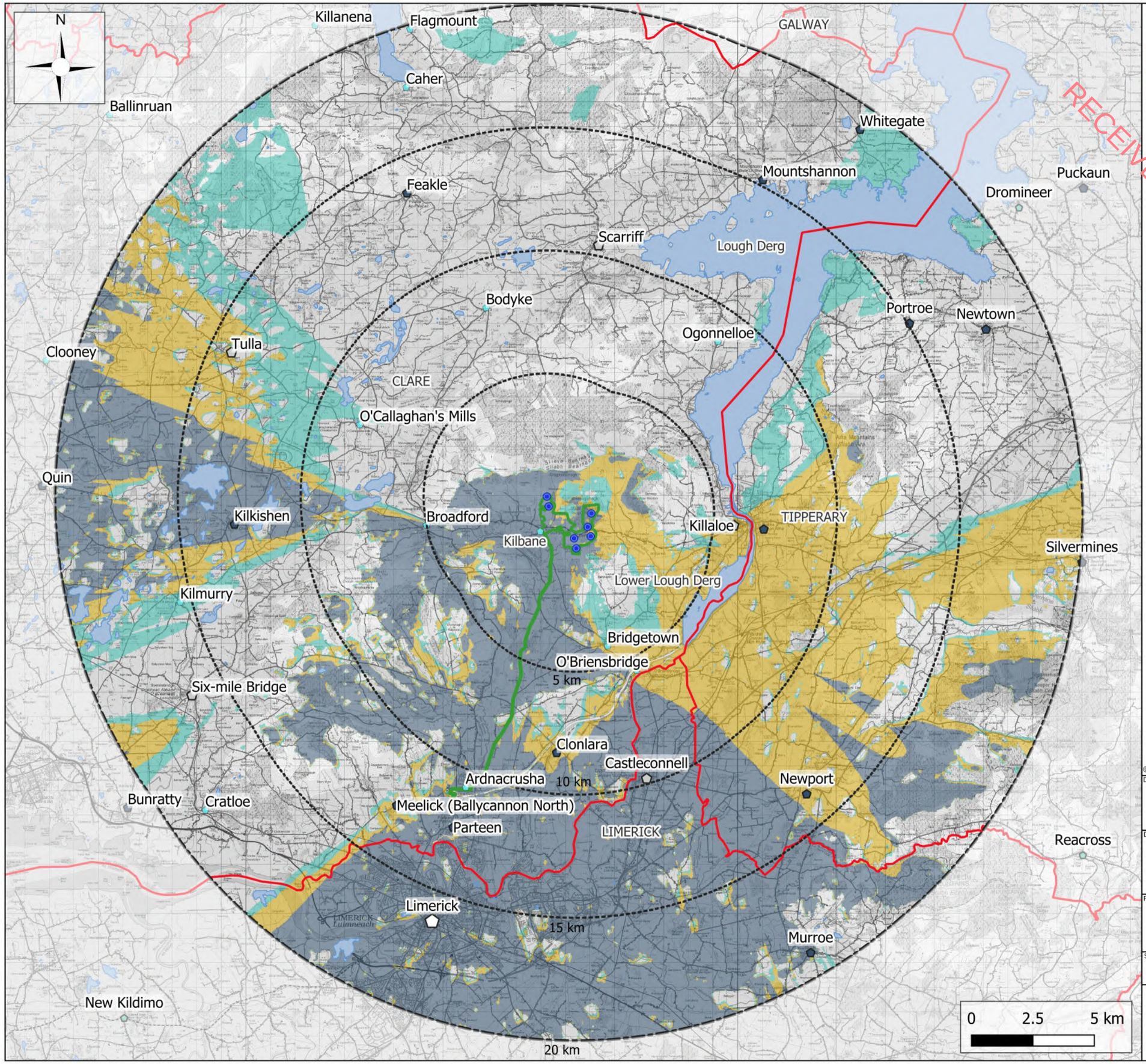
- County Hub Town;
- Town;
- Village;
- Small Village (of Local Importance).

Below, Table 13-11 lists the settlements identified from the respective county development plans within the LVIA Study Area, noting their county hierarchy status, standardised hierarchy status, whether there is theoretical visibility indicated by ZTV mapping, and whether the receptor was scoped in for assessment. Following this, Figure 13-14 maps all settlements within the LVIA Study Area and shows the ZTV determining theoretical visibility.

Table 13-11: Scoping of Settlements in the LVIA Study Area

Settlement	County	County Hierarchy	Standardised Hierarchy	Theoretical Visibility	Scoped In
Up to 5km					
Bridgetown	Clare.	Large Village.	Small Village.	Full (5–7 turbines).	Yes.
Broadford	Clare.	Small Village.	Small Village.	Full.	Yes.
Kilbane	Clare.	Not listed in CCDP.	Small Village.	Full.	Yes.
5–10km					
Ballina	Tipperary.	Service Centre.	Village.	Partial (3–4 turbines).	Yes. Forms the eastern bank of Killaloe.
Castleconnell	Limerick.	Town.	Town.	Full.	No. Actual visibility is limited by visual screening from Cappakea and Ballybrack peaks.
Killaloe	Clare.	Small Town.	Town.	Partial.	Yes.
O'Briensbridge	Clare.	Large Village.	Small Village.	Partial.	Yes.
10–15km					
Newport	Tipperary.	Service Centre.	Village.	Partial.	No.
Scarriff/Tuamgraney	Clare.	Service Town.	Town.	None.	No.
Tulla	Clare.	Small Town.	Town.	None.	No.

Settlement	County	County Hierarchy	Standardised Hierarchy	Theoretical Visibility	Scoped In
15–20km					
Kilmurry	Clare.	Large Village.	Small Village.	Low (1–2 turbines).	No. On-site appraisal showed no actual visibility due to distance from the site and visual roadside screening.
Limerick	Limerick.	City.	County Hub Town.	Full.	Yes.
Mountshannon	Clare.	Large Village.	Village.	None.	No.
Murroe	Limerick.	Large Village.	Village.	Full.	No. On-site appraisal showed no actual visibility due to visual screening by the surrounding forestry.
Newtown	Tipperary.	Service Centre.	Village.	None.	No.
Portroe	Tipperary.	Service Centre.	Village.	None.	No.
Sixmilebridge	Clare.	Small Town.	Town.	None.	No.
Whitegate	Clare.	Large Village.	Village.	Low.	No. On-site appraisal showed no actual visibility due to topographical screening of peaks by Slieve Bernagh range.



Map Legend

- Ireland OSi National County Borders
- EIAR Site Boundary
- LVIA Study Area (20km Boundary)
- Lackareagh Proposed Turbines

County Settlements Hierarchy

- County Hub Town
- Town
- Village
- Small Village of Local Importance

Zone of Theoretical Visibility (ZTV)

- 1-2 Turbines Theoretically Visible
- 3-4 Turbines Theoretically Visible
- 5-7 Turbines Theoretically Visible

Drawing No.

Figure 13-14

Drawing Title

ZTV & Settlement Hierarchy Map

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

13.5.1.4 Recreational Routes

Recreational routes are sensitive receptors as people are likely to be using them in a recreational capacity where value is likely to be placed upon views and the scenic amenities of the landscape. The term 'recreational routes' encompasses the following:

- Waymarked walking routes;
- Cycle routes;
- Scenic drives and tourist routes (e.g., the Wild Atlantic Way).

According to sources including OSi maps, Sport Ireland Designated Cycle Routes and Trails, Heritagemaps.ie, Clarewalks.ie and Activeme.ie (all sites accessed October, 2023), 15 no. designated routes were identified within the LVIA Study Area. In general, many such routes exist of differing scale and prominence, thus only the recreational routes of county- or national-level importance which are featured on the available websites or are designated in county-level policies were included in this LVIA.

Below, Table 13-12 displays the scoping of all identified recreational routes, along with a description of each route, the nature of theoretical visibility indicated by ZTV mapping, the nature of the actual visibility, and whether the receptor was scoped in for assessment.

Table 13-12: Scoping of Recreational Routes in the LVIA Study Area

Route Name	Description	Theoretical Visibility	Actual Visibility	Scoped In
Up to 5km				
East Clare Way	Length = 180km. Circular route in Co. Clare that crosses through the Slieve Bernagh Mountains, Clare lakeland areas, Lough Graney, Slieve Aughty Mountain, Lough Derg, Scarriff and Killaloe. A 2.3km section of the trail passes through the middle of the Proposed Wind Farm site, passing directly through the turbines within the saddle between Glenagalliagh Mt and Lackareagh Mt peaks.	Inside 5km, None to full (5–7 turbines). Outside 5km, none ranging up to partial (3–4 turbines) in some distant parts.	Inside 5km, full.	Yes.
Lough Derg Way	Length = 64km. Walking route in Counties Limerick and Clare that starts in Limerick City and follows the River Shannon and its associated canals northwestwards to the lake port of Dromineer on Lough Derg.	Inside 5km, TV ranges from none to partial.	Inside 5km, primarily none, due to visual screening.	Yes.
5 to 10km				
12 O'Clock Hills Looped Walks	Length = 8.3km.	Primarily none, one small area of full	None except for potential views from the	Yes.

Route Name	Description	Theoretical Visibility	Actual Visibility	Scoped In
	Loop trail system in Co. Clare climbing steadily to the 12 O'Clock Hills.	theoretical visibility at the highest elevated point at the eastern end of the loop.	highest elevated point.	
Graves of the Leinster Men Looped Walk	Length = 5.8km. Walk in Co. Tipperary around the western slopes of Tountinna Mountain, passing through remote countryside with exceptionally spectacular and impressive views of Lough Derg and the surrounding area.	Inside 10km, low (1–2 turbines). Outside 10km, none to partial.	None.	No.
O'Briensbridge, Parteen Weir	Length = 4.6km. Short loop in Co. Clare off of Lough Derg Way at O'Briensbridge.	Partial.	None.	No.
10 to 15km				
Arra Mountains Loop	Length = 16.5km. Loop trail in Co. Tipperary following northern edge of the Sliabh Arra hills with views of Lough Derg and the surrounding area.	None to low.	None.	No.
Killoscully Mass Path Trail	Length = 2.5km. Small loop trail in Co. Tipperary in the foothills of Keeper Hill.	None.	None.	No.
Nenagh Cycle Hub Loop 2	Length = 39km. Cycling loop trail in Co. Tipperary with views of Lough Derg, passing through Castlelough to Garrykennedy.	None to low.	None.	No.
15 to 20km				
Ballyhourigan Woodland Walk	Length = 9km. Small loop trail in Co. Tipperary through the lower afforested shoulders of Keeper Hill and Boolatin.	None to partial with one small part full.	None, due to forestry screening.	No.
Balycroum Loop	Length = 6.9km. Small loop in Co. Clare off of East Clare Way near Lough Graney.	None.	None.	No.

Route Name	Description	Theoretical Visibility	Actual Visibility	Scoped In
Murroe Clare Glens Loop	Length = 4km. Small loop bordering Counties Limerick and Tipperary through Clare Glens Forest and gorge.	Full.	Primarily none, due to visual screening by forestry.	No.
Murroe Glenstal Woods Loop	Length = 15km. Loop in Co. Limerick through Glenstal Woods, circling Slieve Felim Mountains, with views of Keeper Hill.	None to full.	None, due to visual screening by forestry.	No.
Silvermines Knockanroe Loop	Length = 4.5km. Small loop in Co. Tipperary through forest in Silvermines are and Keeper Hill.	None.	None.	No.
Slieve Felim Way	Length = 43km. Linear route through Counties Limerick and Tipperary, from Murroe through Slieve Felim (422m), Keeper Hill (694m) and the Silvermine Mountains (475m), to Silvermines.	None, with one very small part partial.	None.	No.
Slieve Felim Keeper Hill Summit Walk	Length = 14km. Summit walk in Co. Tipperary off of Slieve Felim Way up Keeper Hill with views of Shannon Region.	None to full.	Primarily none, due to distance and visual screening by forestry.	No.

13.5.1.5 Recreational, Cultural Heritage and Tourist Destinations

Popular recreational, cultural heritage and tourist destinations in the LVIA Study Area were investigated through a desktop exploration of localised tourism plans as well as considering the most popular tourism destinations in Counties Clare, Limerick and Tipperary posted on Tripadvisor.ie (accessed October, 2023). Note that 'cultural heritage' destinations in this section refers to those of popular renown in the sense of general tourism; a detailed assessment of archaeological cultural heritage sites in relation to the Proposed Project is provided in this EIAR, Chapter 14: Cultural Heritage.

5 no. recreational and tourist destinations were identified within the LVIA Study Area:

- Castlebawn Castle, Co. Clare;
- Craggaunowen History Museum, Co. Clare;
- Glenstal Abbey, Co. Limerick;
- King John's Castle, Co. Limerick;
- Knappogue Castle, Co. Clare.

Below, Table 13-13 displays the scoping of the 5 no. recreational and tourist destinations within the LVIA Study Area, all within Co. Clare. The table provides a description of each item, the nature of theoretical visibility indicated by ZTV mapping, the nature of the actual visibility, and whether the receptor was scoped in for assessment.

Table 13-13: Scoping of Recreational, Cultural Heritage & Tourist Destinations in the LVIA Study Area

Destination	Description	Theoretical Visibility	Actual Visibility	Scoped In
Up to 5km and 5 to 10km				
	None.			
10 to 15km				
Castlebawn Castle	Co. Clare. 16th century tower house on a small island of Lough Derg on the River Shannon, connected to the shore of Bealkelly by a man-made causeway.	None.	None.	No.
15 to 20km				
Craggaunowen History Museum	Co. Clare. Archaeological open-air museum in eastern Co. Clare, Ireland. Named for the 16th-century castle which is one of its main components. Craggaunowen is located 10 km east of Quin village.	None. Sits on the border of intermittent theoretical visibility yet lies within area of none.	None.	No.
Glenstal Abbey	Co. Limerick. Catholic Benedictine monastery located on the outskirts of Murroe village inside the revival 12th-century-style Glenstal Castle, built in the 1830s.	None.	None.	No.
King John's Castle	Co. Limerick. 13th century castle on King's Island in downtown Limerick next to the River Shannon, built in 1200.	Full.	Full.	Yes.
Knappogue Castle	Co. Clare. Tower house built in 1497 and expanded in mid-19th century, hosts banquets and guided tours.	Full.	None, due to visual screening by topography.	No.

13.5.1.6 Transport Routes

Motorways, national primary roads and national secondary roads within the LVIA Study Area were investigated via desktop analysis. Transport routes are not typically considered to represent receptors of high sensitivity. Therefore, the potential for 'Significant' visual effects is only likely to occur for transport routes in close proximity to the site where the magnitude change is likely to be greater. Consideration is also given to the number of receptors travelling these routes (as per GLVIA3 guidance). In mind of this, only prominent high-trafficked transport routes such as national roads and motorways are considered to

20km and only regional roads within 10km (excepting regional roads overlapping with a designated scenic route) are considered in the visual baseline exercise. The visual baseline exercise determined that most visibility of the proposed turbines will occur within 5km of the Proposed Wind Farm. Therefore, regional roads within 5km were included in this preliminary analysis scoping exercise of transport routes.

In addition, regional roads and local road transport routes within 3–5km (3km in the case of local roads and 5km in the case of regional or national roads) of the proposed turbines were also assessed as part of the previous RSA of this report (recall above Section 13.3.3.1: Visibility in Close Proximity: RSA).

On-site appraisals determined that, in most instances, where ZTV mapping has indicated full visibility from large portions of these routes, the actual visibility is quite limited due to local topography and roadside screening. Considering this, for the purpose of viewpoint selection, specific locations from which the greatest visibility is likely to occur were selected on these transport routes.

Below, Table 13-14 lists all identified transport routes, describes the geographical extent of theoretical visibility upon each route as illustrated by ZTV mapping, and indicates whether the receptor was scoped in for assessment. The road types are prefixed as follows: local (L), regional (R), national (N), and motorway (M).

Table 13-14: Scoping of Major Transport Routes in the LVIA Study Area

Transport Route	Theoretical Visibility	Scoped In
Up to 5km		
L3022-8	Traverses the length of the Proposed Grid Connection Route from the Proposed Project site down to Ardnacrusha 110kV substation; theoretical visibility is full (5–7 turbines) within Glenomra Valley.	Yes.
L7080	'The Gap Road'. Theoretical visibility is none to partial (3–4 turbines) on the backside of Glenagalliagh Mountain, east of the site, approaching from Killaloe. Visibility is full where road passes directly between the turbines over the ridgetop into Glenomra Valley.	Yes.
L7004	Journeys E-W within Glenomra Valley between Broadford and Kilbane; theoretical visibility is full.	Yes.
R463	Traverses N-S curvature between Clonlara (near Limerick City) and Tumgraney (near Lough Derg). One very small portion inside 5km between Killaloe and O'Briensbridge has partial theoretical visibility. Most of this road lies between 5–10km; north of Killaloe, visibility is none (overlaps with SR-27, screened out); south of O'Briensbridge, visibility is ranges from none to full.	Yes.
R465	Journeys N-S from Limerick City through Broadford up to R352 at Coolready. Within 5km, theoretical visibility is intermittent none to full journeying from R471 north to Broadford. Within 5–15km, visibility is mostly full journeying from Limerick City north into Glenomra Valley.	Yes.
R466	Overlaps with SR-26 (screened in). Journeys SE-NW between O'Briensbridge and Broadford through Glenomra Valley. Theoretical visibility is mostly full within the valley.	Yes.

Transport Route	Theoretical Visibility	Scoped In
5 to 10km		
M7	Journeys SW-NE between Limerick City and Nenagh. One very small portion inside 10km between Anaholty Bog and Ballinahinch ranges from partial to full theoretical visibility. From 10–20km, theoretical visibility on the north portion is intermittent down to mostly none, and theoretical visibility on the south portion out of Limerick City is mostly full, ranging down to none.	Yes.
L8221	Overlaps with SR-32 (scoped out). Journeys E-W through the Carnagnore Valley between Ballydonaghan and Ballylaghnan. Theoretical visibility is none.	No.
R352	Journeys E-W between Tuamgraney (Ratheen Woods at Lough Derg) and Tulla; theoretical visibility is mostly none and intermittently ranges up to partial near Tulla.	No.
R471	Journeys E-W between Clonlara and Sixmilebridge; theoretical visibility is highly intermittent from none to full if looking northwards.	No.
R494	Overlaps with V44 (scoped in). Journeys N-S from Killaloe up the east bank of Lough Derg (high-sensitivity receptor); theoretical visibility ranges from none to low (1–2 turbines). Passes east through Portroe; visibility is none up to 20km.	Yes.
10 to 15km		
R462	Journeys N-S between Gratloe and Loughaun North. One small portion inside 15km between Kilkishen and Tulla has partial to full theoretical visibility (overlaps with Scenic Route SR-24, scoped in for assessment). Most of this road lies between 15–20km; north of Tulla and south of Kilkishen, visibility is ranges from none to partial.	Yes.
15 to 20km		
N18	Journeys E-W south of Limerick City; theoretical visibility is mostly none, ranges up to full in one small part.	No.

13.5.2 Preliminary Analysis: Visual Receptors

Visual Receptors Selected for Assessment. After identifying all visual receptors in the LVIA Study Area, the preliminary analysis was carried out to determine the likely visibility of the proposed turbines using ZTV mapping and on-site visibility appraisals, as reported in the tables of the previous sections. Following this, the final list of visual receptors was selected for further assessment as part of this LVIA using viewpoint selection and photomontage visualisation, supplemented by photowire, or early-stage 'draft' photomontage, analysis. Viewpoints, photomontages and photowires are explained below in Section 13.5.4: Viewpoint Selection: Photomontage and Photowire Locations.

Below, Table 13-15 presents the final list of visual receptors selected for assessment in this LVIA and identifies the viewpoint number(s) (indicated by 'VP') and/or photowire number(s) (indicated by 'PW') representative of that receptor. All viewpoint and photowire locations are mapped along with the visual receptors below in the subsequent Section 13.5.4.

Table 13-15: Visual Receptors Scoped In for Assessment

Category	Visual Receptor	Viewpoint/ Photowire No.
SCOPED IN FOR ASSESSMENT		
Designated Scenic Routes & Views	C-SR-24: Views in and out of Lough Cullaunyheeda, overlaps with R462.	PW-N
	C-SR-26: R466 between Broadford and O'Briensbridge.	VP04, 7, 8, PW-M
	T-V-44: Views W and sections of the road to the E of the R494.	PW-A, B
	T-V-59: Views of surrounding landscape from M7 including Annaholty and Rossfinch.	VP11
OSi Viewing Areas	#58 Radial view the top of Mt. Tountinna on the eastern banks of Lough Derg in Co. Tipperary.	VP01
Settlements	Bridgetown, Small Village in Co. Clare.	VP08
	Broadford, Small Village in Co. Clare.	VP05
	Kilbane, Small Village in Co. Clare.	VP14, PW-I, J, K
	Killaloe, Town in Co. Clare (includes Ballina, Small Village).	VP02, PW-C, D, E, F
	Limerick, County Hub Town in Co. Limerick.	VP12, PW-Q, R
	O'Briensbridge, Village in Co. Clare.	VP09, 10
Recreational Routes	East Clare Way.	VP03, 13 PW-G, I

Category	Visual Receptor	Viewpoint/ Photowire No.
SCOPED IN FOR ASSESSMENT		
	Lough Derg Way.	VP01, 9 PW-E
	12 O'Clock Hills Looped Walks	VP06
Recreational, Cultural Heritage & Tourist Destinations	King John's Castle, in Limerick City.	VP12
Transport Routes	L3022-8, traverses the length of the Proposed Grid Connection Route from the Proposed Project site down to Ardnacrusha Hydroelectric Power Station.	VP07, PW-L, M, P
	L7004, journeys E-W within Glenomra Valley between Broadford and Kilbane.	PW-K
	L7080, 'The Gap Road'.	VP03, 13 PW-G, I, J, K
	M7, portion between Anaholty Bog and Ballinahinch.	VP11
	R462, portion between Kilkishen and Tulla, contains SR-24.	PW-N
	R463, small portion between Killaloe and O'Briensbridge.	VP10
	R465, small portion between R471 and Broadford.	VP06, PW-O
	R466, overlaps with SR-26, journeys SE-NW between O'Briensbridge and Broadford through Glenomra Valley.	VP04, 7 PW-M
	R494, overlaps with V44 Co. Tipperary designated scenic view, journeys N-S from Killaloe up the east bank of Lough Derg.	PW-A, B

Visual Receptors Scoped Out. ZTV mapping and visibility appraisals conducted on-site during 2022, 2023 and 2024 were used to inform the analysis and scope out visual receptors from further assessment. These receptors were excluded due to the very limited visibility of the proposed turbines, as determined by ZTV mapping as well as onsite appraisals of each visual receptor location. In some cases, the factor of distance to the Proposed Wind Farm site as well as the directional focus of views was included in the preliminary analysis and was a contributing factor in excluding these locations from being selected as viewpoints. Visual receptors that are not mentioned above in Table 13-15 have been excluded from further assessment.

13.5.3 Residential Receptors and Visual Amenity

During multiple surveys conducted in 2022, 2023 and 2024, visibility appraisals determined that most visibility of the proposed turbines will occur within 5km of the proposed turbines, inside Glenomra Valley. This valley is a sparsely populated, modified working landscape; however, it is a settled landscape and residential housing is organised along the local road network as well as in small settlement clusters around local crossroads and junctions. Some residential receptors located in close proximity to the site will likely have views of the proposed turbines and are likely to have the greatest visual effects arising as a result of the Proposed Project.

In light of this, several photomontage viewpoint locations representing residential properties located in close proximity to the Proposed Project were selected for inclusion in the *Photomontage Booklet* and are assessed in *Appendix 13-3: Photomontage Visual Impact Assessment Tables*, as well as discussed later in this Chapter.

The following representative viewpoints (VPs) and/or photowires (PWs) are located in proximity to residential receptors and settlement centres within 5km from the site:

- VP05: Broadford, Village at the north-west end of Glenomra Valley;
- VP08: Bridgetown, Village at the south-east end of Glenomra Valley;
- VP13: Killeagy, general area of individual residences within EIAR Site Boundary;
- VP14, PW-I, J, K: Kilbane, Small Village within EIAR Site Boundary;
- VP15, PW-H: Aillemore, residences in River Ardcloony Valley immediately east of and outside Glenomra Valley.

The impact of the proposed turbines on residential visual amenity is discussed in detail in Section 13.7.3.3: Residential Visual Amenity.

13.5.4 Viewpoint Selection: Photomontage and Photowire Locations

Selection of Main Photomontage Viewpoints

Photomontage imagery was captured from multiple viewpoint locations in the LVIA Study Area; from these, a total of 15 no. photomontage viewpoints were selected for full assessment (named VP01–VP15). These are mapped below in Figure 13-20 (marked as white/green icons) and presented in the *EIAR Volume 2: Photomontage Booklet* accompanying this report. All VPs are comprehensively assessed in Section 13.7.3.2.1: Photomontage Viewpoint Assessment Outcomes. Subsequently, Figure 13-16 and Figure 13-17 show enlargements of the map in Figure 13-15 to better show the details of viewpoint locations within Glenomra Valley and Killaloe, respectively.

Imagery captured from each viewpoint was used to assess the significance of visual effects arising from the proposed turbines from each viewpoint location. The viewpoint locations are representative of all visual receptors; in some instances, imagery was not captured directly at a visual receptor but from another location in close proximity to the receptor, from which there was a superior line of sight towards the proposed turbines (e.g. a point of higher elevation or a position with less visual screening).

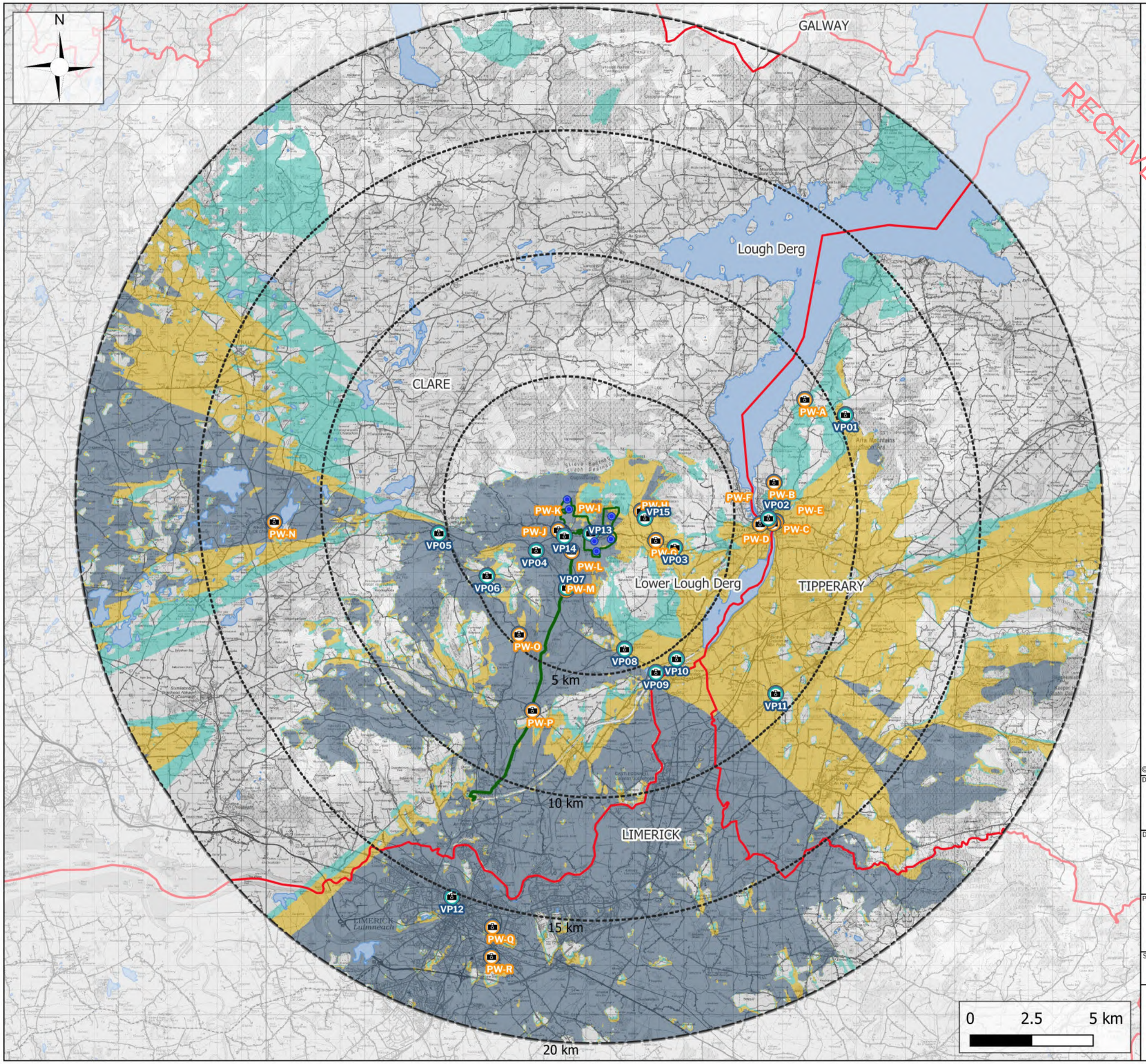
The likely 'Significant' visual effects of the proposed turbines arising from each viewpoint location are reported below in Section 13.7.3.2. The comprehensive and detailed assessment is presented within the viewpoint (photomontage) impact assessment tables in *Appendix 13-3: Photomontage Visual Impact Assessment Tables*.

Supplementary Photomontage Viewpoints: Photowires

Before selection of the final viewpoints, early-stage photomontages (draft-overlaid wireframes) were produced, known as 'photowires', representing all visual receptors listed previously in Table 13-15. In some instances, photowires indicated limited visibility of the proposed turbines and were therefore excluded from assessment in the final *Photomontage Booklet*.

To aid discussions, a total of 18 no. supplementary photowires (named PW-A through PW-R) representing additional locations of visual receptors are presented in a separate appendix (*Appendix 13-5: Photowire Visualisation Booklet*) and discussed in the text during the assessments included below in Section 13.7.3.2 to illustrate certain points relating to visual effects on specific receptors. These photowires are classified as 'Type 3' Visualisations in the LI TGN (2019) and do not form part of the assessment of visual effects included in *Appendix 13-3*.

The locations of the 18 no. supplementary photowires (PW-A through PW-R, marked as orange icons) are also included below in Figure 13-20. A detailed description of the viewpoint selection process and photomontage/photowire assessment methodology is provided in *Appendix 13-1: LVIA Methodology*.



Map Legend

- Ireland OSi National County Borders
- LVIA Study Area (20km Boundary)
- EIAR Site Boundary
- Lackareagh Proposed Turbines
- Photomontage Viewpoint Locations (VPs)
- Photowire Locations (PWs)

Zone of Theoretical Visibility (ZTV)

- 1-2 Turbines Theoretically Visible
- 3-4 Turbines Theoretically Visible
- 5-7 Turbines Theoretically Visible

Drawing No.

Figure 13-15

Drawing Title

ZTV & Photomontage and Photowire Locations

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

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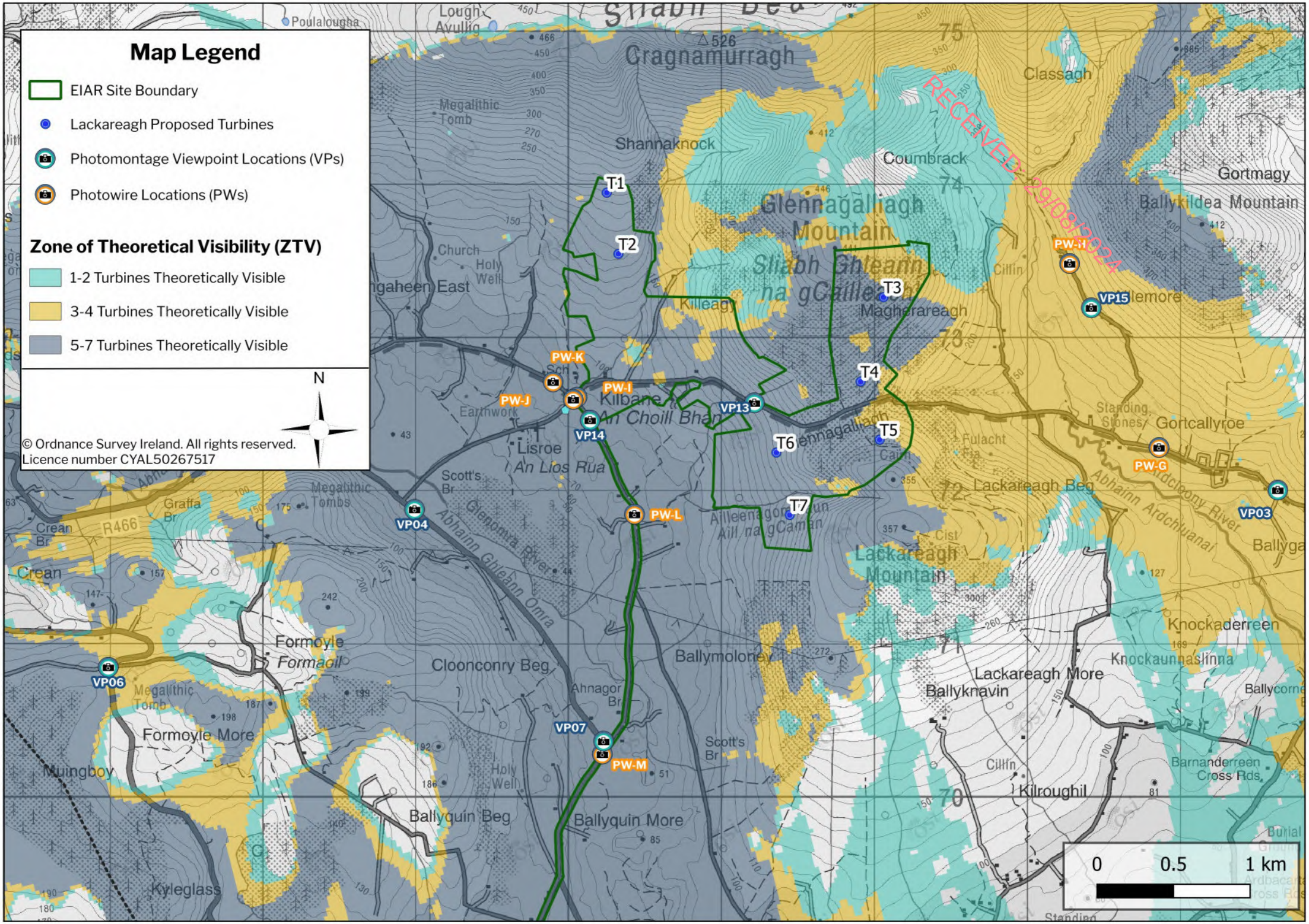
Map Legend
EIAR Site Boundary
Lackareagh Proposed Turbines
Photomontage Viewpoint Locations (VPs)
Photowire Locations (PWs)
Zone of Theoretical Visibility (ZTV)
1-2 Turbines Theoretically Visible
3-4 Turbines Theoretically Visible
5-7 Turbines Theoretically Visible
N
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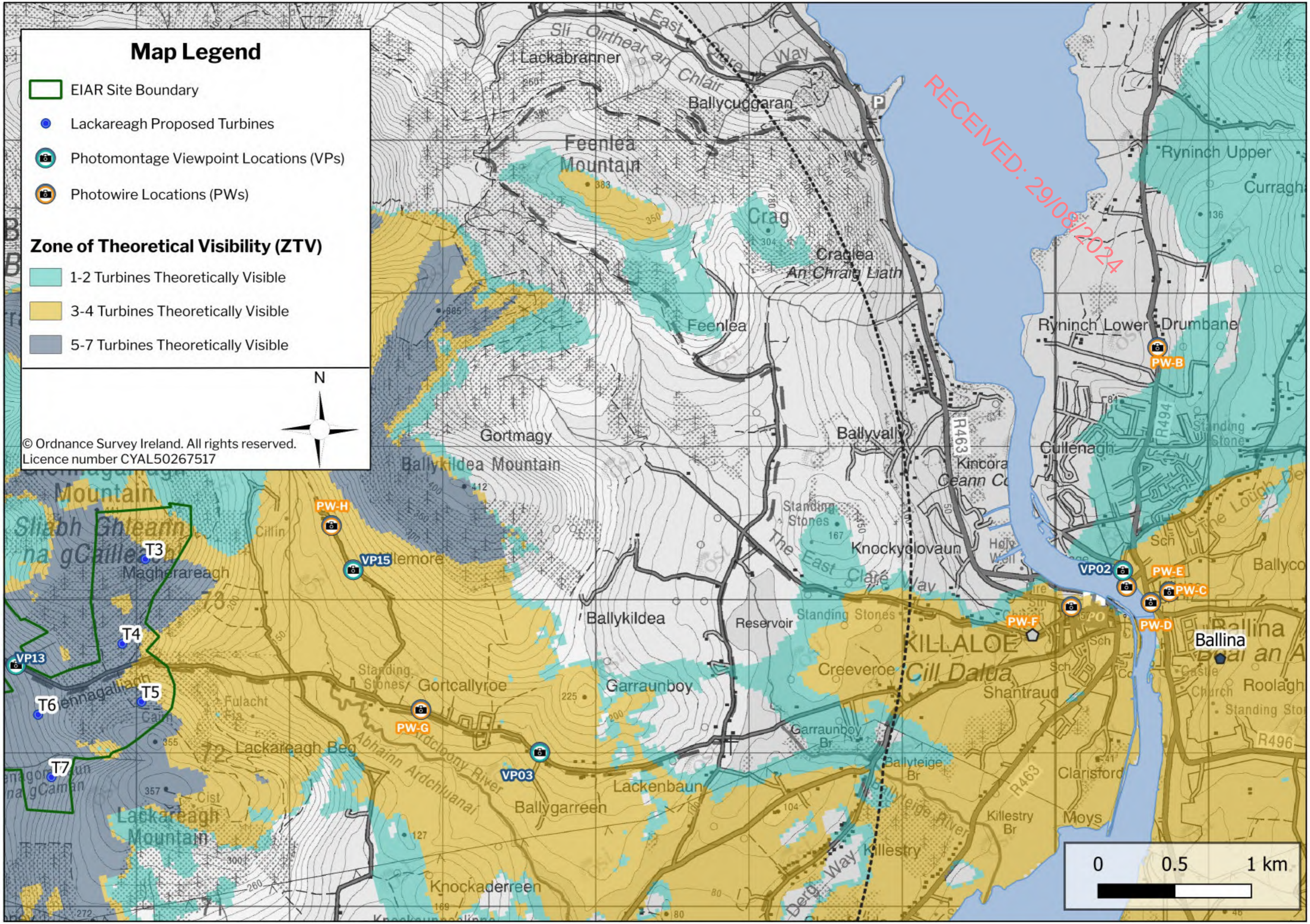
RECEIVED: 29/08/2024
T1
T2
T3
T4
T5
T6
T7
VP03
VP04
VP06
VP07
VP13
VP14
VP15
PW-G
PW-I
PW-J
PW-K
PW-L
PW-M
Cragnamurragh
Glennagalliagh Mountain
Sliabh Ghleann na gCailleach
Lackareagh Mountain
Lackareagh Beg
Lackareagh More
Shannaknock
Coumbrack
Classagh
Gortmagy
Ballykildea Mountain
Gortcallyroe
Lismore
Lisroe
An Lios Rua
Kilbane
An Choill Bhán
Killeagy
Magherareagh
Formoyle
Formaoil
Formoyle More
Clooncony Beg
Ballymoloney
Ballyknavin
Knockaderreen
Knockaunnaslinna
Ballyquin Beg
Ballyquin More
Kilroughil
Barnanderreen Cross Rds
Muingboy
Kyleglass
Crean
Abhainn Ghleann Omra
Abhainn Ardcloony River
0
0.5
1 km


Map Legend
EIAR Site Boundary
Lackareagh Proposed Turbines
Photomontage Viewpoint Locations (VPs)
Photowire Locations (PWs)
Zone of Theoretical Visibility (ZTV)
1-2 Turbines Theoretically Visible
3-4 Turbines Theoretically Visible
5-7 Turbines Theoretically Visible
N
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RECEIVED: 29/08/2024
Lackabranner
Ballycuggaran
Feenlea Mountain
Crag
Craglea
An Chraig Liath
Feenlea
Rynich Upper
Rynich Lower
Drumbane
Cullenagh
Gortmagy
Ballykildea Mountain
Ballyvally
Kincora
Knockyclovaun
Ballykildea
Reservoir
Standing Stones
KILLALOE
Cill Dalua
Creeveroe
Shantraud
Ballina
Roolagh
Garraunboy
Gortcallyroe
Lackareagh Beg
Lackenbaun
Ballygarreen
Lackareagh Mountain
Knockaderreen
Clarisford
Killestry
Moys
Magherareagh
T3
T4
T5
T6
T7
VP13
VP15
VP03
VP02
PW-B
PW-C
PW-D
PW-E
PW-F
PW-G
PW-H
R463
R494
R496
0
0.5
1 km

13.6 Cumulative Context: Other Wind Farms

This LVIA Chapter assesses the likely landscape and visual impacts of the Proposed Project both independently, as well as in combination with all other existing and operational wind farm developments in the LVIA Study Area. In this section, all wind farm developments in the LVIA Study Area which potentially contribute to assessment of cumulative and in-combination landscape and visual effects are identified.

In addition, this section assesses the Proposed Project in combination with all 'likely future receiving environments' according to the EPA (2022) in the LVIA Study Area, which includes other permitted and proposed wind farm developments.

This LVIA emphasises that the landscapes of the Proposed Project site and its wider setting (i.e. Slieve Bernagh Uplands LCA-8) constitute a highly suitable area for the development of wind energy in general and is an area where wind energy is envisioned in local planning policy (CWES); consequently, a variety of projects exist within differing stages of the wind farm life cycle (existing, permitted and proposed).

13.6.1 Cumulative Developments Identified in LVIA Study Area

All wind farm developments in the LVIA Study Area are identified in this section and each is categorised as one of the following:

- **Existing**: Wind energy developments that are currently operational in the baseline landscape at the time of conducting this LVIA;
- **Permitted:** Wind energy developments that are permitted (consented) at the time of conducting this LVIA. These developments have a high probability of being operational in a future receiving environment;
- **Proposed**: All well-developed wind farm proposals with project specifications in the public domain at the time of conducting this LVIA. Cumulative effects between the Proposed Project and other proposed projects within this category are inherently uncertain and are reliant on the outcome of the planning and consenting system (amongst other factors).

A description of the various cumulative categories are presented in the *EIAR Volume 2: Photomontage Booklet* is comprehensively reported in *Appendix 13-1: LVIA Methodology* (Section 1.6: Photomontage Visualisations). The above categories are a useful guide to enable understanding and structure when viewing the *Photomontage Booklet* and identification of the developments listed in this section. However, irrespective of how a development is categorised, the assessments of cumulative landscape and visual effects includes all other wind farm developments.

The effects reported both in this Chapter and within the assessment appendices (*Appendix 13-2: LCA Assessment Tables* and *Appendix 13-3: Photomontage Visual Impact Assessment Tables*) uses appropriate and logical narrative to discuss cumulative interactions between the Proposed Project and all other wind energy developments irrespective of which category they occur. Whilst the categories provide clarity in the presentation of visuals with respect to the scope of potential development in this landscape, discussion of cumulative interactions on specific landscape and visual receptors is relative to the effects on each receptor and is proportionate to the likelihood of significant landscape and visual effects occurring on that receptor.

In terms of cumulative landscape and visual effects, only other wind energy projects have been considered, as only these development types can be described as having very tall, vertical elements in

the landscape (i.e. turbines) and therefore have the most potential to give rise to 'Significant' cumulative landscape and visual effects. These other wind energy developments within 20km of the proposed turbines were identified by searching past planning applications lodged through the online planning portals of relevant planning authorities (i.e. An Bord Pleanála, Clare County Council, Limerick County Council and Tipperary County Council).

The information identified in the initial planning search was then used to verify, by means of a desk-based study and ground-truthing, whether the permitted wind energy developments had been constructed. The list of existing, permitted, and proposed wind turbines present within the LVIA Study Area are listed below in Table 13-16.

Table 13-16: Cumulative Wind Farms Identified in the LVIA Study Area

Other Wind Farms	County	Status	No. of Turbines	Distance from Nearest Proposed Turbine
Up to 5km				
Carrownagowan	Clare.	Permitted.	19	2.2km
Fahy Beg	Clare.	Permitted.	8	1.3km
5 to 10km				
Knockshanvo	Clare.	Proposed.	9	5.1km
Oatfield	Clare.	Proposed.	11	6.0km
10 to 15km				
Ballycar	Clare.	Proposed.	12	11.0km
Parteen (Single)	Clare.	Existing.	1	12.3km
Vistakon (Single)	Limerick.	Existing.	1	13.7km
15 to 20km				
	None.			

Within the LVIA Study Area (20km radius), 2 no. existing single turbines, 2 no. permitted wind farms and 3 no. proposed wind farms have been identified. The locations of these wind farms and corresponding wind turbines are mapped in the following section.

In cases where turbines of these wind farms are theoretically visible from the selected 15 no. photomontage viewpoints selected for this LVIA, the turbines are included within the proposed photomontage imagery in the *Photomontage Booklet*.

13.6.2 Cumulative Context and Theoretical Visibility

Below, Figure 13-18 compares the cumulative theoretical visibility of all existing, permitted, under construction and proposed wind farms with an additional visibility of the Proposed Project, and the subsequent Figure 13-19 shows the same map overlain with a newly calculated ZTV for cumulative effects.

The legend of Figure 13-19 shows the theoretical visibility of the proposed turbines and cumulative turbines for each corresponding colour, as follows:

- Teal: Only turbines of the Proposed Project are theoretically visible;
- Yellow: Only turbines from existing, permitted and proposed projects are theoretically visible;
- Grey: All cumulative turbines are theoretically visible, including the Proposed Project and all other existing, permitted and proposed projects.

The below figures illustrate the volume of wind developments that are proposed or permitted within Slieve Bernagh Uplands, specifically around the upland regions of Slieve Bernagh range and Glenomra Valley, including those in the collective region of Formoyle More, Knockanuarha and Knockshanvo comprising the western boundary enclosure of Glenomra Valley. As emphasised previously in this report, Slieve Bernagh Uplands is identified by the CCDP as one of very few suitable areas for wind energy development in Co. Clare.

On Figure 13-19, the very small amount of teal colour on the ZTV map illustrates that the Proposed Project by itself adds very little additional theoretical visibility of cumulative turbines across the landscape of the LVIA Study Area. The total area of theoretical visibility of cumulative turbines takes up approximately a little more than half of the LVIA Study Area, with the other half being dedicated to both the Proposed Project and cumulative wind farms. This suggests that, if permitted and constructed, the Proposed Project would have similar theoretical visibility as the other cumulative turbines in the area. It therefore adds numbers of turbines to the current turbines potentially visible in a future receiving environment with minimal areas where it is bringing turbines as novel elements into landscape views.

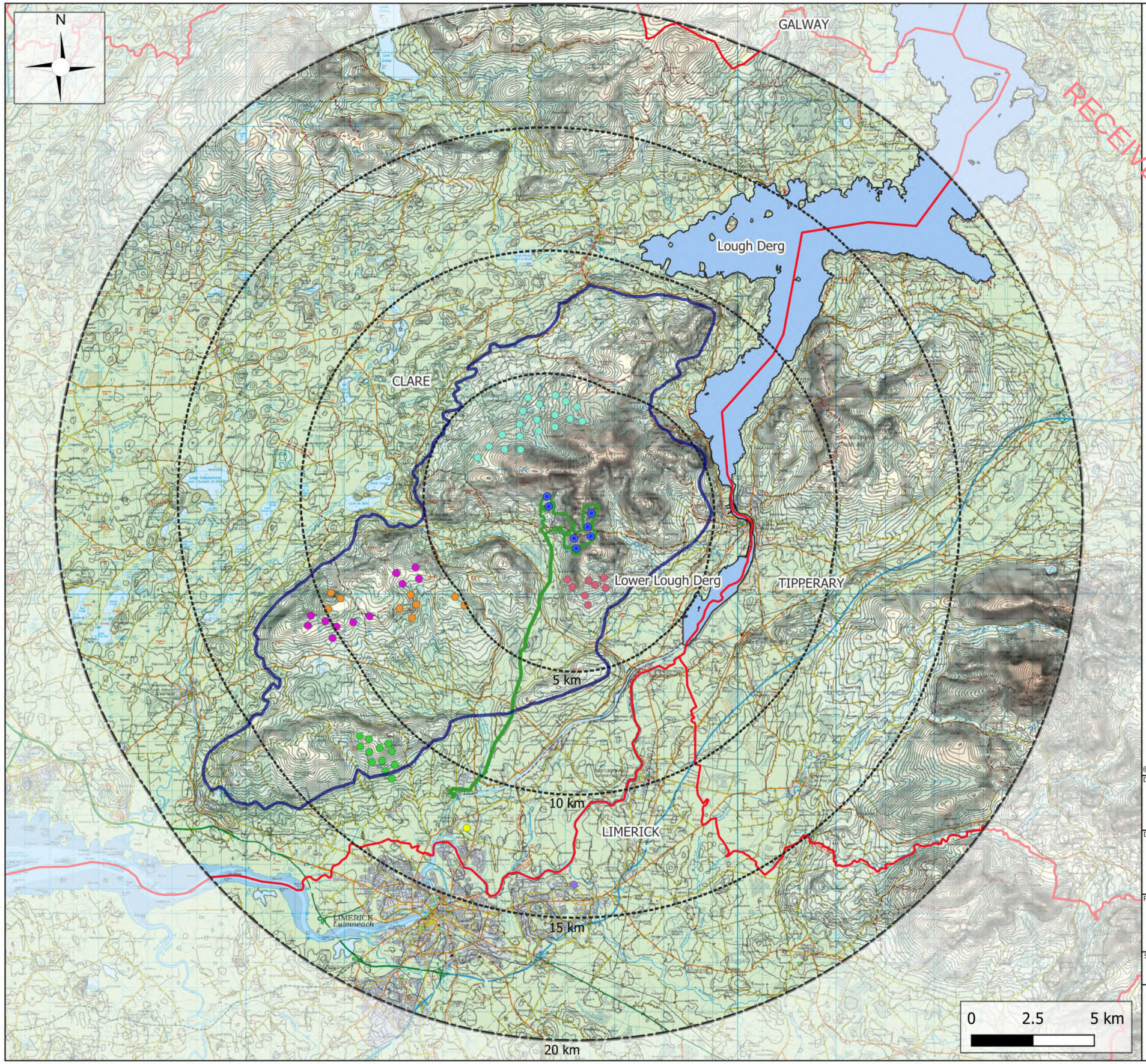
As noted previously, the ZTV does not account for localised undulations in topography or other screening factors; as such, the actual visibility from areas of lowland vegetated landscape is likely to be far less than is indicated by the ZTV. Whilst the cumulative ZTV is a useful tool to aid assessment of cumulative effects and identify areas of non-visibility where certain cumulative impacts will not occur, its utility is limited.

It should be emphasised that, in general, **photomontages are a more informative tool than the Cumulative ZTV** for assessing the potential cumulative landscape and visual impacts of the Proposed Project (refer to GLVIA3, LI & IEMA, 2013, p.129, para.7.30); the likely cumulative visual effects as shown in photomontages are comprehensively assessed in *Appendix 13-3: Photomontage Visual Impact Assessment Tables*.

In addition, this report highlights that cumulative effects between the proposed turbines and other proposed wind farms (not permitted) are more uncertain and is reliant on an outcome of the planning and consenting system.

Detailed discussions of cumulative landscape and visual effects are included below in Section 13.7.3.5: Cumulative Effects. The likely cumulative landscape effects are assessed in the landscape character assessment tables in *Appendix 13-2: LCA Assessment Tables*, and the likely cumulative visual effects are assessed in the photomontage assessment tables in *Appendix 13-3: Photomontage Visual Impact Assessment Tables*.

It is noted that the assessment of cumulative landscape and visual effects must be proportional, meaning that the focus of the assessment is on the extent to which the Proposed Project contributes toward cumulative effects on the particular receptors under assessment; these contributions are clearly explained in the narrative on cumulative impact assessment included in this Chapter (Section 13.7.3.5) as well as in the impact assessment Appendices (*Appendix 13-2* and *Appendix 13-3*).



Map Legend

- Ireland National OSi County Borders
- LVIA Study Area (20km Boundary)
- The Slieve Bernagh Uplands (LCA-8 Border)
- EIAR Site Boundary
- Lackareagh Proposed Turbines
- 10m Contours

Cumulative Wind Farm (WF) List

- Carrownagowan WF (Permitted)
- Fahy Bog WF (Permitted)
- Ballycar WF (Proposed)
- Knockshanvo WF (Proposed)
- Oatfield WF (Proposed)
- Parteen Single Turbine (Existing)
- Vistakon Single Turbine (Existing)

Drawing No.

Figure 13-18

Drawing Title

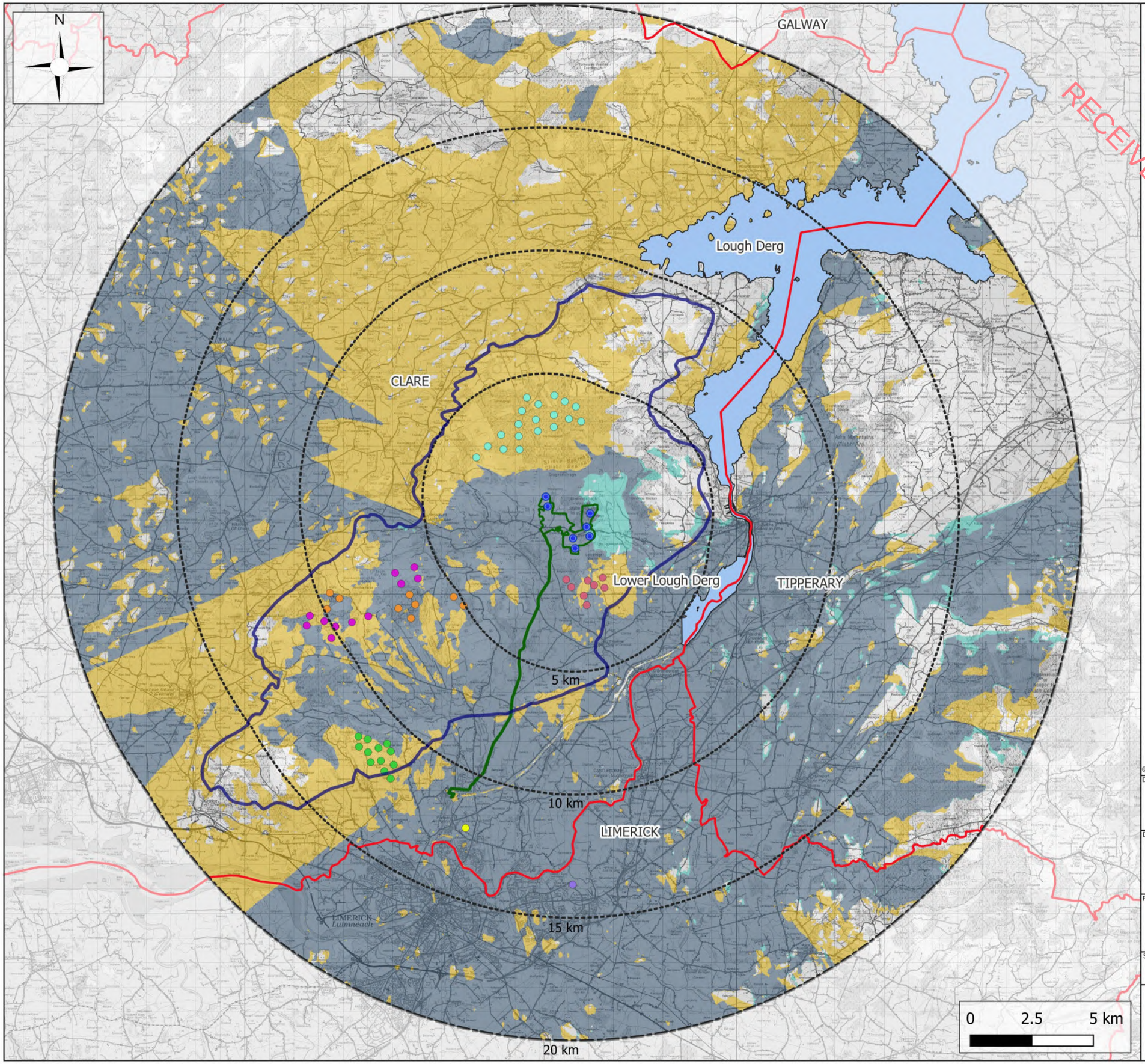
Cumulative Context Map

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

MKO



Map Legend

- Ireland National OSi County Borders
- LVIA Study Area (20km Boundary)
- The Slieve Bernagh Uplands (LCA-8 Border)
- EIAR Site Boundary
- Lackareagh Proposed Turbines

Cumulative Wind Farm (WF) List

- Carrownagowan WF (Permitted)
- Faby Beg WF (Permitted)
- Ballycar WF (Proposed)
- Knockshanvo WF (Proposed)
- Oatfield WF (Proposed)
- Parteen Single Turbine (Existing)
- Vistakon Single Turbine (Existing)

Zone of Theoretical Visibility (ZTV)

- Visibility of Proposed Lackareagh Turbines (only)
- Visibility of Cumulative WFs (only)
- Visibility of All Developments

Drawing No.

Figure 13-19

Drawing Title

Cumulative Context Map with Cumulative ZTV

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

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13.7 Likely 'Significant' Landscape and Visual Effects

Based on the analysis of landscape and visual baseline information reported above in this Chapter, combined with considerations of the cumulative effects with other wind farms, this section reports the landscape and visual effects likely to occur during all three phases of the Proposed Project:

- Construction phase;
- Operational phase;
- Decommissioning phase.

In addition, this section summarises the outcomes of LCA and photomontage visual impact assessments (refer to *Appendix 13-2* and *Appendix 13-3*, respectively). A comprehensive description of the guidance and methodology used for the assessment of landscape and visual effects are included in *Appendix 13-1: LVIA Methodology*, along with information about the photomontages as a tool used to inform the impact assessment, including their limitations (*Appendix 13-1*, Section 1.6.4: Limitations of Photomontage Visualisation).

Turbine Range Envelope. *Appendix 13-3* assesses the likely difference of effects arising from the proposed turbine range, including analysis of three different turbine models from four photomontage viewpoints. The analysis concludes that: irrespective of the turbine model implemented within the range proposed, the outcome of the significance of residual landscape and visual effects on receptors will not change.

13.7.1 'Do Nothing' Scenario

The 'Do-Nothing' scenario to developing a wind farm at the Proposed Project site would constitute leaving the site 'as is', with no changes made to the current land-use practices. In the absence of the Proposed Project, and without dramatic changes to policy or economic drivers in the area, the established trends in respect of land use/landcover and the baseline landscape and visual context are likely to remain largely consistent with the scenario described in the preceding baseline sections of this Chapter.

It is considered that there would likely be future interest in developing this landscape for wind energy production, which is demonstrated given the level of existing, permitted, under-construction wind farms outlined in Table 13-16 above (these wind farms are considered to form part of the 'Do-Nothing' scenario). Characteristic commercial forestry operations across the Proposed Project site and adjoining areas are expected to continue. Should this occur, the impact would be neutral in the context of this EIAR.

13.7.2 Construction Phase Effects

It is estimated that the construction phase of the Proposed Project will last between 18 and 24 months. Construction of the development will involve the installation of the 7 no. turbines with a maximum blade-tip height of 180m and all associated works, as well as the construction of the proposed onsite 38kV substation and BESS and associated works including underground cabling.

Construction phase effects will also include the associated effects resulting from the movement of construction and turbine transport vehicles into and out of the Proposed Wind Farm site, to allow for construction of the turbines, roads and associated elements.

13.7.2.1 Landscape Effects (Construction Phase)

Proposed Wind Farm

Associated earthworks, such as the cut and fill required to facilitate construction of the Proposed Project, have the greatest potential for landscape effects. Where excavation is required, the existing landcover, vegetation and spoil will be removed during the construction phase. In most instances, groundworks and excavation trenches will be re-instated upon completion of the construction. Where spoil arising from construction activities is managed within the Proposed Wind Farm site, the vegetative top-soil layer will be removed and re-instated following spoil management taking place. The construction activities may potentially cause temporary impacts on the landscape such as the creation of temporary structures, dust, minor soil erosion and minor alterations to drainage. It is considered that this is a 'Slight', 'Short-term', 'Negative' effect in terms of landscape effects.

Proposed Grid Connection Route

The Proposed Grid Connection Route cabling is to be located underground; therefore, the greatest effects attributed to this element of the Proposed Project will occur during the construction phase of the Proposed Wind Farm. The majority of cable route works are to be carried out along existing public road corridors. The construction phase of the proposed underground cabling will be temporary, localised, and transient in nature, as the works move along the cable route. The works will include soil stripping, excavation, and other associated construction activities. These activities will cause temporary change to the physical landscape along the Proposed Grid Connection Route; however, these changes will be localised to the immediate environment surrounding the route and will not affect the character of the landscape setting or visual amenity of the wider area. The Proposed Grid Connection Route works are likely to cause 'Slight', 'Short-term', 'Negative' landscape (as well as visual) effects.

Mitigations for Proposed Grid Connection Route (Landscape). The following measures should be implemented to mitigate effects during the construction phase and operational phase of the Proposed Grid Connection Route underground electrical cabling:

- In all circumstances, excavation depths and volumes will be minimised, and excavated material will be re-used where possible;
- Where the cable trench is to be located in the road verge, subsoil will be piled on-site and re-used after cabling works. Should any medium planting be removed, it should be replaced with the same or similar species whenever it is not possible to salvage and reinstate;
- Any areas of bare soil remaining after the landscaping phase will be seeded as soon as possible with a grass-seed mix to minimise sediment run-off.

Residual Effects

The construction works shall be temporary/short-term in nature and completed as soon as practically possible. All construction activities will follow best practice methods to reduce impacts upon the environment and landscape of the Proposed Project. Further details are presented in the *Construction and Environmental Management Plan* (CEMP) contained in *Appendix 4-3* of this EIAR. With the implementation of the above practices and mitigations, the residual effects on landscape during the construction phase of the Proposed Project are likely to be 'Negative', 'Short-term' and 'Imperceptible'.

13.7.2.2 Visual Effects (Construction Phase)

Proposed Wind Farm

Turbine Assembly. The most substantial visual effects will arise from requisite construction activities on the site of the Proposed Wind Farm itself, such as assembling tower sections and erecting the turbines. There shall be temporary scenarios during the construction phase in which the proposed turbines will be partially constructed and may be seen as either stand-alone tower sections, or incomplete turbines where only one or two blades are visible. The equipment and vehicles required to transport and erect the wind farm components include large cranes and large haulage vehicles. These construction activities will cause 'Slight', 'Short-term', 'Negative' visual effects.

Turbine Delivery Route (TDR) Accommodation Works. Works such as road widening will be required along proposed turbine transport routes to accommodate the large vehicles used to transport turbine components to Proposed Wind Farm site (see Section 4.5.3 in Chapter 4 for specific details). In some instances, minor temporary alterations will be required to the existing streetscape and roundabout islands, temporary local road widening, overruns of roundabout island and temporary relocation of some signs and street furniture. Full details of the assessment are included as part of the traffic impact assessment set out in Chapter 15, Section 15.1 of this EIAR. The landscape value and sensitivity of these temporary works areas are deemed to be 'Low' and the change to occur will be highly localised. These works are likely to cause 'Negative', 'Short-term', 'Slight' visual effects.

Site Access Roads and Hardstand Areas. The proposed access roads and hardstand areas are flat features and will be most visible within their immediate surroundings, within the Proposed Wind Farm where there are no sensitive visual receptors. Every use will be made of the existing access tracks on the site. Some tracks will be upgraded appropriately whilst several stretches of new internal roads will need to be constructed. The impact of the construction of these flat and hard surfaces will be very localised to the Proposed Wind Farm itself, particularly in the most upland areas.

The access roads and turbine hardstands for turbines T1, T2, T6 and T7 are located on lower lying low-intensity agricultural land with greater visual exposure within Glenomra Valley, with cut and fill being required to facilitate construction of T6 and T7. Therefore, visual effects will be experienced by visual receptors such as local residents located in Glenomra Valley to the west of the Proposed Wind Farm. The visual effects arising from the access roads and hardstand areas is considered to be 'Negative', 'Short-term' and 'Slight'.

Meteorological (Met) Mast. One permanent met mast is proposed as a part of the Proposed Wind Farm site, to be erected between L7080 and proposed turbine T2 along the site road in what is currently an open agricultural field. This is a slender structure, 36.5m in height, and will not be an imposing structure in terms of visual impact. The landscape and visual effects of the construction of the proposed mast will be localised, considering that construction activities related to this will be most visible within their immediate surroundings. Within the site and its immediate landscape setting, the landscape and visual effects arising from the construction of the met mast is considered to be of highly localised 'Negative', 'Short-term', 'Slight' effects.

Proposed 38kV Substation and BESS Compound

During the constructions phase, visual effects will occur as the proposed 38kV substation and BESS compound is built due to the earthworks and requisite construction activities; these will cause a substantial but localised change to views in the immediate area. As established in the baseline investigations, the proposed onsite 38kV substation and BESS compound are located adjacent to turbines T4, T5 and T6 in the middle of the Proposed Wind Farm site directly off The Gap Road/ L7080. During construction works, the substation will be temporarily visible from along the road; however, it is proposed to construct visual screening such as berms and/or planting around the infrastructure to fully visually screen it during the operational phase (see below Section 13.7.3.2.3: SR-26

View of Proposed Substation from within Glenomra Valley). Meanwhile, during the construction phase, visual effects of the proposed substation are likely to be highly localised, 'Negative', 'Short-Term' and 'Slight'. A comprehensive assessment of visual effects arising from the proposed substation in the operational phase is included below in Section 13.7.3.2.3, including visualisations shown in that section.

General. Housekeeping measures, necessary for Health & Safety requirements, will ensure that the active construction areas will be kept tidy, mitigating localised visual impacts during the construction phase.

Proposed Grid Connection Route

As reported above, the greatest effects attributed to the Proposed Grid Connection Route will occur during the construction phase and are largely related to landscape changes. As the Proposed Grid Connection Route shall be located underground, changes of a visual nature will not affect the visual amenity of the wider area. The Proposed Grid Connection Route underground cabling works are likely to cause 'Negative', 'Short-term', 'Slight' visual effects.

13.7.3 Operational Phase Effects

This section reports the landscape and visual effects anticipated during the operational lifetime of the Proposed Project. This section is organised as follows:

- **Landscape Effects**: Reporting landscape effects for the Proposed Wind Farm and Proposed Grid Connection Route;
- **LCA Assessment Outcomes:** A summary of the landscape impact assessment outcomes for each LCA in the (15km) LCA Study Area as is comprehensively reported in *Appendix 13-2: LCA Assessment Tables*;
- **Photomontage Viewpoint Assessment Outcomes:** A summary of the visual impact assessment outcomes in the (20km) LVIA Study Area for each photomontage as is comprehensively reported in *Appendix 13-3: Photomontage Visual Impact Assessment Tables*;
- **Visual Effects: Receptors:** Discussion of visual effects on the specific visual receptors selected for assessment within the visual baseline exercise (recall Section 0: Preliminary Analysis: Visual Receptors) with reference to photomontages and photowires;
- **Residential Visual Amenity:** Discussion of visual effects on residential receptors within close proximity to the site;
- **Visual Effects: Ancillary Project Elements:** Discussion of visual effects of the non-turbine infrastructure of the Proposed Project;
- **Cumulative Effects**: Discussion of landscape and visual effects expected to occur in combination with the Proposed Project and all identified existing, permitted and proposed wind farms identified in the LVIA Study Area.

13.7.3.1 Landscape Effects (Operational Phase)

13.7.3.1.1 *Proposed Wind Farm*

The landscape character of the Proposed Wind Farm will undergo an inherent change in character from its current condition by the introduction of vertical man-made structures and associated roads and hardstands into the landscape of the site.

In terms of sensitivity, the landscape sensitivity (determined from assessing the landscape value and susceptibility to change) of the site was deemed to be 'Low' in the above Section 13.4.3: Landscape Sensitivity of the Site: Landscape Value & Susceptibility to Change.

Regarding the magnitude of change, it will be greater for the highly localised areas of the landscape which are physically materially altered by the installation of roads, turbines, hardstands and other infrastructure footprints, yet it will be lesser for the wider land use and landcover surrounding the Proposed Wind Farm comprising low-intensity agriculture and coniferous forestry which will continue un-altered. On balance, the overall magnitude of change to the landscape character is deemed to be 'Slight'.

Low sensitivity with a Slight magnitude of change amounts to long-term landscape effects upon the fabric of the landscape of the site which are 'Not Significant' (refer to *Appendix 13-1: LVIA Methodology*, Section 1.7: Assessing Landscape Effects).

13.7.3.1.2 Proposed Grid Connection Route

As the Proposed Grid Connection Route cabling is located underground, landscape and visual effects during the operational phase will be 'Imperceptible' once vegetation has re-established along the roadway following earthworks during the construction phase. The landscape and visual effects occurring during the construction phase of the Proposed Grid Connection Route are reported previously in Section 13.7.2: Construction Phase Effects.

13.7.3.1.3 Mitigation Measures: Biodiversity Management

A *Biodiversity Management and Enhancement Plan* (BMEP) has been prepared as part of this EIAR and is included as *Appendix 6-4* to this EIAR. Mitigation measures included in the BMEP will have a dual effect of providing ecological enhancement to the area as well as screening of some Proposed Wind Farm site infrastructure, thereby providing a mitigating effect on landscape. Mitigation measures proposed in the BMEP that will also have a mitigating effect on landscape areas as follows:

- Avoidance of high-value peatland habitats within Slieve Bernagh Bog SAC at the most elevated extents of the Proposed Wind Farm;
- Proposed planting of native broadleaf trees to establish new biodiversity corridors around low-intensity agricultural fields and along waterways;
- Natural restoration of wet heath habitats around proposed turbines;
- A berm and planting along the western perimeter of the proposed substation as a measure to provide visual screening of infrastructure within the landscape.

Please see the BMEP (*Appendix 6-4*) for further details.

13.7.3.1.4 Residual Landscape Effects

Once construction activity is complete and the proposed turbines are operational, the landscape will naturally re-vegetate around the Proposed Wind Farm site footprint with the aid of mitigation measures (e.g., retention of natural seedbank during soil stripping). Considering the BMEP mitigation measures in the plan referred above, the overall residual effects upon the landscape of the Proposed Wind Farm site are deemed to be 'Negative', 'Short-term' and 'Slight'.

13.7.3.1.5 LCA Assessment Outcomes

An assessment of the effects on landscape character based on designated LCAs was undertaken for the 6 no. LCAs within the LCA Study Area selected for assessment; these were mapped previously in Figure 13-11. The individual assessments for each LCA are summarised below in Table 13-17 and presented in detail in *Appendix 13-2: LCA Assessment Tables*. The assessment criteria and grading scales which aided the assessment of landscape character effects are detailed in *Appendix 13-1: LVIA Methodology* (Section 1.6: Assessing Landscape Effects).

Table 13-17: LCA Assessment Summary

LCA Ref.	Name	LCA Sensitivity	Magnitude of Change in LCA	Significance of Effect
C-LCA-8	Slieve Bernagh Uplands	Low.	Moderate.	**Slight.**
C-LCA-9	River Shannon Farmland	Medium.	Negligible.	**Not Significant.**
C-LCA-11	East Clare Loughlands	Medium.	Negligible.	**Not Significant.**
L-LCA-06	Shannon Coastal Zone	Medium.	Negligible.	**Not Significant.**
T-LCA-12	River Shannon – Newport	Medium.	Negligible.	**Not Significant.**
T-LCA-13	Arra Mountains – Lower Lough Derg	Low.	Negligible.	**Imperceptible.**

The greatest residual landscape effect is 'Slight', occurring in LCA-8 Slieve Bernagh Uplands of Co. Clare which contains all proposed turbines and will be materially altered by their installation. This is due to the 'Moderate' magnitude of change on the 'Low' sensitivity landscape. As previously reported in this LVIA, the entirety of LCA-8 is designated by the CCDP as having the lowest sensitivity rating possible in the CCDP and CWES.

The Slight effect on landscape character is owing to the siting design of the proposed turbines which avoids affecting two primary characteristics of LCA-8 as follows. The proposed turbines (i) are not sited in protected high-sensitivity unenclosed boglands of the LCA, and (ii) do not affect the commanding views of Lough Derg, lower drumlin farmlands or the Shannon Estuary, which are the defining views of the LCA as described in local policy (CCDP).

The Slight effect also takes into consideration the cumulative effects on LCA-8 by other permitted, proposed wind farms in the LCA. Cumulative landscape effects are discussed below in Section 13.7.3.5: Cumulative Effects.

Within the wider landscape of LCA-8, the proposed turbines are deemed to be most visible only from within 3–5km of the Proposed Wind Farm site, that is, inside Glenomra Valley, as well as from elevated vantage points within the LCA accessible by road (e.g. Glenagalliagh Mt peak via East Clare Way walking route), and from looking into Glenomra Valley from its two open ends—through Broadford Gap (west of the Proposed Wind Farm, forming the north-west opening of the valley), and travelling north from Bridgetown along SR-26/R466 (south of the site).

Within the borders of LCA-8, but outside the spatial enclosure of Glenomra Valley, there is largely no visibility of the proposed turbines. Most of the north-east end of LCA-8 has no visibility of the proposed turbines, except for intermittent theoretical visibility ranging up to partial and full in a journey scenario travelling up the east slope of Glenagalliagh Mt through River Ardcloony Valley. Similarly, the south-western end of LCA-8 has mostly no visibility of the proposed turbines, due to the elevated, undulating nature of peaks and ridgetops in Formoyle More, Knockanuarha, Knockshanvo and Woodcock Hill forming the western enclosure of Glenomra Valley.

Finally, the Proposed Project will not materially alter the other identified LCAs in Co. Clare, Limerick or Tipperary, except for LCA-9 'River Shannon Farmland' in Co. Clare through which the underground cabling of the Proposed Grid Connection Route will directly pass. In LCA-9, the

Proposed Grid Connection Route passes through the LCA for 2.9km and will be underground or out-of-sight on road crossings, thus the effects on the landscape character of LCA-9 are deemed 'Not Significant'. As the remaining LCAs will only be affected by the Proposed Project in terms of the proposed turbines being visible from within those LCAs, and in most cases only to the degree of blades and tips being visible from outside the spatial enclosure of Glenomra Valley at a great distance, it is deemed that the project will cause impacts on wider landscape character ranging from 'Imperceptible' to 'Not Significant'.

13.7.3.2 Visual Effects (Operational Phase)

This section provides the assessment of likely significant visual effects on visual receptors during the operational phase. As stated previously, the key focus of the visual impact assessment are the effects arising from the proposed turbines. However, specific visual effects arising from other ancillary infrastructure of the Proposed Project (e.g. proposed onsite 38kV substation and BESS compound, met mast, Proposed Grid Connection Route, upgrades to and new roads, the turbine delivery route, etc.) are addressed at the end of this section, although where appropriate discussion of their effects in relation to specific receptors are discussed in-text of general visual effects. This section is structured in the following way:

- A summary of the visual impact assessment outcomes for each photomontage as is comprehensively reported in *Appendix 13-3*.
- Discussion of visual effects on the specific visual receptors included for further assessment within the visual baseline exercise (Section 0) with reference to photomontages and photowires;
- Discussion of visual effects of the non-turbine infrastructure of the Proposed Project

The assessment of cumulative landscape and visual effects are specifically addressed and discussed below in Section 13.7.3.5: Cumulative Effects. However, where appropriate cumulative visual effects are included in the discussion of visual effects on specific visual receptors in this section.

13.7.3.2.1 *Photomontage Viewpoint Assessment Outcomes*

The assessment of visual effects was undertaken from the 15 no. viewpoint locations (VP01—VP15) identified above in Section 13.5.4: Photomontage and Photowire Viewpoints using the assessment methodology described in *Appendix 13-1: LVIA Methodology*. The locations of these viewpoints were previously mapped in Figure 13-20.

The individual assessments from all 15 no. viewpoints are presented in *Appendix 13-3: Photomontage Visual Impact Assessment Tables* and summarised below in Table 13-18. *Appendix 13-3* and Table 13-18 should be read in conjunction with the *EIAR Volume 2: Photomontage Booklet*.

The *Photomontage Booklet* includes modelling and visuals of other existing, permitted and proposed wind energy developments within the 20km LVIA Study Area. The impact assessment of photomontages in *Appendix 13-3* incorporates assessment of cumulative visual effects with other wind energy developments. Additional photowires (18 no.; PW-A to PW-R) are presented in *Appendix 13-5: Photowire Visualisation Booklet*; these are 'early draft-stage' and do not include modelling of other existing, permitted or proposed developments.

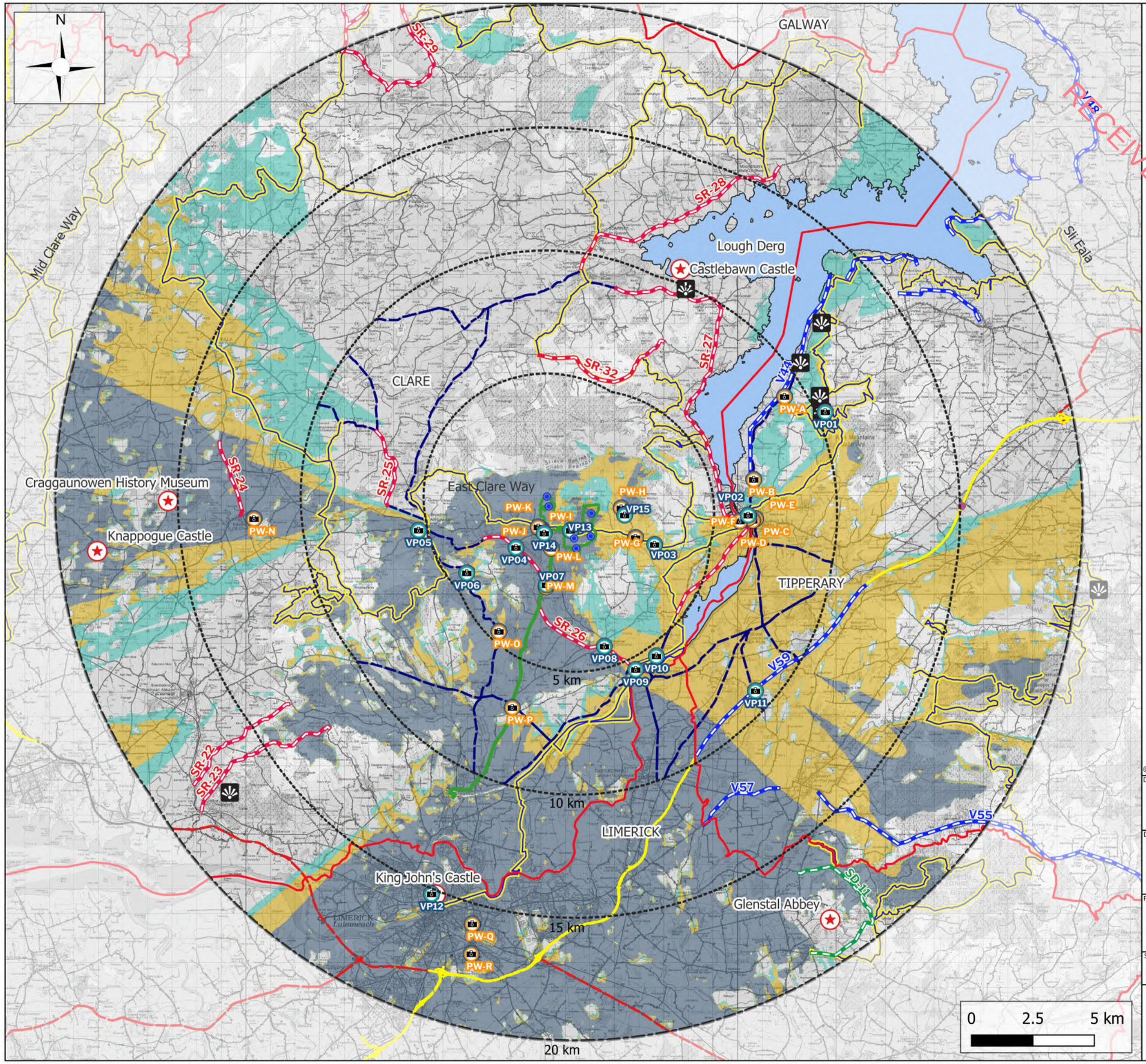
Importantly, this report notes that, regarding the proposed turbines, whether a visual effect is deemed to be positive, negative or neutral, involves a degree of subjectivity; this approach is based on discussion set out in the GLVIA3 (LI & IEMA, 2013, p.113, para.6.29) which outlines the general subjectivity of describing visual effects in an LVIA context. What appears to be a positive effect to one viewer could be deemed to be a negative effect by another viewer. All predicted visual effects of the viewpoints below are 'Long-Term' and 'Direct' effects. Below, Figure 13-20 shows a map of viewpoint and photowire locations in relation to important receptors such as designated scenic routes, waymarked

walking routes and settlements with the ZTV overlaid; the subsequent Figure 13-21 shows the same map enlarged to 5km radius of the proposed turbines.

Table 13-18: Summary of Viewpoint Impact Assessment Results

VP No.	Description	Grid Ref.	Sensitivity of Receptor(s) (at Viewpoint)	Magnitude of Change	Significance of Residual Visual Effect
VP01	**Tountinna Mt, Lough Derg:** View from the top of Tountinna Mt looking west over Lough Derg, overlaps with Lough Derg Way. Located approximately 10.4km east of the nearest turbine (T3).	E: 573,532 N: 677,431	Very High.	Slight.	**Moderate.**
VP02	**Killaloe - Riverside:** View from the park at Killaloe Bridge on the eastern bank of the River Shannon in Killaloe. Located approximately 6.3km east of the nearest proposed turbine (T3).	E: 570,397 N: 673,231	High.	Negligible.	**Not Significant.**
VP03	**The Gap Road at Ballygarreen:** View from The Gap Road/East Clare Way at Ballygarreen, approaching the site from the eastern slope of Glenagalliagh Mt in River Ardcloony valley, immediately to the east and outside of Glenomra Valley. Located approximately 2.6km east of the nearest proposed turbine (T5).	E: 566,591 N: 672,045	Medium.	Moderate.	**Moderate.**
VP04	**R466/Scenic Route 26, Cloonyconry More:** View from the R466 Regional Road/SR-26 in the townland of Cloonyconry More. Located approximately 2.3km west of the nearest proposed turbine (T2).	E: 560,951 N: 671,919	High.	Substantial.	**Significant.**
VP05	**Broadford:** View from Broadford residences above Broadford GAA pitch/Hurdlestown Meadows near intersection of the R465 Regional Road and L3080 Local Road. Located approximately 5.4km west of the nearest proposed turbine (T2).	E: 556,989 N: 672,623	Medium.	Slight.	**Not Significant.**
VP06	**R465 near Formoyle More:** View from the R465 Regional Road at Formoyle More in Glenomra Valley. Located approximately 4.5km south-west the nearest proposed turbine (T7).	E: 558,950 N: 670,888	Medium.	Slight.	**Slight.**
VP07	**R466/Scenic Route 26, Ballyquin Beg:** View from the R466 Regional Road/SR-26 in the townland of Ballyquin Beg. Located approximately 1.9km south-west of the nearest proposed turbine (T7).	E: 562,186 N: 670,404	High.	Moderate.	**Moderate.**
VP08	**Bridgetown:** View from the R466 Regional Road as it enters Bridgetown from the south, adjacent to the local school. Located approximately 4.1km south of the nearest proposed turbine (T7).	E: 564,545 N: 667,908	Medium.	Negligible.	**Not Significant.**
VP09	**O'Briensbridge Cross:** View from the canal north of the village of O'Briensbridge, overlaps with Lough Derg Way. Located approximately 5.4km south of the nearest proposed turbine (T7).	E: 565,823 N: 666,960	High.	Slight.	**Slight.**

VP No.	Description	Grid Ref.	Sensitivity of Receptor(s) (at Viewpoint)	Magnitude of Change	Significance of Residual Visual Effect
VP10	**R463 East of O'Briensbridge:** View from the R463 Regional Road east of O'Briensbridge, looking north to Slieve Bernagh range between roadside screenings. Located approximately 5.5km south-east of the nearest proposed turbine (T7).	E: 566,660 N: 667,512	Medium.	Slight.	**Not Significant.**
VP11	**Scenic Route V59/M7 Motorway:** View from the R504 Regional Road/Scenic Route V59 overpass on M7 Motorway at Cooleen, between Annaholty Bog and Ballinahinch. Located approximately 9.2km south-east of the nearest proposed turbine (T5).	E: 570,695 N: 666,098	Medium.	Slight.	**Not Significant.**
VP12	**Limerick City, Thomond Bridge:** View from Limerick City at Thomond Bridge next to King John's Castle, looking north-east over River Shannon. Located approximately 15.3km south-west of the nearest proposed turbine (T7).	E: 557,519 N: 657,843	High.	Slight.	**Slight.**
VP13	**Killeagy/East Clare Way:** Four views A/B/C/D: from Killeagy/The Gap Road/East Clare Way, centre of the site, between the turbines. Located 360m north-west of proposed turbine T6. View 13A looking north-west: T1, T2. View 13B looking east: T3, T4, T5. View 13C looking south-east: T6, T7. View 13D looking south-west: into Glenomra Valley.	E: 563,171 N: 672,615	High.	Substantial.	**Significant.**
VP14	**Kilbane:** Two views A/B: from the L3022-8 local road immediately south of Kilbane village. Located approximately 1.1km west of the nearest proposed turbine (T2). View 14A looking north: T1, T2. View14B looking east: T3, T4, T5, T6, T7.	E: 562,098 N: 672,502	High.	Substantial.	**Significant.**
VP15	**Aillemore - Lower:** View from residences on the lower portion of Aillemore road, on the eastern slope of Glenagalliagh Mt in River Ardcloony Valley, immediately to the east and outside of Glenomra Valley. Located approximately 1.4km east of the nearest proposed turbine (T3).	E: 565,373 N: 673,236	High.	Moderate.	**Moderate.**



Map Legend

- Ireland OSi National County Borders
- LVIA Study Area (20km Boundary)
- EIAR Site Boundary
- Lackareagh Proposed Turbines
- Photomontage Viewpoint Locations (VPs)
- Photowire Locations (PWs)

Scenic Routes and Views

- Co. Clare Scenic Routes
- Co. Limerick Scenic Views and Prospects
- Co. Tipperary Scenic Routes
- Co. Tipperary Scenic View

Other Receptors

- OSi Viewing Areas
- Waymarked Walking Routes
- Recreational & Tourist Destinations

Transportation Routes

- National Roads
- Motorways
- Regional Roads (only to 10km)

Zone of Theoretical Visibility (ZTV)

- 1-2 Turbines Theoretically Visible
- 3-4 Turbines Theoretically Visible
- 5-7 Turbines Theoretically Visible

Drawing No.

Figure 13-20

Drawing Title

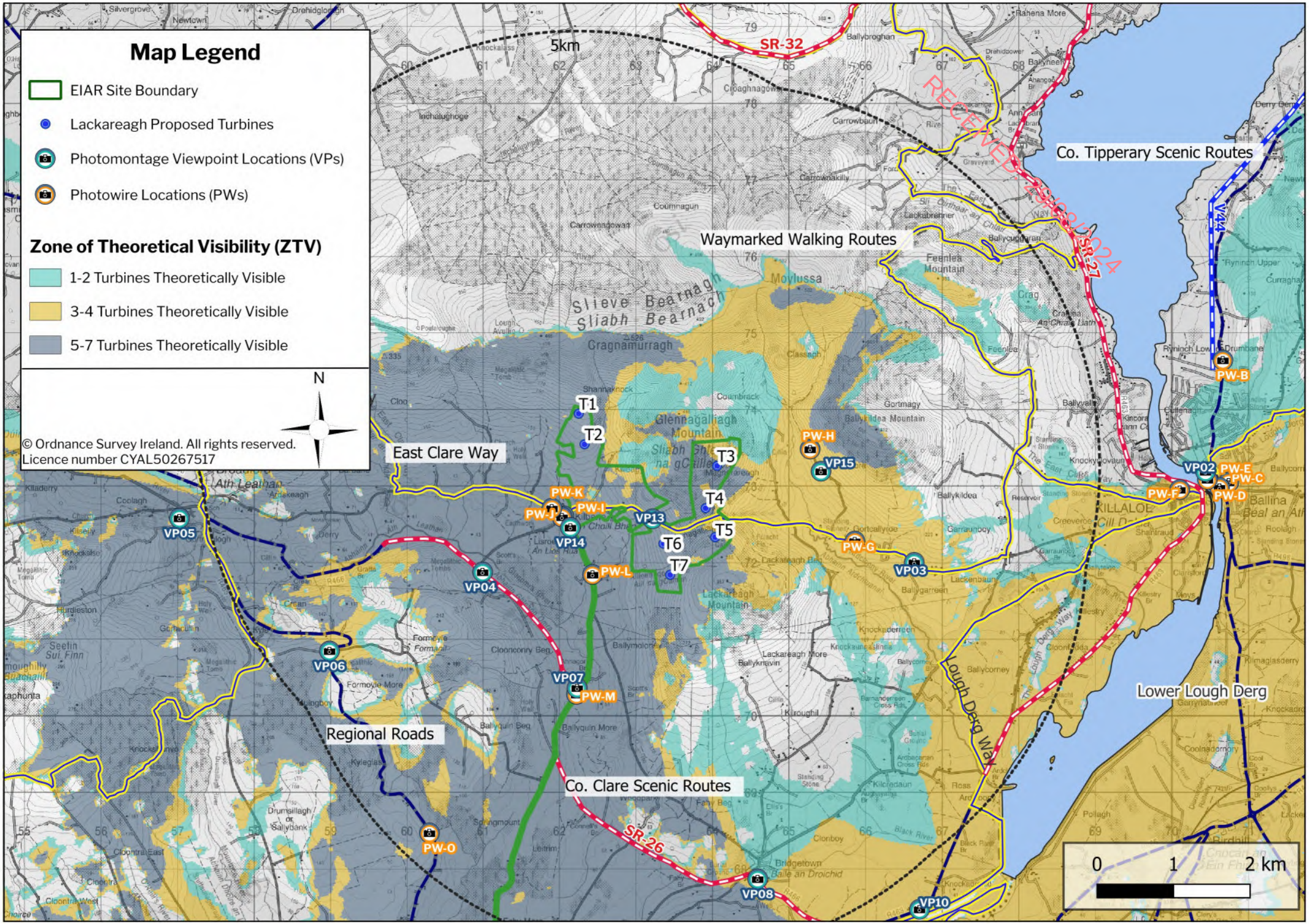
ZTV & Visual Receptors with Photomontage and Photowire Locations

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

MKO


Map Legend
EIAR Site Boundary
Lackareagh Proposed Turbines
Photomontage Viewpoint Locations (VPs)
Photowire Locations (PWs)
Zone of Theoretical Visibility (ZTV)
1-2 Turbines Theoretically Visible
3-4 Turbines Theoretically Visible
5-7 Turbines Theoretically Visible
N
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Licence number CYAL50267517
5km
SR-32
Co. Tipperary Scenic Routes
Waymarked Walking Routes
East Clare Way
Regional Roads
Co. Clare Scenic Routes
Lower Lough Derg
Lough Derg Way
SR-27
SR-26
R444
T1
T2
T3
T4
T5
T6
T7
VP02
VP03
VP04
VP05
VP06
VP07
VP08
VP10
VP13
VP14
VP15
PW-B
PW-C
PW-D
PW-E
PW-F
PW-G
PW-H
PW-I
PW-J
PW-K
PW-L
PW-M
PW-O
0
1
2 km

The residual significance of visual effects ranged from 'Not Significant' to 'Significant', with the number of findings at each level of significance listed below in Table 13-19. Three viewpoints (**VP04**, **VP13** and **VP14**) were found to have '**Significant**' residual visual effects; a comprehensive discussion of these effects is provided in the following subsections, including mitigation factors which were considered in determining the residual effect rating.

As shown in the table, the majority of viewpoints (5 no.) were found to have 'Not Significant' residual visual effects. The remaining viewpoints were found to have 'Moderate' (4 no.) and 'Slight' (3 no.) residual visual effects. No effects were found to be 'Profound' or 'Very Significant' at any viewpoint locations.

All visual effects are comprehensively assessed in the subsections below and those viewpoints representing receptors in close proximity (<3km) to the Proposed Wind Farm are discussed in detail below in Section 13.7.3.3: Residential Visual Amenity.

Table 13-19: Summary of Significance Ratings for Residual Visual Effects

Significance of Residual Visual Effect	Definition (EPA, 2022)	No. of Viewpoints
Profound	*'An effect which obliterates sensitive characteristics'.*	None.
Very Significant	*'An effect, which by its character, magnitude, duration, or intensity alters most of a sensitive aspect of the environment'.*	None.
Significant	*'An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment'.*	3 no.
Moderate	*'An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends'.*	4 no.
Slight	*'An effect which causes noticeable changes in the character of the environment without affecting its sensitivities'.*	3 no.
Not Significant	*'An effect which causes noticeable changes in the character of the environment but without significant consequences'.*	5 no.
Imperceptible	*'An effect capable of measurement but without significant consequences'.*	None.

It is to be anticipated that wind farms inevitably cause some 'Significant' visual effects on proximate sensitive visual receptors due to the prominence of turbines within landscape views and the 'Substantial' magnitude of change which will arise in close proximity to a wind farm development. A key focus in this LVIA is identifying the scenarios where the greatest likelihood of significant effects occur. Significant residual visual impacts have been determined from three photomontage viewpoints (see *Appendix 13-3*). It is key to note that the residual significant impacts only occur for a small number of receptors and is not representative of effects on receptors in a vast proportion of the LVIA Study Area.

13.7.3.2.2 Scenic Route SR-26 at Cloonyconry More & Ballyquin Beg

Viewpoints: VP04, VP07. Photowires: PW-L, PW-M, PW-P. Initially, ZTV mapping indicated full theoretical visibility (5–7 proposed turbines visible) from both VP04 and VP07 and this was confirmed by photomontage visualisation, which shows that all 7 no. proposed turbines can be seen from both vantage points. Both viewpoints are located on Scenic Route SR-26 (designated in the CCDP) with high

sensitivity; VP07 at Ballyquin is closer to the turbines than VP04 at Cloonyconry More. The viewpoints are described in detail in *Appendix 13-3: Photomontage Viewpoint Impact Assessment Tables*.

Scenic Route SR-26 (CCDP). *Sensitivity: High*. Scenic Route SR-26 designated by the CCDP is a primary key receptor in the LVIA Study Area as it traverses a NW-SE orientation through Glenomra Valley, with views directed towards the proposed turbines. SR-26 is represented by VP04 at Cloonyconry More and VP07 at Ballyquin Beg, ranging from 1.9–2.3km from the nearest of the proposed turbines. ZTV mapping indicates full theoretical visibility from both viewpoint locations and this was confirmed by photomontage visualisation showing that all 7 no. proposed turbines are visible from both locations, though appearing in slightly different configurations from each vantage point, described as follows.

From VP04 at Cloonyconry More, the northern and southern turbines appear relatively visual balanced as the two groups are positioned on either side of Glenagalliagh Mt peak such that turbine towers and blades are viewed partially above the horizon at a similar vertical scale to the mountain peak between them. Whereas, from VP07 at Ballyquin Beg, the northern and southern turbines appear visually separated to a greater degree, as T1 and T2 are below the horizon T3–T7 mostly extend above the horizon, with multiple mountain peaks of Slieve Bernagh range viewed in between the two groups. These observations demonstrate that open views of the proposed turbines vary in terms of the degree of visual balance. See below Plate 13-20 and Plate 13-21 illustrating the relative visual balance and visual separation of the turbines, respectively.

Plate 13-20: Visual Balance of Northern and Southern Turbines at VP04

Plate 13-21: Visual Separation of Northern and Southern Turbines at VP07

Importantly, RSA mapping identified one key section of the road between the viewpoint locations approximately 2km in length, with little/no roadside visual screening, highlighted below in Plate 13-22. From this stretch of SR-26, there are primarily open views of the proposed turbines to the north-east with very little roadside visual screening. It is noted that, both above and below this stretch of the road, SR-26 has primarily dense/full roadside visual screening, with some pockets of intermittent visual screening or open views, thus views from the portion of SR-26 highlighted below are not representative of all views from the scenic route. No visibility is expected to occur from locations north of VP04 or south of VP07; visual effects are only expected to occur along this 2km stretch of the scenic route illustrated in the map below.

- The layout of proposed turbines within the northern and southern groups are themselves arranged in a staggered layout at the base and over the ridgetop between Glenagalliagh Mt and Lackareagh Mt;
- The height and scale of proposed turbines are appropriate within the relatively open and extensive upper ground on the upper slopes of Glenomra Valley.

According to the CCDP, the need to protect and conserve views along designated scenic routes is not intended to prohibit development along the routes, only that the above mitigation factors should be considered, stated in the policy as follows (CCDP *Section 14.5*, p.356):

> *'There is a need to protect and conserve views adjoining public roads throughout the County where these views are of high amenity value. In conserving views, it is not proposed that this should give rise to the prohibition of development along these routes but development, where permitted, should not seriously hinder or obstruct these views and should be designed and located to minimise their visual impact'.*

Owing to the specific reasons listed above, this LVIA determines that the Proposed Project has met the requirements of the above policy wording. On balance, the magnitude of change for Scenic Route SR-26 is considered 'Moderate', from VP07 resulting in a residual visual effect of **'Moderate'**. Potential for cumulative visual effects with the permitted Fahy Beg Wind Farm and visibility of the proposed onsite 38kV substation are considered in the assessment of VP04 resulting in a 'Substantial' magnitude of change and giving a residual 'long-term' visual effect of '**Significant'**. Cumulative effects are anticipated to arise from VP04 on SR-26; these are discussed below in Section 13.7.3.5.

R466 Regional Road. *Sensitivity: Low*. Journeying SE-NW between O'Briensbridge and Broadford through Glenomra Valley, R466 contains the portion of road (8.8km) designated as SR-26 by the CCDP. Above and below the SR-26-designated portion of road, the sensitivity of R466 has been deemed low since the road is not well-trafficked, used mainly by residents in the local area. On balance, the magnitude of change for R466 is considered 'Moderate', giving a residual 'long-term' visual effect of '**Slight'**.

13.7.3.2.3 SR-26 View of Proposed Substation from within Glenomra Valley

Among the infrastructure to be built at the Proposed Wind Farm site, the proposed onsite 38kV substation will be located along The Gap Road/L7080 adjacent to the hardstand areas of turbines T4 and T5. The proposed onsite 38kV substation location is situated along the East Clare Way walking trail and is anticipated to be visible from within Glenomra Valley at multiple points along the Co. Clare designated SR-26, from the south-west looking north-east into the site. Therefore, it is proposed to visually screen the infrastructure with measures such as planting along the western extent of the proposed onsite 38kV substation compound. Details of the proposed planting are included in *Appendix 6.4: Biodiversity Enhancement and Management Plan* of Chapter 6 of this EIAR. Once mature, the treeline will serve to visually screen any potential views of the site infrastructure from the south-west within Glenomra Valley. Below, Plate 13-23 shows an aerial view of the proposed onsite 38kV substation location between T4, T5 and T6 and indicates the approximate area where the screen planting will be installed.

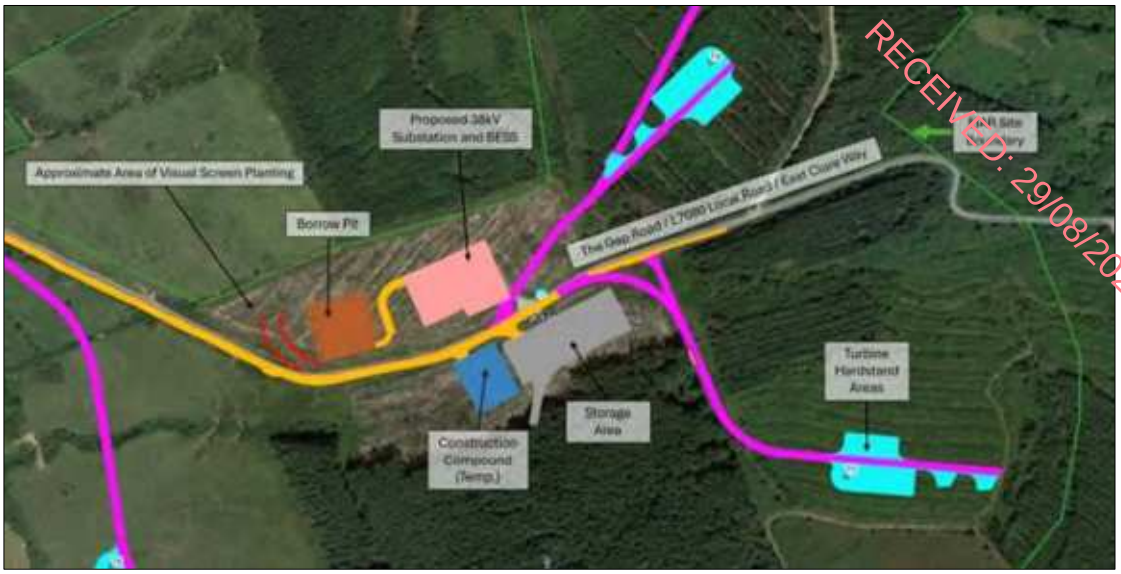


Plate 13-23: Aerial View of Proposed 38kV Substation and BESS Location and Approximate Area of Visual Screening

Due to its location on a hill, cut and fill will be required to facilitate construction of the proposed onsite 38kV substation and BESS compound. The proposed onsite 38kV substation and BESS compound. has also been strategically positioned beyond the primary ridgeline when viewed from most receptors within Glenomra Valley. The western extent of the proposed onsite 38kV substation compound will be raised relative to existing ground level due to 'fill', and the eastern extent of the compound will be lowered relative to existing ground level due to 'cut' (excavation). The nature of the cut and fill and positioning of the proposed substation relative to the primary ridgeline minimises the visual exposure of the onsite 38kV substation and BESS as the vertical profile of the tallest features such as single storey buildings will not be viewed against the skyline from most receptors in Glenomra Valley. Graphical modelling was carried out to visualise two potential views of the proposed onsite 38kV substation from the location of VP04 at Cloonyconry More on SR-26 within Glenomra Valley: View (a) is immediately after construction of the substation infrastructure which includes cut and fill partially visually screening the building; View (b) is a rendering of the same image after planting has matured, with a line of trees visually screening most infrastructure of the substation compound. Both views are shown below in Plate 13-24. It is emphasised that Plate 13-24 is not a verified photomontage but is an 'indicative visual' illustrating the visual impact of the proposed substation as seen from VP04.

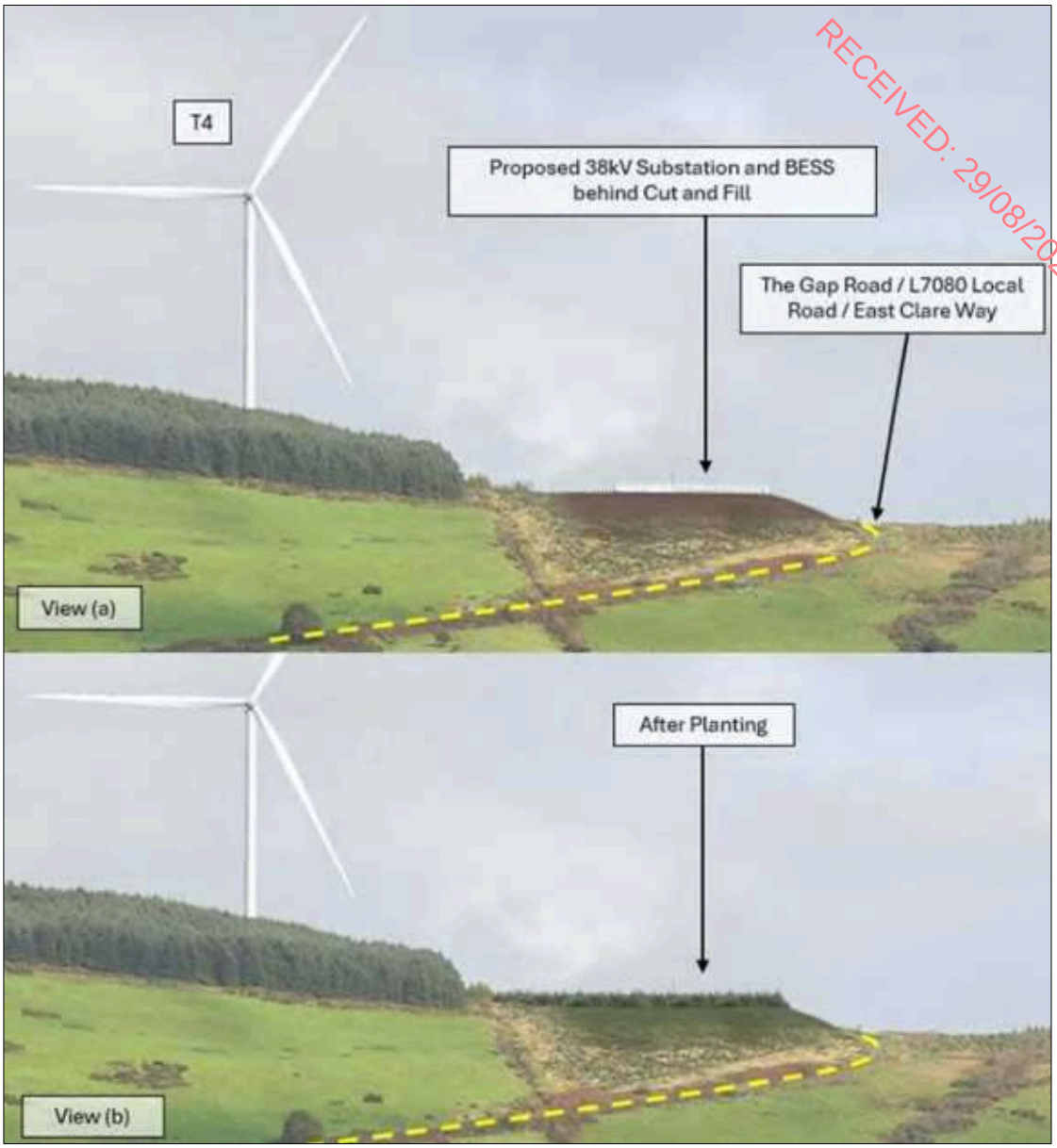


Plate 13-24: Graphical Modelling of Potential View of Proposed 38kV Substation and BESS from SR-26 with Visual Screening

13.7.3.2.4 East Clare Way Walking Route

Within Glenomra Valley: *VP13 with four views, 13A, 13B, 13C, 13D.* Initially, ZTV mapping indicated full theoretical visibility (5–7 proposed turbines visible) from VP13 and this was confirmed by photomontage visualisation, which shows that all 7 no. proposed turbines can be seen from this vantage point. Due to the nature of the viewpoint being positioned at the centre of the Proposed Wind Farm site between the northern and southern turbines, the photomontage imagery was divided into four views to capture the full visual impact of the proposed turbines from this position (and other cumulative developments in the wider area), described in detail in *Appendix 13-3: Photomontage Viewpoint Impact Assessment Tables.*

East Clare Way at Lower Elevations in Glenomra Valley. East Clare Way also passes through Kilbane on a lower-elevation section of the route between the scenic mountain peaks. See the full discussion of Kilbane village below in Section 13.7.3.3: Residential Visual Amenity.

Within River Ardcloony Valley, Outside Glenomra Valley: *Viewpoints: VP03, VP15. Photowires: PW-G, PW-H.* Initially, ZTV mapping indicated partial theoretical visibility (3–4 proposed turbines visible)

Below, Plate 13-26 shows the map location of the proposed Informational Lookout Point as well as the view from that location, looking west into Glenomra Valley. The Informational Lookout Point will be situated close to the location of VP13, up the hill nearer to the centre of the Proposed Wind Farm; details of the lookout point are provided in Chapter 4 of this EIAR.

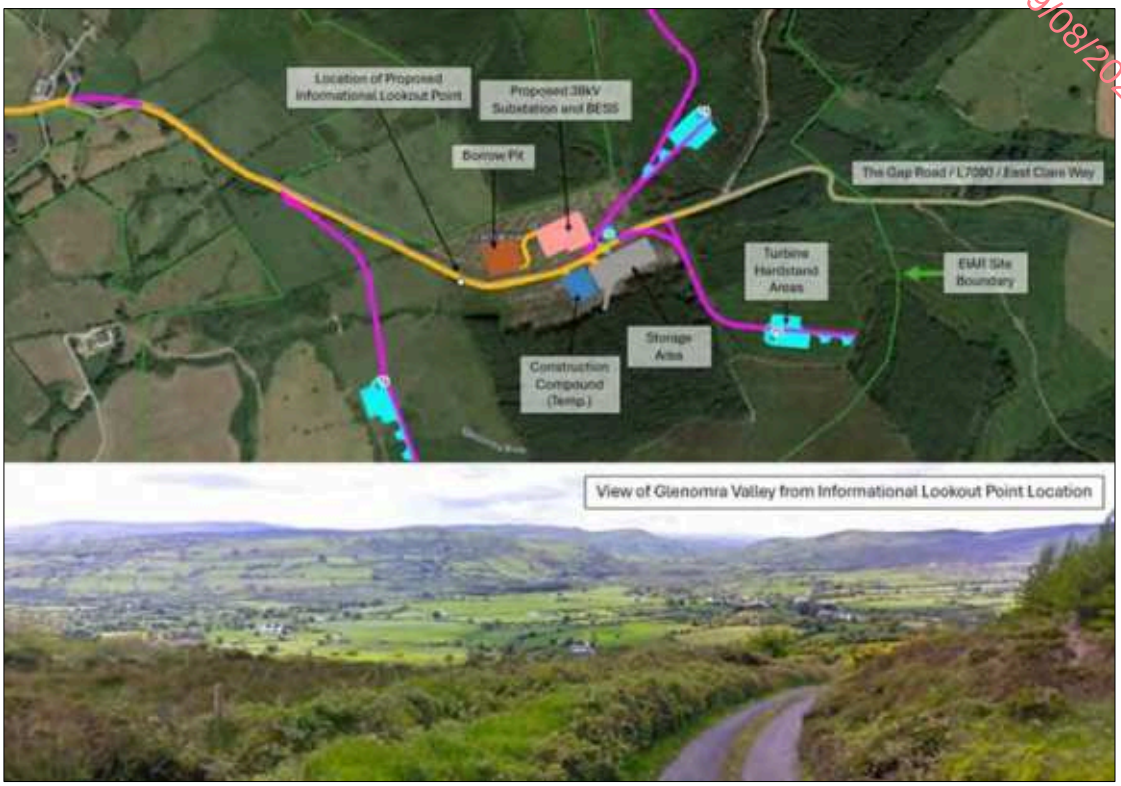


Plate 13-26: Location and approximate view of proposed Informational Lookout Point on East Clare Way in the Proposed Wind Farm (image: Google Earth)

Further, it is emphasised that the primary focus of views from East Clare Way at this location is on the distant lowlands of Glenomra Valley through Broadford Gap to the west and the Shannon River Valley to the south which are not obstructed by the proposed turbines since they are sited on elevated lands in immediate proximity to the viewer. This is also demonstrated by the above view presented in Plate 13-26. On balance, the magnitude of change for East Clare Way is considered 'Substantial', giving a residual 'long-term' visual effect of '**Significant**'.

Cumulative Effects: Cumulative visual effects are anticipated for East Clare Way and The Gap Road/L7080 both inside and outside of Glenomra Valley; the potential for cumulative effects have been considered and accounted for in the final residual impact for each receptors/viewpoint; these are discussed below in Section 13.7.3.5: Cumulative Effects.

13.7.3.2.5 L3022-8 Local Road: Proposed Grid Connection Route

L3022-8 Local Road. *Viewpoint: VP07. Photowires: PWL-L, PW-M, PW-P. Sensitivity: Low.* L3022-8 traverses the full length (14.7km) of the underground Proposed Grid Connection Route from the centre of the Proposed Wind Farm site south to Ardnacrusha , connecting the proposed onsite 38kV substation to the existing Ardnacrusha 110kV Substation. Views along L3022-8 from north to south are represented by photowire PW-L south of Kilbane at approximately 1km from the nearest proposed turbine T7, followed by VP07 and the adjacent PW-M at Ballyquin Beg at approximately 2km from T7, and finally by PW-P to the south at Harols Cross Roads, approximately 7km from T7.

It is noted that the locations of PW-M, VP07 and PW-L are entirely within the spatial enclosure of Glenomra Valley, while PW-P is located at the south end of the valley where the landscape transitions

into lowlands west and south-west of Cappakea. Below, Plate 13-27 shows the difference in visual impact to L3022-8 between the locations within (PW-M) and outside of (PW-P) Glenomra Valley.

Plate 13-27: Difference in Visual Impact along L3022-8 Local Road following the Proposed Grid Connection Route

The sensitivity of L3022-8 is deemed low as the road is primarily used by local residents of sparse population in Glenomra Valley and is not designated for scenic view quality. ZTV mapping indicates primarily full theoretical visibility at all of the above viewpoint and photowire locations; however, on-site appraisals and photomontage visualisation show that actual visibility of the proposed turbines varies due to roadside screening such as mature trees and localised buildings or topographical undulations.

Further, the visibility and visual effects arising due to the proposed turbines at PW-P are greatly limited by distance and its positioning outside the spatial enclosure of Glenomra Valley. It is also emphasised that the Proposed Grid Connection Route is underground and therefore will not give rise to long-term visual effects. On balance, the magnitude of change for L3022-8 is considered 'Slight', giving a residual 'Long-Term' visual effect of '**Not Significant**'.

13.7.3.2.6 Local Roads within Glenomra Valley

L7004 Local Road. *Sensitivity: Medium.* Journeys E-W between Broadford and Kilbane, represented by photowire PW-K. The sensitivity of L7004 is deemed medium as it is a low-trafficked road transiting between Broadford and sparse rural areas west of Kilbane; yet most of the residences of this area are clustered along this stretch of road, outside Kilbane village to the east and west. ZTV mapping indicates full theoretical visibility (5–7 turbines visible) for this stretch of road and RSA mapping shows a

mixture of intermittent/partial visual screening and open views along the route. PW-K demonstrates the intermittent visibility along this route, where views of the proposed turbines are partially obstructed by vegetation and/or topographical visual screening. On balance, the magnitude of change L7004 is considered 'Slight', giving a residual 'Long-Term' visual effect of '**Slight**'.

The Gap Road/L7080 Local Road. *Sensitivity: Low*. The sensitivity is considered low where The Gap Road passes through residential areas in River Ardcloony Valley, immediately outside Glenomra Valley on the eastern slopes of Glenagalliagh Mt and Lackareagh Mt. The sensitivity is also considered low within the local road network inside the spatial enclosure of Glenomra Valley. This low-sensitivity classification is on account of the local road network being sparsely populated and used only for localised residential traffic needs. On balance, the magnitude of change for The Gap Road/L7080 is considered 'Moderate', giving a residual 'Long-Term' visual effect of '**Moderate**'.

13.7.3.2.7 R645/Formoyle More along West Boundary of Glenomra Valley

R465 Regional Road/Formoyle More. *Viewpoint: VP06. Photowire: PW-O. Sensitivity: Low to Medium*. VP06 located on R465 (sensitivity = low) is representative of receptors situated immediately outside the western boundary of Glenomra Valley, formed by the elevated townland of Formoyle More with sparse residential receptors (sensitivity = medium). Initially, ZTV mapping indicated partial theoretical visibility (3–4 proposed turbines visible) from VP06 and this was confirmed by photomontage visualisation, which shows that 4 no. proposed turbines can be seen from this vantage point. The viewpoint is described in detail in *Appendix 13-3: Photomontage Viewpoint Impact Assessment Tables*. The higher-elevation hills of Knockanuarha and Knockshanvo are situated immediately to the west of this area, thus receptors are situated within a pocket of limited visibility of the proposed turbines between the hills. On-site appraisals found that R465 journeying through Formoyle More is heavily visually screened by mature vegetation, thus visibility of the turbines is only possible from rare pockets of open views where no vegetation lines the road. Owing to the rare nature of visibility of the proposed turbines from only the most elevated and non-vegetated vantage points of Formoyle More, the visual effects on sparse medium-sensitivity residential receptors in this area are considered to have a 'Slight' magnitude of change, giving a residual effect on residential amenity in this area of 'Slight'. The sensitivity of R465 was deemed to be low as the road network is primarily used by the sparse local population and the road is not designated for scenic quality. It is emphasised that the views of the proposed turbines from this vantage point do not represent most views from R456; on-site visibility appraisal and RSA mapping determined that the proposed turbines will primarily be visually screened behind areas of mature vegetation along the route. Other factors mitigating the impact of visual effects relating to good wind farm design are detailed in *Appendix 13-3*. On balance, the magnitude of change for R465 is considered 'Slight', giving a residual 'Long-Term' visual effect of '**Not Significant**'.

Cumulative Effects: Cumulative effects are anticipated for R465 and residential receptors in Formoyle More; these are discussed below in Section 13.7.3.5.

13.7.3.2.8 Tountinna Mt/Lough Derg & Lough Derg Way

Viewpoint: VP01. Photowires: PW-A, PW-B. Initially, ZTV mapping indicated partial theoretical visibility (3–4 proposed turbines visible) from VP04 and this was confirmed by photomontage visualisation, which shows that 3 no. proposed turbines can be seen from this vantage point in the distance, along with cumulative turbines of other existing, permitted and proposed developments. The viewpoint is described in detail in *Appendix 13-3: Photomontage Viewpoint Impact Assessment Tables*.

OSi Viewing Area #59. *Sensitivity: Very High*. The sensitivity of the viewing area at the top of Tountinna Mt is considered 'Very High' owing to this being a well-known tourist destination where visitors come to avail of expansive views overlooking Lough Derg and Lower Lough Derg. The viewing area is easily accessible, comprising a carpark and designated viewing areas. Whilst the main focus of the view is on Lough Derg and Lower Lough Derg, the expansive vista also includes Slieve Bernagh range in the background and its associated peaks, as well as views to the south of Slieve Bernagh range (outside Glenomra Valley) toward Limerick. It is emphasised that the proposed turbines are greater

than 10km away from the viewing area location and are predominantly situated inside the spatial enclosure of Glenomra Valley such that visibility of the Proposed Project from this vantage point is limited. It is emphasised that the very high-sensitivity OSi viewing area at Tountinna Mt. representing Lough Derg Way is greater than 10km from the nearest proposed turbine; moreover, the proposed turbines are mostly concealed within the spatial enclosure of Glenomra Valley which is beyond the portion of Slieve Bernagh range primarily visible from this vantage point. On balance, the magnitude of change for OSi Viewing Area #59 is considered 'Slight', giving a residual 'long-term' visual effect of '**Moderate**'.

Cumulative Effects: Cumulative effects are anticipated for the OSi Viewing Area #59; these are discussed below in Section 13.7.3.5.

Lough Derg Way. *Sensitivity: High. Also represented by VP09 and photowire PW-E.* Lough Derg Way is a waymarked walking route of 64km in length traversing Counties Limerick and Clare, starting in Limerick City and following the River Shannon and its associated canals northwestward to the lake port of Dromineer on Lough Derg. The trail traverses the lower south-east part of the LVIA Study Area in a NE-SW orientation and its distance to the proposed turbines ranges from approximately 3.5—20km from the proposed turbines. Its main views are focussed toward the River Shannon valley in the south and Lough Derg in the north and are not specifically directed toward the Proposed Project. The sensitivity of Lough Derg Way is considered 'High' as it is a well-known trail for users to experience iconic views of River Shannon and Lough Derg. Views along Lough Derg Way from north to south in the LVIA Study Area are represented by VP01, taken at OSi Viewing Area #59 where it meets the trail, followed by photowire PW-E where the trail passes through Killaoe, and VP09 at O'Briensbridge Cross where the trail leads into the River Shannon Valley. Photomontage visualisation reveals that visual impacts on Lough Derg Way are limited by distance and due to the proposed turbines being mostly concealed inside the spatial enclosure of Glenomra Valley. On balance, the magnitude of change for Lough Derg Way is considered 'Negligible', giving a residual 'Long-Term' visual effect of '**Slight**'.

13.7.3.2.9 Settlements Outside 5km of the Proposed Wind Farm

Killaloe. *Viewpoint: VP02. Photowires: PW-C, PW-D, PW-E, PW-F.* Visibility appraisals in the field and ZTV mapping indicated that the greatest potential for visual impacts of the proposed turbines in Killaloe could occur for receptors such as riverside city parks or bridges encompassing distant views of Slieve Bernagh range. This is represented by VP02 'Killaloe – Riverside' which demonstrates a receptor of 'High' sensitivity along the riverscape at a city park location of public amenity, where local people and tourists come to the riverside to enjoy the scenic views of the riverscape. It is noted that one aspect of the riverscape visual amenity is the Slieve Bernagh range which can be seen in the distant background of most views; however, most views would be localised to the immediate riverside and riverbanks developed with residential and commercial buildings, as well as any manicured grounds within park settings. From these settings, the proposed turbines are situated behind the distant ridgeline, inside the spatial enclosure of Glenomra Valley with only partial towers and blades visible. This is further demonstrated by photowires PW-D and PW-E situated along the river in Killaloe, as well as by PW-C situated on an elevated residential street above the river to the east. Lastly, views from within most built-up areas of Killaloe are visually screened by the local infrastructure, as demonstrated by photowire PW-F situated near St. Molua's Church and New Street within Killaloe on the west side of the river. Owing to Killaloe being situated outside the spatial enclosure of Glenomra Valley at a distance greater than 5km, with only partial turbine towers and blades visible from most views, the magnitude of change to visual amenity was deemed 'Negligible', resulting in a residual visual effect rating of '**Not Significant**'.

Limerick City & King John's Castle. *Sensitivity: High. Viewpoint: VP12. Photowires: PW-Q, PW-R.* Visibility appraisals in the field and ZTV mapping indicated that the greatest potential for visual impacts of the proposed turbines in Limerick City could occur for receptors such as riverside locations or bridges encompassing views of Slieve Bernagh range from a great distance (<15km) outside the spatial enclosure of Glenomra Valley. This is represented by VP12 'Limerick City, Thomond Bridge'

which demonstrates receptors of 'High' sensitivity along the Shannon River at a location of popular public amenity, where people come to avail of riverside business such as cafés and visit tourist destinations such as King John's Castle. It is noted that the views of the Slieve Bernagh range are at a great distance from the vantage point, thus the change is view is relatively small owing to the small size of those proposed turbines which are visible; further, the focus of most views would be localised to the immediate riverside and riverbanks developed with residential and commercial buildings or manicured park settings. Away from the population centre of Limerick City, there is potential for distant views of Slieve Bernagh range from relatively elevated vantage points within residential developments, as demonstrated by two photowires PW-Q and PW-R, situated to the east and south of Limerick City. The greatest potential for visual effects at all Limerick City receptors is owing to cumulative effects, which are comprehensively discussed below in Section 13.7.3.5. Owing to the factors described therein, the magnitude of change contributed by the proposed turbines was deemed 'Slight', resulting in residual visual effect rating of '**Slight**'.

O'Briensbridge & R463 Regional Road. *Viewpoints: VP09, VP10.* Visibility appraisals in the field and ZTV mapping indicated that the greatest potential for visual impacts of the proposed turbines to receptors near O'Briensbridge could occur for receptors outside the population centre, as represented by VP09 'O'Briensbridge Cross' from the bridge north of the settlement, with distant, largely unobstructed views of the Slieve Bernagh range comprising primarily Lackareagh Mt and Ballykildea Mt to the east. Along transport routes adjacent to O'Briensbridge, these views may also comprise Glenagalliagh Mt and are highly intermittent between regions of dense roadside screening, as represented by VP10 'R463 East of O'Briensbridge'. It is noted that from these vantage points, the proposed turbines are largely visually screened by topography since they are inside the spatial enclosure of Glenomra Valley, thus the sensitivity of receptors was deemed 'Medium' at both viewpoints. The greatest potential for visual effects at these receptors is owing to cumulative effects, which are comprehensively discussed below in Section 13.7.3.5. Owing to the factors described therein, the magnitude of change contributed by the proposed turbines was deemed 'Slight' at both viewpoints, resulting in residual visual effect rating of '**Not Significant**' at both viewpoints.

13.7.3.2.10 Additional Receptors Outside of Glenomra Valley

Scenic Route SR-24/R462 Regional Road. *Photowire: PW-N. Sensitivity: Low to High.* The minimal visual impact of the proposed turbines outside the spatial enclosure of Glenomra Valley is demonstrated by photowire PW-N situated outside of the north end of Glenomra Valley west of Broadford Gap at Clonlea Cemetery in Kilkishen. The view at this cemetery is representative of those along SR-24 (sensitivity = high) designated by the CCDP for its views looking west toward Lake Cullaunyheeda, which are directed away from the proposed turbines. SR-24 overlaps with the portion of R462 (sensitivity = low) traversing between Kilkishen and Tulla. ZTV mapping indicated mostly none or low theoretical visibility on R462, except for the portion overlapping with SR-24, which indicated full theoretical visibility. However, on-site appraisals found that visibility is greatly limited by distance to the proposed turbines (<10km) as well as due to the proposed turbines being concealed within the spatial enclosure of Glenomra Valley. On balance, the magnitude of change for both of these receptors is considered 'Negligible', giving a residual 'Long-Term' visual effect of '**Not Significant**'.

Scenic View V44 and R494 Regional Road. *Photowires: PW-A, PW-B. Sensitivity: High*. Scenic View V44 designated by Co. Tipperary (TCDP) is a route overlapping with R494 Regional Road, journeying N-S from Killaloe up the east bank of Lough Derg; theoretical visibility ranges from none to low (1–2 turbines visible). Views from V44 and R494 are represented by photowires PW-A and PW-B; the latter demonstrates that the proposed turbines are entirely visually screened from view by topography since the road traversing the east bank of Lough Derg is at such a low elevation. V44 is designated with high scenic quality because of its views of Lough Derg to the west and sections of the road to the east of R494 looking at the Arra Mountains, thus the proposed turbines are not within the primary views. R494 passes east through Portroe out of the LVIA Study Area; theoretical visibility is none for that portion. On balance, the magnitude of change for Scenic View V44 and R494 is considered 'Negligible', giving a residual 'Long-Term' visual effect of '**Not Significant**'.

Scenic View V59 & M7 Motorway. *Viewpoint: VP11. Sensitivity: Low to High.* Photomontage assessment indicated that visual impacts of the proposed turbines along the major transport route M7 Motorway (sensitivity = low), which contains a designated Scenic View V59 (sensitivity = high) of Co. Tipperary, are lessened by the great distance (nearly 10km) from the proposed turbines combined with views being visually screened by topography and/or roadside vegetation along the motorway. Visual effects are limited to receptors travelling the motorway or residing in close proximity to it, as represented by VP11 'Scenic View V59/M7 Motorway'. It is noted that, VP11 was captured from an elevated vantage point above the M7 motorway that is not representative of most views along the route, owing to the embankments on either side that line the motorway for much of its route. Receptors travelling the M7 motorway are likely to have far less visibility than what is shown by VP11. Further, from vantage points along M7 and V59, the proposed turbines are only partially visible due to their location inside the spatial enclosure of Glenomra Valley; further. The greatest potential for visual effects at these receptors is owing to cumulative effects, which are comprehensively discussed below in Section 13.7.3.5. Owing to the factors described therein, the magnitude of change contributed by the proposed turbines on both these receptors was deemed 'Slight', resulting in residual visual effect rating of '**Not Significant**'.

12 O'Clock Hills Looped Walks. *Viewpoint: VP06. Sensitivity: High.* The 12 O'Clock Hills Trails are a series of local walking trails climbing steadily to the 12 O'Clock Hills amongst the higher peaks of Knockshanvo and Knockanuarha, located off the western boundary of Glenomra Valley. Views from this area are best represented by VP06 which has the same geographic positioning, elevation and angle of view towards the proposed turbines from the western boundary of Glenomra Valley. Whilst most of the trail system has no visibility due to topographical visual screening by the surrounding peaks, one small part of the trail at the highest elevated vantage point will have partial visibility of the proposed turbines. These trails and the views from the top are sensitive in a local context, therefore receptor sensitivity is 'High'. The proposed turbines will be partially visible in the distance to the east (approximately 9.8km to the nearest proposed turbine, T2). The greatest potential for visual effects at the receptors on this trail is owing to cumulative effects, which are comprehensively discussed below in Section 13.7.3.5. The contribution of the Proposed Project to cumulative effects and visual effects in general is very limited at the peak of the 12 O'clock Hills. Therefore, on balance, the magnitude of change for the 12 O'Clock Hills Looped Walks is considered 'Negligible', giving a residual 'Long-Term' visual effect of '**Slight**'.

13.7.3.3 Residential Visual Amenity

This section of the LVIA firstly states how design measures have been used to mitigate the potential for 'Significant' visual effects on some areas of residential amenity, then gives an overview of the residential context in terms of population density in the surrounding area and the geographic arrangement of residential receptors in close proximity (<5km) to the site. Finally, a visual impact assessment of each cluster of residences is reported; these assessments use analysis of aerial maps, photomontages and photowire visualisations with the intention of identifying the worst-case scenario for potential visual effects on residential receptors.

During the site selection process, early-stage LVIA appraisals identified local residential receptors as one of the most sensitive receptors with the greatest potential to be adversely impacted by the proposed turbines with regard to visual impacts. Consequently, residential visual amenity was of key consideration during site selection and throughout the iterative design process for the Proposed Project.

The Proposed Project design process was informed by set-back distance with regard to the siting of turbines in proximity to residential receptors; the Proposed Project adheres to the recommended <500m set-back distance in the WEDGs (DoEHLG, 2006) and also the 4-times-tip-height set-back distance from domestic curtilage for residential visual amenity as prescribed by the Draft Revised WEDGs (DoHPLG, 2019). The closest habitable dwelling is located approximately 720m from the Proposed Wind Farm at its closest point, thereby meeting the minimum recommendations in the Draft Revised WEDGs (4 × tip height at 180m = 720m).

13.7.3.3.1 Use of Photomontages & Photowires to Assess Close-proximity Residential Receptors

Photomontages are one of the tools employed during the LVIA to inform the assessment of landscape and visual effects. It would be a disproportionate measure to include an individual photomontage from each individual residential dwelling; moreover, this is not required to conduct a thorough and robust assessment of landscape and visual effects. In line with the guidance laid out in the GLVIA3 (para 6.18, LI & IEMA, 2013), the viewpoints selected for the LVIA were informed by a range of factors including '*ZTV analysis,* [*by*] *fieldwork, and* [*by*] *desk research*'.

Furthermore, the GLVIA3 (para 6.19) states that representative viewpoints are to be:

> *'...selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where the significant effects are unlikely to differ'.*

It is submitted that the number of viewpoints (15 no.) used in the conduct of the LVIA particularly in very close proximity to the proposed turbines are sufficient to represent the residential receptors within the LVIA Study Area, including the '*distribution of population*' (GLVIA3, para 6.18). It is further submitted that all related discussions are also supported by the use of additional photowire visualisations (18 no.) illustrating the potential visual effects of the proposed turbines.

13.7.3.3.2 Residential Context: Population Density and Arrangement of Dwellings

As previously reported in the landscape baseline (see previous Section 13.4.2: Landscape Character of the Site), the Proposed Wind Farm is a large, uninhabited area characterised primarily by low-intensity agricultural land and coniferous forestry. The below Residential Visual Amenity Map (Figure 13-22) illustrates how the proposed turbines are set-back from residential receptors in the surrounding landscape with respect to selected distances compliant with guidance in the WEDGs and Draft Revised WEDGs (DoEHLG, 2006; DoHPLG, 2019).

There are 29 inhabitable dwellings located within 1 kilometre of the proposed turbine locations with 7 of those properties belonging to the landowners who form part of the Proposed Project. There are no inhabitable dwellings located within four-times the maximum turbine tip height (i.e. within 720m) of any proposed turbine location. This equates to four-times the proposed maximum blade-tip height of 180m, thereby complying with the requirements of the Draft Revised WEDGs (DoPHLG, 2019).

As shown below in Figure 13-22, the clusters of nearby residential receptors in closest proximity to the proposed turbines are arranged along a network of small local roads, primarily The Gap Road/L7080 within the Proposed Wind Farm Site and L3022-8 immediately east in Kilbane village.

The map illustrates locations where photomontage and photowire imagery was captured to inform the impact assessment of the residential clusters surrounding the Proposed Wind Farm. These include:

- VP05: Broadford, Village at the north-west end of Glenomra Valley;
- VP08: Bridgetown, Village at the south-east end of Glenomra Valley;
- VP13: Killeagy/East Clare Way, general area of individual residences within the EIAR Site Boundary;
- VP14: Kilbane, Small Village within the EIAR Site Boundary;
- PW-I: Kilbane – East Clare Way;
- PW-J: Kilbane – Crossroad;
- PW-K: Kilbane – L3022-8;
- PW-L: Ballymoloney at Glenomra River (south of Kilbane);
- VP15: Aillmore – Lower, residences in River Ardcloony Valley immediately east of and outside Glenomra Valley;
- PW-H: Aillemore – Upper.

The subsequent discussion of effects on residential visual amenity is informed by the relevant photomontage and photowire viewpoints described above, as well as the mapping outcome of the RSA and other information gathered during site surveys. The discussion below follows the geography of the site in a clockwise orientation from Broadford at the north-west end of Glenomra Valley.

Broadford. *Viewpoint: VP05. Sensitivity: Moderate.* Visibility appraisals in the field and ZTV mapping indicated that the greatest potential for visual impacts of the proposed turbines in Broadford could occur for receptors at elevated vantage points outside the population centre, with distant views of Slieve Bernagh range. This is represented by VP05 'Broadford' which demonstrates receptors of 'Moderate' sensitivity in a higher-elevation residential area above the GAA pitch, a centre of public recreational amenity. It is noted that such developed areas include mature boundary vegetation and are also visually screened by local topography comprising the undulating lowlands within Broadford Gap. For areas of the population centre with full theoretical visibility of the proposed turbines, the actual visibility is largely visually screened by built infrastructure; further, ZTV mapping indicates that a moderate portion of the settlement (at the northern end of Broadford) has little to no theoretical visibility. Owing to the distance to the site combined with the degree of visual screening, the magnitude of change was deemed 'Slight', resulting in a residual visual effect rating of '**Not Significant**'.

Kilbane. *Viewpoint: VP14 with two views 14A, 14B. Photowires: PW-I, PW-J, PW-K, PW-L. Sensitivity: High.* The small village of Kilbane is a primary key settlement receptor in the LVIA Study Area owing to its location within the EIAR Site Boundary. Initially, ZTV mapping indicated full theoretical visibility (5–7 proposed turbines visible) from VP14 and this was confirmed by photomontage visualisation, which shows that all 7 no. proposed turbines can be seen from this vantage point. Due to the nature of the viewpoint being positioned in very close proximity (1.1km) to the proposed turbines, the photomontage imagery was divided into two views to capture the full visual impact of the proposed turbines from this position, described in detail in *Appendix 13-3: Photomontage Viewpoint Impact Assessment Tables*.

The sensitivity of Kilbane is considered 'High' because several residences in the area may have primary views directed towards the turbines. The number of affected residences is relatively few; see discussion in Section 13.7.3.3: Residential Visual Amenity. ZTV mapping indicated full theoretical visibility of the proposed turbines from VP14, and this was confirmed by photomontage visual analysis, showing that all 7 no. proposed turbines are visible from this vantage point. The view of the proposed turbines can be described as prominent, with four full towers and blades extending above the horizon and the remainder of towers and blades partially screened by topographical undulations; further, the met mast is also almost entirely visible though it is less visually prominent due to its smaller (shorter) size compared with the proposed turbines.

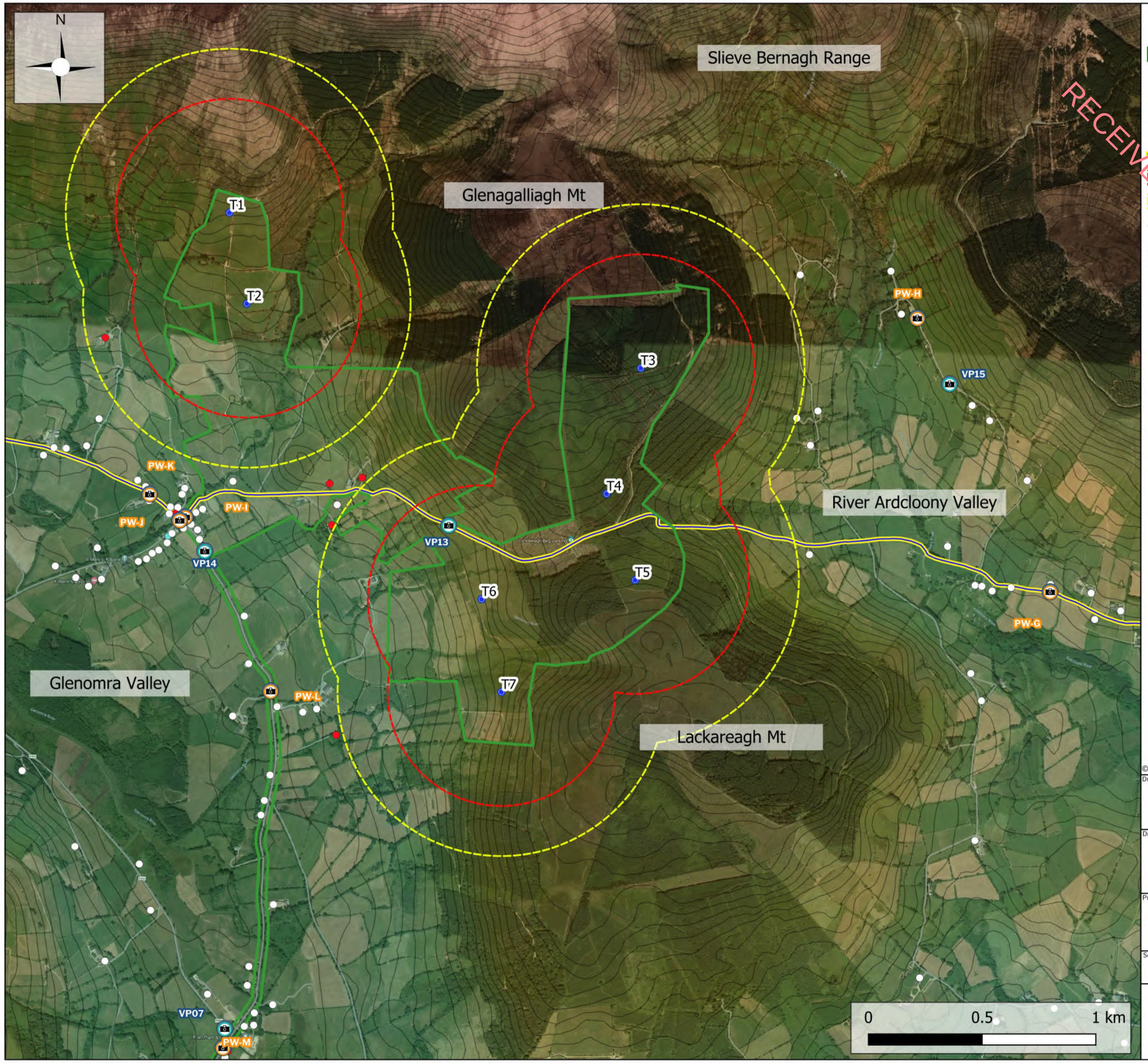
It is emphasised that the number of proposed turbines is few and the siting of turbine locations meets the required minimum set-back distance of >500m from residential receptors recommended in the WEDGs (DoEHLG, 2006) as well as the 4-times-tip-height set-back distance set out in the Draft Revised WEDGs (DoPHLG, 2019). In addition, photomontage visualisation demonstrates that the proposed turbines are appropriately scaled within the landscape from this vantage point, being sited on open and extensive upper ground in a semi-clustered layout of irregular spacing both in front of and behind the ridgeline, thereby creating a sense of balance within the landscape that responds sensitively to the intimate spatial enclosure of Glenomra Valley. On-site visibility appraisals further confirmed that visibility of the proposed turbines within the village centre shall be off-set by visual screening from buildings and mature vegetation, as well as localised undulations in topography. On balance, the magnitude of change for Kilbane village is considered 'Substantial', giving a residual 'Long-Term' visual effect of '**Significant**'.

Aillemore – Lower/Upper. *Viewpoint: VP15. Photowire: PW-H. Sensitivity: High.* Aillemore townland is located in the small, enclosed River Ardclooney Valley immediately to the east and outside of Glenomra Valley, on the eastern slopes of Glenagalliagh Mt. The area is sparsely populated, though residences in this area are within very close proximity to the Proposed Wind Farm, with proposed turbines T3, T4 and T5 anchored within the valley and the remaining proposed turbines anchored over

the far side of the ridgeline forming the saddle between Glenagalliah Mt and Lackareagh Mt peaks. VP15 is located upslope from The Gap Road/L7080/East Clare Way which journeys through River Ardcloony Valley, and PW-H is along the same residential road, higher up the slope. Initially, ZTV mapping indicated partial theoretical visibility (3–4 proposed turbines visible) from VP15 and this was confirmed by photomontage visualisation, which shows that 3 no. proposed turbines (T3, T4 and T5) are prominently visible from this vantage point along the top of the ridge, with the blades of one additional proposed turbine (T6). This is confirmed again by photowire visualisation at PW-H showing the same three proposed turbines displayed prominently across the top of the ridgeline. It is noted that only the proposed turbines anchored immediately outside the spatial enclosure of Glenomra Valley are visible from these vantage points; the remaining turbines inside Glenomra Valley are not visible despite their close proximity to VP15 and PW-H. Therefore, the number of proposed turbines impacting the view from these sites is low, though they are prominent in the view. While all towers and blades of T3, T4, and T5 are visible above the ridgeline, the turbines are evenly spaced across the landscape and avoid visual stacking from both vantage points. On balance, the magnitude of change for the sparse residences of Aillemore is considered 'Moderate', giving a residual 'Long-Term' visual effect of '**Moderate**'.

Bridgetown. *Viewpoint: VP08. Sensitivity: Moderate.* Photomontage assessment indicated that visual impacts of the proposed turbines in Bridgetown are lessened by the topographical visual screening of the proposed turbines behind Lackareagh Mt. The greatest potential for visual effects is attributed to cumulative effects of permitted Fahy Beg turbines, which are likely to be visually prominent from many locations inside the settlement, as demonstrated by VP08 'Bridgetown' representing receptors of 'Moderate' sensitivity in the settlement. A comprehensive discussion of cumulative effects is provided below in Section 13.7.3.5. Owing to the factors described therein, the magnitude of change contributed by the proposed turbines was deemed 'Negligible', resulting in a residual visual effect rating of '**Not Significant**'.

Cumulative Effects: Cumulative effects are anticipated for the receptors above; these and relevant mitigations are discussed below in Section 13.7.3.5.



Map Legend

- EIAR Site Boundary
- Lackareagh Proposed Turbines
- Photomontage Viewpoint Locations (VPs)
- Photowire Locations (PWs)
- East Clare Way
- Set-back Compliance (500m, DoEHLG, 2006)
- Set-back Compliance (720m, DoHPLG, 2019)
- 10m Contours

Residential Dwelling Locations

- Non-participating Landowner
- Participating Landowner

Drawing No.

Figure 13-22

Drawing Title

Residential Visual Amenity Map

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:16,200	220245	01.08.2024	RS	NMH

MKO

13.7.3.4 Visual Effects: Ancillary Project Elements (Non-Turbine Components)

For the purposes of this LVIA, a number of individual elements of the Proposed Project, ancillary to the proposed turbines, have been grouped together for the assessment of visual effects. These operational project elements that are part of the Proposed Project, include the access roads, turbine hardstand areas, met mast, and onsite 38kV proposed substation and BESS. The Proposed Grid Connection Route may give rise to potentially similar visual effects. Details of these components of the Proposed Project and the required works to construct them are contained in Chapter 4 of this EIAR.

Due to the screening from hedgerows, treelines and undulating landform surrounding the site, most visibility of the lower (shorter/surface level), less visually prominent Proposed Project components will occur in their immediate surroundings; hence, visual effects will be localised and are predominantly confined to within the Proposed Wind Farm site itself.

Site Access Roads and Hardstand Areas. The proposed access roads and hardstand areas are flat features. They will be most visible within their immediate surroundings; therefore, any landscape and visual effects will be very localised. Every use will be made of the existing tracks within the site. Some tracks will be upgraded appropriately, construction of new roads will also be required to connect all components of the Proposed Project. In time, following establishment and maturity of planting proposed as part of the BMEP (*Appendix 6-4*), the site access road will be mostly visually screened from view, mitigating visual effects. Overall, visual effects are likely to be highly localised, 'Long-Term' and will be '**Slight**'.

Meteorological (Met) Mast. One met mast is proposed as a part of the Proposed Project. This will be a slender structure, 36.5m in height, and will not be an imposing structure in terms of visual impact. The landscape and visual effects of the proposed met mast will be localised, considering that it will be significantly less visible than any turbine given its shorter and slender lattice form, though it may be prominently visible to receptors in the immediate vicinity near T2. As shown in the *EIAR Volume 2: Photomontage Booklet*, the met mast is likely to be clearly visible in VP04, VP07, VP13 and VP14. Multiple wirelines in the *Photomontage Booklet* show the met mast in several other photomontage viewpoints; however, due to visual screening from vegetation, topography and infrastructure views are limited. Within the site and its immediate landscape setting, the visual effects arising from the met mast are considered to be '**Slight**'.

Proposed Onsite 38kV Substation and Battery Energy Storage System (BESS). The proposed 38kV substation and BESS compound is one of the larger and potentially more visually prominent elements of the ancillary infrastructure. The footprint of the proposed onsite 38kV substation and BESS compound measures approximately 4,512m^2 in area. As discussed above in Section 13.7.3.2.3: SR-26 View of Proposed Substation from within Glenomra Valley, there are potential visual effects due to the sloped, elevated nature of the topography at the site. As demonstrated previously in Plate 13-24, the visual effects are to be mitigated following cut-and-fill and revegetation planting. On balance, residual visual effects are deemed to be long-term and '**Slight**'.

13.7.3.5 Cumulative Effects

This section reports the cumulative landscape and visual effects expected to occur in combination with the Proposed Project and all identified existing, permitted and proposed wind farms identified earlier in Section 13.6: Cumulative Context: Other Wind Farms, including any potential for surrounding effects.

The expected cumulative effects of the Proposed Project are presented considering the wind energy zoning in the LCA-8 Slieve Bernagh Uplands as an area suitable for accommodating multiple wind energy developments according to the CCDP and CWES, and with respect to the landscape setting of narrow valleys and well-defined ridgelines forming the spatial enclosure of Glenmora Valley which

limits cumulative effects from low-lying areas outside the valley. All cumulative landscape and visual effects are discussed in the next subsections.

13.7.3.5.1 Cumulative Landscape Effects

As reported and mapped previously in Section 13.6, the permitted Carrownagowan Wind Farm is located in the north of LCA-8 Slieve Bernagh Uplands, separated from the Proposed Project by the well-defined ridgeline of the Slieve Bernagh range immediately to the north, at a distance of 2.2km from the nearest proposed turbine (T1). The permitted Fahy Beg Wind Farm is located to the south of the Proposed Wind Farm at the southern extent of the Glenomra Valley.

The proposed Oatfield Wind Farm and proposed Knockshanvo Wind Farm are both located within the same localised upland area (overlapping each other) approximately 5km (to/from nearest turbines) to the west of the Proposed Wind Farm. These developments are staggered along a linear arrangement of elevated peaks, separated from the Proposed Wind Farm by well-defined landform features, including the ridgelines which forming the western boundary of Glenomra Valley. The proposed Ballycar Wind Farm is located further to south-west outside Glenomra Valley beyond several small valleys and is also separated from the Proposed Project by well-defined and prominent ridgelines.

The two single turbines, Parteen and Vistakon, are both located greater than 10km from the Proposed Wind Farm, outside and to the south of the spatial enclosure of Glenomra Valley, situated in the lowlands of River Shannon Valley (Co. Clare) and outskirts of Limerick City (Co. Limerick), respectively. Neither turbine interacts with the Proposed Project in the sense of landscape effects, hence they are discussed below in the cumulative visual effects subsection.

Excepting the permitted Carrownagowan and Fahy Beg wind farms, all other developments are proposed (Oatfield, Knockshanvo, and Ballycar), hence their likelihood of influencing cumulative effects on LCA-8 Slieve Bernagh Uplands is reliant upon many factors, primarily the outcome of the consenting planning system. The *EIAR Volume 2: Photomontage Booklet* accompanying this EIAR effectively illustrates the representative cumulative effects on the landscape character of this area. The visual effects of the proposed turbines in combination with all other permitted and proposed developments are comprehensively analysed and discussed in relation to representative photomontages in *Appendix 14-3: Photomontage Viewpoint Impact Assessment Tables*.

All other wind energy developments in combination with the Proposed Project have the potential to contribute to cumulative landscape effects on the LCA-8 Slieve Bernagh Uplands. The greatest cumulative effects are experienced in a journey scenario in which a receptor moves through the landscape, thereby intermittently visually experiencing the various permitted and proposed wind energy developments. However, this is to be anticipated considering the policy designations in local planning policy (recall *Table 4a* of the CWES) as well as the characteristics of this upland landscape type, which indicate its capacity to absorb multiple wind energy developments. *Table 4a* of the CWES states the following in relation to cumulative effects in the LCA-8 Slieve Bernagh Uplands:

> *'Acceptable, depending on topography as well as siting and design of wind energy developments involved'.*

As reported earlier in Section 13.4.4: Landscape Character from WEDGs, the cumulative siting and design guidance for the 'Transitional Marginal Landscape' landscape type in the WEDGs (2006, DoEHLG) and Draft Revised WEDGs (DoHPLG, 2019) has been met. Moreover, the set-back distances between projects and the narrow valleys between prominent landforms create relatively small and separate visual units within the Slieve Bernagh Uplands. These characteristics give this landscape the capacity to absorb and accommodate multiple wind energy developments, thus the cumulative effects to the landscape of the Slieve Bernagh Uplands are deemed acceptable.

Cumulative impacts on the character of the wider landscape (beyond the LCA-8 Slieve Bernagh Uplands) are most likely to occur where the proposed turbines are visible in conjunction with other wind farm developments; as reported in the next section.

13.7.3.5.2 Cumulative Visual Effects

Guidance for the assessment of cumulative effects of onshore wind farms (Scottish Natural Heritage, 2012) states the following:

> *'At every stage in the process the focus should be on the key cumulative effects which are likely to influence decision making, rather than an assessment of every potential cumulative effect' (para. 66, p.15);*
>
> *'The level of information generated can distract attention from the most significant cumulative effects which are likely to influence the consenting decision. Assessments should therefore focus on the most significant cumulative effects and conclude with a clear assessment of those which are likely to influence decision making' (para. 102, p.21)'.*

In mind of this guidance, the key focus of assessment of cumulative visual effects in this Chapter are the interactions of the Proposed Project with other wind farm developments in the LVIA Study Area as the turbines and infrastructure of other wind energy developments were the key development type identified as likely to give rise to significant cumulative visual effects in combination with the Proposed Project. All predicted cumulative visual effects are 'Long-Term' and 'Direct' effects.

The descriptions of cumulative visual effects reported in *Appendix 13-3: Photomontage Visual Impact Assessment Tables* are based on the 15 no. photomontages presented in the *EIAR Volume 2: Photomontage Booklet* and are guided by the identification labels on the wireline views accompanying each photomontage image. In addition, the assessment of cumulative visual effects accounts for effects which may not occur in the field of view presented in the photomontage through written discussion in *Appendix 13-3*. The potential for cumulative visual effects is accounted for in the 'Magnitude of Change' row in each impact assessment table of the appendix and is also considered in the rating for 'Residual Visual Effect' given for each viewpoint.

When determining how cumulative effects contribute to the magnitude of change, the focus is always on the extent to which the Proposed Project will contribute towards cumulative effects on the specific receptors under assessment at each viewpoint.

Finally, the discussion of cumulative effects also considers the probability of such cumulative effects arising in mind of the category of the other developments with which the Proposed Project interacts:

- 'Existing' developments: **'Certainty'** of cumulative effects occurring;
- 'Permitted' developments: **'High probability'** of cumulative effects occurring; or
- 'Proposed' developments: **'Uncertain'** scenario in which cumulative effects may or may not occur depending on multiple factors.

Recap on Terminology relating to Cumulative Effects

This section recaps relevant terminology described in *Appendix 13-1: Methodology* (Section 1.1.0.2 'Cumulative Visual Effects'):

- **Simultaneous In-Combination Effects:** Simultaneous in-combination views occur for receptors from which the proposed turbines are seen in the same field of view as the other developments.
- **Successional In-Combination Effects:** Potential successional in-combination effects occur for receptors at which the viewer must turn their head to experience visual effects in another direction or field of view.

- **Sequential Cumulative Effects**: Where cumulative visual effects occur in a journey scenario where a receptor moves from one location to another and experiences cumulative effects in a sequential order.

Overview of Cumulative Visual Effects in LCA-8 Slieve Bernagh Uplands

The greatest cumulative visual effects will occur from receptors in close proximity to the Proposed Wind Farm within Glenomra Valley from which the proposed turbines will be viewed in combination with the permitted Fahy Beg Wind Farm (8 no. turbines) and occasional instances where minor cumulative effects occur with one or two turbines of the permitted Carrownagowan Wind Farm (19 no. turbines).

Cumulative visual effects are anticipated to occur to a slightly lesser degree with the proposed Knockshanvo (9 no. turbines), Oatfield (11 no. turbines) and Ballycar (12 no. turbines) Wind Farms. Within the LCA-8 Slieve Bernagh Uplands, in-combination visual effects will **only** occur with these other proposed wind farms where they are seen in combination with the proposed turbines from elevated vantage points; for example, from VP13 at Killeagy/East Clare Way. The visual effects are mitigated by distance as well as by the visual separation between developments. As stated above, these developments (Knockshanvo, Oatfield and Ballycar) are 'proposed', thus such cumulative effects are only likely to occur in an 'uncertain' future receiving environment. In a general sense, the spatial enclosure provided by the well-defined ridgelines forming Glenomra Valley and elsewhere in this upland area of East Clare obstruct potential in combination visual effects from receptors in lower lying areas where most of the road networks, settlements and residential clusters are located. However, it is acknowledged that cumulative visual effects will occur throughout the Slieve Bernagh Uplands in a journey scenario where receptors are travelling throughout the landscape.

The two single existing turbines, Parteen and Vistakon, are located outside Slieve Bernagh Uplands, in Co. Clare and Co. Limerick (respectively) in the lowlands to the south of Glenomra Valley and do not greatly contribute to cumulative effects, excepting in very occasional instances in Limerick City where in-combination effects can occur within long-ranging views towards the Slieve Bernagh Uplands in the distance.

Potential for Cumulative Visual Effects with Permitted Fahy Beg and Permitted Carrownagowan Wind Farms from Receptors within 5km of the Proposed Wind Farm

The southern proposed turbines T3, T4, T5, T6 and T7 are arranged across the saddle between Glenagalliagh Mt and Lackareagh Mt, while the permitted Fahy Beg turbines are arranged around the southern and south-eastern slopes of Lackareagh Mt. The two developments are therefore in relatively close proximity to each other separated by the mountain's highest elevated peak. The nature of cumulative visual effects therefore greatly differs depending on the geographical positioning of receptors relative to the two developments. Discussion of these cumulative interactions (with permitted Fahy Bag Wind Farm) from different perspectives and the receptors in those areas are reported below. The discussion references specific photomontage viewpoints which illustrate the nature of cumulative effects and the contribution of the Proposed Project to those effects. It is again noted that a comprehensive discussion of cumulative interactions occurring from each photomontage viewpoint is discussed in *Appendix 13-3*.

East and North-East of the Proposed Wind Farm: Residential Receptors in the Ardcloony Valley. The River Ardcloony Valley is a small, enclosed river valley immediately east of the Proposed Wind Farm, outside the spatial enclosure of Glenomra Valley. Viewpoints VP03 and VP15 are located in River Ardcloony Valley and represent residential receptors in this sparsely settled upland landscape. Only three turbines of the Proposed Project are clearly visible in both photomontages, appearing at different scales due to the differing set-back distance from each viewpoint. Although the viewpoints are in relatively close proximity to each other within this small valley (1.7km), the different viewpoints have

differing orientations relative to the proposed turbines and the potential cumulative effects with the permitted Fahy Beg turbines:

- **VP03 'The Gap Road at Ballygarreen': Directly East of the Southern Turbines (Ballygarreen Townland):** Simultaneous in-combination effects occur in a future receiving environment as 6 no. permitted Fahy Beg turbines are visible on the southern slopes of Lackareagh Mt. from VP03 in combination with 3 no. proposed turbines, as shown in the 90-degree photomontage. There is a degree of visual balance as the two developments (proposed Lackareagh and permitted Fahy Beg) are clustered on slightly lower lands to either side of the central peak of Lackareagh Mt.
- **VP15 'Aillemore – Lower': Directly North-East of the Southern (Aillemore Townland):** Graphical modelling as part of photomontage production and analysis determined that the permitted Fahy Beg turbines will not be visible from this viewpoint at the northern end of River Ardcloony Valley. The elevated landform of Lackareagh Mt obscures them from view and therefore no cumulative visual effects occur in combination with the proposed Lackareagh turbines.

South of the Proposed Wind Farm outside Glenomra Valley: Bridgetown and O'Briensbridge. Photomontages were produced from the settlements of Bridgetown (VP08) and O'Briensbridge (VP09) where there are open views in the direction of both permitted Fahy Beg and the Proposed Wind Farm from the south. In both instances, all permitted Fahy Beg turbines are clearly visible upon the southern aspect of Lackareagh Mt. The wireline views for these photomontages clearly identify the proposed turbines and permitted Fahy Beg turbines. The photomontages and wireline visualisations clearly show that the proposed turbines are mostly visually screened from view by the landform of Lackareagh Mt. when viewed from these southerly vantage points. Only a few turbine blades (from approx. 3 no. proposed turbines are visible above the distant skyline beyond the permitted Fahy Beg turbines. In this regard, simultaneous in-combination cumulative effects do occur from these receptors. However, it is key to note that the proposed turbines have a very minor contribution to cumulative effects from these receptors.

West of the Proposed Wind Farm within Glenomra Valley. 4 no. photomontages included in the *Photomontage Booklet* were captured within Glenomra Valley where all proposed turbines collectively have the greatest visual exposure and visual impact. The permitted Fahy Beg turbines are located at the southern end of the valley and therefore there is potential for successional in-combination views with the proposed turbines in cases where a viewer may look in an alternative direction. The permitted Carrownagowan Wind Farm is located immediately north of the northern turbines (T1, T2) on the other side of the ridgeline forming the northern arm of the 'inverted L-shaped' Glenomra Valley. There is a saddle of lower ground between two peaks of this northern ridgeline which enables occasional visibility of blades of either one or two permitted Carrownagowan turbines from within Glenomra Valley.

- **VP04 'R466/SR-26, Cloonyconry More'** is representative of southbound receptors on SR-26/R466. Successional in-combination visual effects will occur where the permitted Fahy Beg turbines are visible to the south-east. As the permitted Fahy Beg turbines will be clustered around the southern aspect of Lackareagh Mt, they will be visually separated from the proposed turbines. These cumulative effects will only be experienced from southbound receptors on this road.
- **VP07 'R466/SR-26, Ballyquin Beg'** is representative of northbound receptors on the SR-26/R466 at the first point where the proposed turbines will be clearly visible. Visibility appraisals and graphic modelling determined that the permitted Fahy Beg turbines will not be visible from this viewpoint due to screening from mature woodland and landform undulations to the south. Two blades of a single permitted Carrownagown turbine will be visible simultaneously in combination with the proposed turbines in a saddle of lower land, shown to the left of the 90-degree photomontage.

- **VP14 'Kilbane'** is representative of residential receptors around the small village of Kilbane. 3D graphic modelling and analysis determined that 3 of 8 no. permitted Fahy Beg turbines will be visible from this viewpoint to the south, therefore successional in-combination effects will occur. However local screening factors in the landscape such as mature boundary vegetation and woodland in the lower lying lands of Glenomra Valley will restrict such in-combination effects occurring from many residential receptors in the area. No permitted Carrownagowan turbines are likely to be visible from this viewpoint.
- **VP13 'Killeagy/East Clare Way'** is representative of views from an elevated vantage point on the East Clare Way within the EIAR Site Boundary. The photomontage was produced in four different fields of view in order to fully and comprehensively assess cumulative visual effects occurring from this elevated vantage point. VP13 represents the greatest cumulative visual effects of the Proposed Wind Farm, where the proposed turbines cause a substantial magnitude of change and 'Significant' residual visual impact with all other permitted and proposed wind energy developments in the LVIA Study Area. To the south, 2 no. permitted Fahy Beg turbines are clearly visible, while the blades of 1 no. permitted Carrownagowan turbine are visible to the north, and many turbines of the proposed Knockshanvo, Oatfield and Ballycar wind farms are visible across distant uplands to the west. It is noted that whilst significant cumulative visual effects will potentially arise, the proposed turbines (and most other visible turbines) are located at high elevation and are seen on the upper slopes of Glenomra Valley. Consequently, the integrity of more scenic views throughout the lower elevations of the valley itself are retained, as well as the long-ranging views toward the River Shannon in the south and through Broadford Gap to the west, which are unobstructed by turbines.

Potential for Cumulative Effects with the Proposed Knockshanvo and Proposed Oatfield Wind Farms

The proposed Knockshanvo and proposed Oatfield wind farms are located within an upland landscape to the south of Broadford at the north-western end of Glenomra Valley, near Broadford Gap. 3D modelling determined that neither development is likely to be seen from receptors in the lower lying areas of Glenomra Valley, where most residential receptors and roads are located. In a few isolated instances, in-combination visual effects may potentially occur due to intervisibility of these proposed developments and the Proposed Project. It is again noted that these can only potentially occur in a future receiving environment, which is an uncertain scenario considering the nature of these developments as 'proposed'.

VP06 'R465 near Formoyle More': Cumulative visual effects of the proposed turbines in combination with 3 no. proposed Knockshanvo turbines is likely to occur from an elevated vantage point between the two developments in the townland of Formoyle More. There is potential for cumulative visual effects on a small number of residential receptors in this area where both the proposed turbines and proposed Knockshanvo turbines are potentially visible in opposing directions. In this scenario (an uncertain scenario), there is potential for successional in-combination effects to occur. Further, in this scenario, only 2 no. proposed turbines are clearly visible and are well set back from the receptors (approx. 4.5km), thus their contribution to cumulative effects is minor.

VP05 'Broadford': As detailed throughout this LVIA, there is very limited visibility of the Proposed Project from the within the town of Broadford. One elevated vantage point was identified in a housing estate where the proposed turbines will be visible, at VP05. The proposed Knockshanvo and proposed Oatfield wind farms are located within an upland landscape to the south of Broadford in a different direction to the view shown from VP05 and thus will not be visible from the viewpoint; however, both developments are likely to be visible from roads approaching Broadford from the north. Although no in-combination views occur, there is potential for a degree of sequential cumulative effects in and

around the settlement of Broadford where turbines of different developments may be seen from different vantage points in a journey scenario.

Cumulative Visual Effects from other Receptors in the wider LVIA Study Area beyond 5km of the Proposed Turbines

VP01 'Tountinna Mt/Lough Derg': VP01 is located at a very elevated vantage point in the Arra Mountains to the East of the LVIA Study Area. In-combination simultaneous cumulative visual effects will arise with all other permitted and proposed turbines in LCA-8 Slieve Bernagh Uplands (Fahy Beg, Carrownagowan, Ballycar, Oatfield and Knockshanvo). The Proposed Wind Farm contributes to the cumulative visual effect of these multiple wind energy developments visible amongst the upland peaks in the background of views from VP01. Visual effects from all visible turbines are substantially reduced by the factor of distance. As a cumulative collection, all turbines occur as small features on the distant horizon or just in front of distant ridgelines. As a whole, the cumulative developments appear evenly spaced out across the entire vista, thereby avoiding turbine clustering in any one area. The large-scale landscape and long-ranging, expansive panoramic view from VP01 effectively absorbs the proposed turbines as well as the other cumulative developments. All cumulative wind farms and the proposed turbines are visible beyond distant ridgelines and therefore do not obstruct or significantly intrude upon the key scenic sensitivities of the view from Mt Tountinna which primarily includes views of Lough Derg and its surrounds.

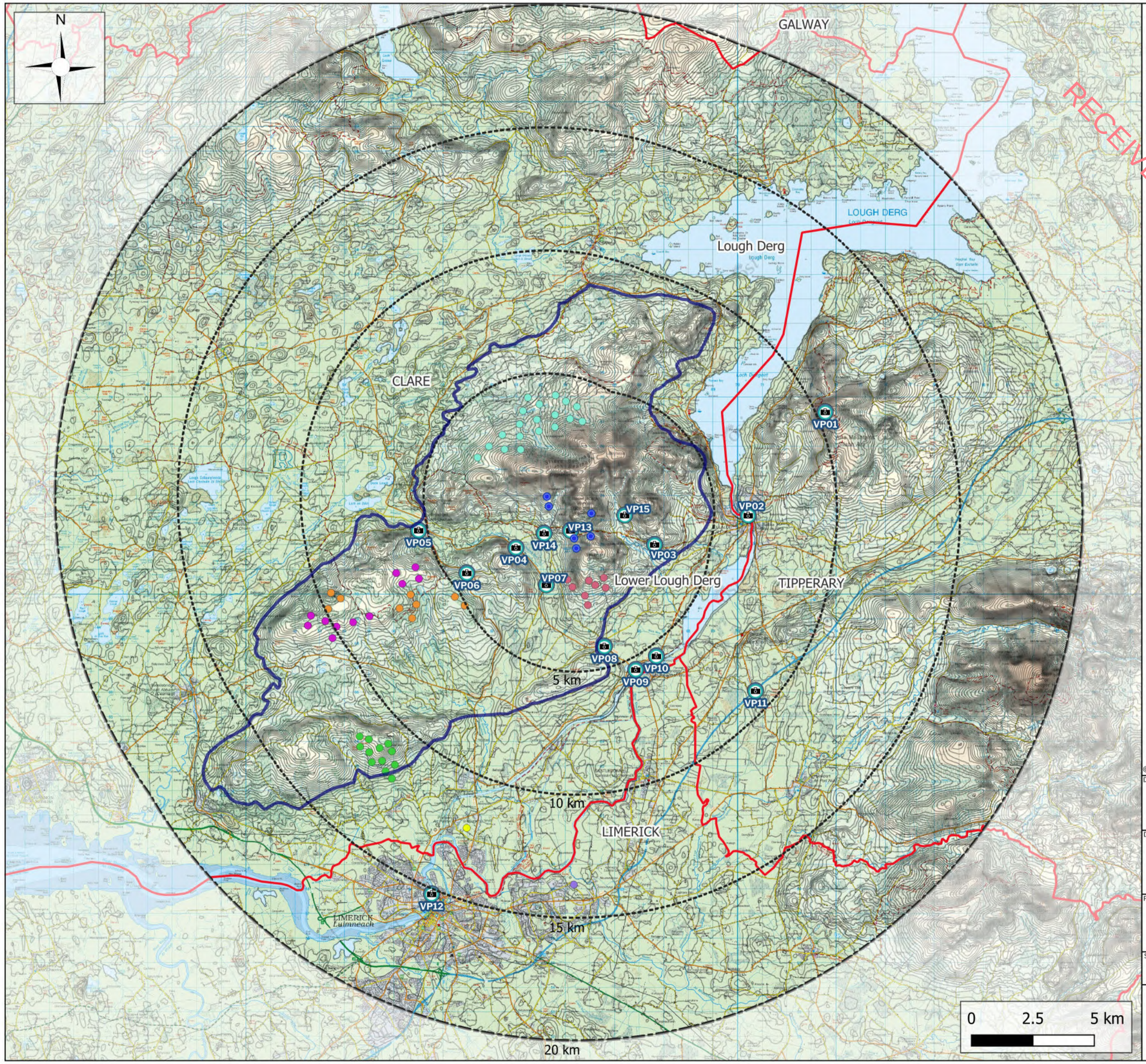
VP11 'Scenic Route V59/M7 Motorway' represents views of the Shannon River Valley lowlands to the south-east of Glenomra Valley. VP11 shows a photomontage from above the M7 Motorway in Co. Tipperary, representing views from occasional elevated vantage points within the lowland areas east of the Shannon River in the south-eastern portion of the LVIA Study Area (views which do not occur often in this area). From this perspective, turbines of the permitted Fahy Beg, proposed Oatfield and proposed Knockshanvo developments are spread out across the distant upland landscape. 3 no. proposed turbines are visible on an elevated ridgeline and extend the horizontal extent of turbines visible. All visual effects of the proposed turbines and cumulative wind farms are well accommodated within the upland landscape as seen from VP11. All cumulative turbines are evenly spaced across the width of the view, in staggered layout both in front of and behind different ridgelines, thereby creating a relatively balanced layout that is appropriate in scale.

VP12 'Limerick City/Thomond Bridge': VP12 shows a photomontage from Thomond Bridge in Limerick City, well to the south and outside of Glenomra Valley. The single existing Parteen turbine is only partially visible through a tree in the photomontage; however, it is visible from other locations on Thomond Bridge, with only the upper portion of the turbine visible due to screening from the built environment. The Slieve Bernagh Uplands are visible across the background of the photomontage image. In-combination simultaneous effects arise as the proposed turbines are visible with the permitted Fahy Beg Wind Farm and several permitted Carrownagowan turbines. The three developments (the Proposed Project, Fahy Beg and Carrownagowan) are well set back from this viewpoint and are seen as small features in the distant mountains. The proposed Ballycar Wind Farm is shown in the wireline view and will be clearly visible from other vantage points on Thomond Bridge and within Limerick City due to its closer proximity on Woodcock Hill north of Limerick. The contribution of the proposed turbines to cumulative effects is relatively small and is aligned with emerging baseline trends.

Summary of Cumulative Visual Effects

As demonstrated by the mapping and photomontage visualisations there is an accumulation of wind energy developments proposed in East Clare, particularly in the LCA-8 Slieve Bernagh Uplands, an area where wind energy is strategically directed in local planning policy (CWES). The cumulative photomontages in the *EIAR Volume 2: Photomontage Booklet* illustrate the nature and extent of potential cumulative visual effects which are likely to occur on specific visual receptors and the differing geographic perspectives surrounding the site. This LVIA has determined that the undulating and well-defined landform features and valleys in the Slieve Bernagh Uplands have the potential to reduce the

extent of cumulative visual effects experienced by visual receptors in the area. Further, this LVIA notes that LCA-8 Slieve Bernagh Uplands has the capacity to absorb the Proposed Project and will have limited significant cumulative or in-combination effects with the other potential wind energy developments identified in this LVIA.



Map Legend

- Ireland National OSi County Borders
- The Slieve Bernagh Uplands (LCA-8 Border)
- LVIA Study Area
- EIAR Site Boundary
- Lackareagh Proposed Turbines
- Photomontage Viewpoint Locations (VPs)
- 10m Contours

Cumulative Wind Farm (WF) List

- Carrownagowan WF (Permitted)
- Fahy Beg WF (Permitted)
- Ballycar WF (Proposed)
- Knockshanvo WF (Proposed)
- Oatfield WF (Proposed)
- Parteen Single Turbine (Existing)
- Vistakon Single Turbine (Existing)

Drawing No.

Figure 13-23

Drawing Title

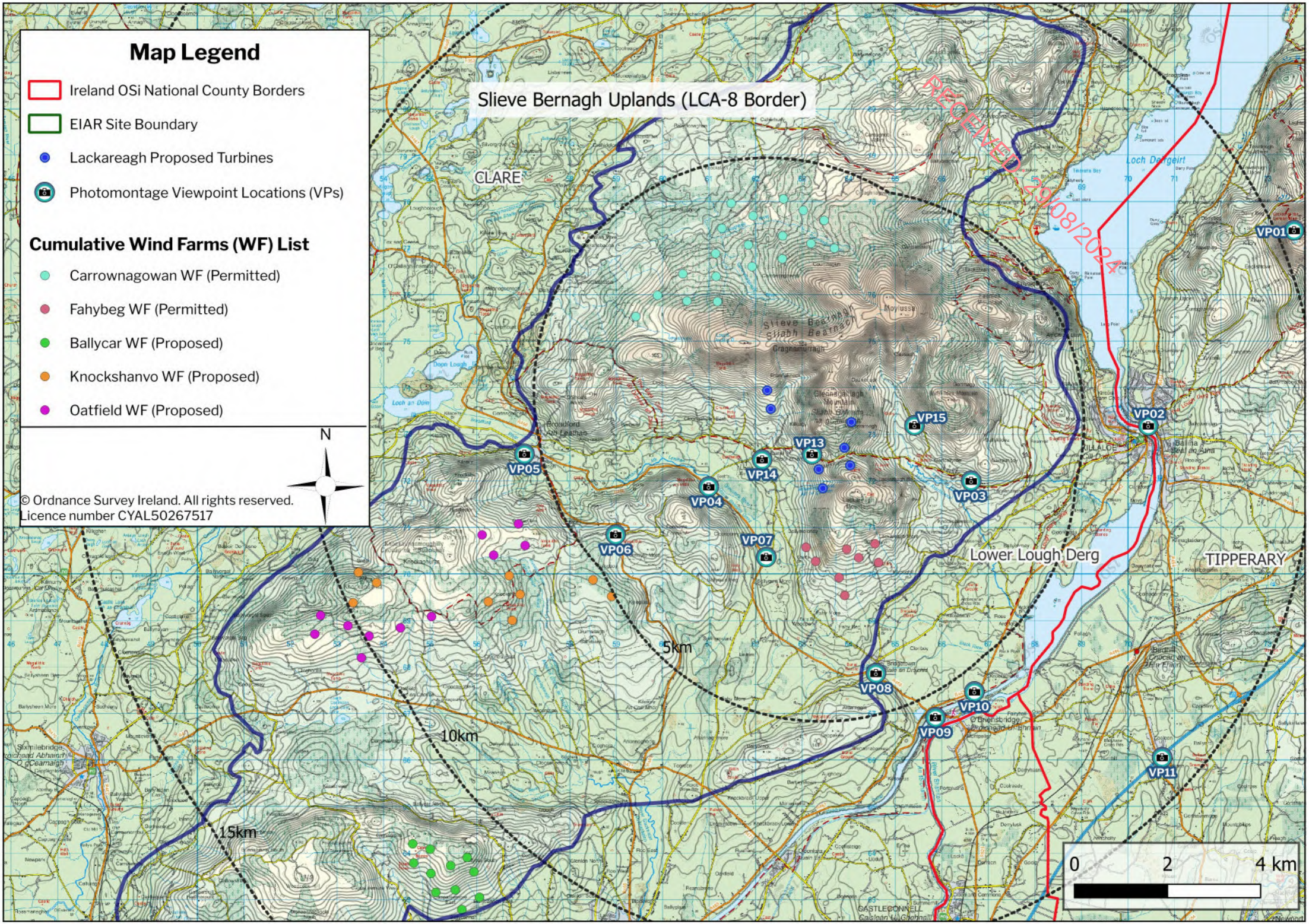
Cumulative Context Map with Photomontage Locations

Project Title

Lackareagh Wind Farm

Scale	Project No.	Date	Drawn By	Checked By
1:150,000	220245	01.08.2024	RS	NMH

MKO


Map Legend
Ireland OSi National County Borders
EIAR Site Boundary
Lackareagh Proposed Turbines
Photomontage Viewpoint Locations (VPs)
Cumulative Wind Farms (WF) List
Carrownagowan WF (Permitted)
Fahybeg WF (Permitted)
Ballycar WF (Proposed)
Knockshanvo WF (Proposed)
Oatfield WF (Proposed)
N
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Slieve Bernagh Uplands (LCA-8 Border)
RECEIVED 29/08/2024
CLARE
TIPPERARY
Lower Lough Derg
Loch Deargirt
VP01
VP02
VP03
VP04
VP05
VP06
VP07
VP08
VP09
VP10
VP11
VP13
VP14
VP15
5km
10km
15km
0
2
4 km

13.7.4 Decommissioning Phase Effects

The landscape and visual effects during the decommissioning phase are anticipated to be of a similar nature as those occurring during the construction phase.

The important element of decommissioning from an LVIA perspective is the dismantling and removal of the wind turbines. This will occur for a limited period of time and will predominately involve cranes adjacent to the turbines during the dismantling process. Upon decommissioning of the Proposed Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected. The turbines will be disassembled with a similar model of crane that was used for their erection. The turbines will likely be removed from the Proposed Wind Farm site using the same transport methodology adopted initially for delivery to the site.

Turbine foundations would remain in place underground and would be covered with earth and reseeded as appropriate. This naturalisation process shall revert the landscape of the Proposed Wind Farm site back to a condition similar to the current landscape baseline.

Removal of the turbines and ancillary infrastructure (except the proposed substation and BESS) from the Wind Farm site during decommissioning will result in 'Short-Term', 'Slight', 'Negative' visual effects. The operational phase visual effects of the proposed onsite 38kV substation and BESS as permanent fixtures in the landscape are described above in Section 13.7.3.2.3: SR-26 View of Proposed Substation from within Glenomra Valley and Section 13.7.3.4: Visual Effects: Ancillary Project Elements (Non-Turbine Components). A '*Decommissioning Plan'* has been prepared (*Appendix 4-6* of this EIAR), the details of which will be agreed upon with the Local Authority prior to any decommissioning. The Decommissioning Plan will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and will be agreed upon with the competent authority at that time.

13.8 Conclusion

Chapter 13 of this EIAR presents the LVIA of the Proposed Project comprising 7 no. (northern turbines T1 and T2; southern turbines T3–T7), focusing on comprehensive assessment of the proposed turbines as the essential aspect of the Proposed Project likely to give rise to significant landscape and visual effects within a 20km study area – the 'LVIA Study Area'.

The LVIA was conducted in accordance with national and international LVIA guidance through desktop analysis, on-site appraisals, topographical and ZTV modelling and production of photomontages. This Chapter presented the landscape and visual baseline conditions of the Proposed Project site and wider LVIA Study Area, outlined the local policy context with respect to landscape and visual designations, calculated the ZTV to identify the landscape areas and visual receptors needing assessment and evaluated the cumulative context of landscape and visual effects in combination with other existing, permitted and proposed wind farm developments in the LVIA Study Area.

This Chapter is accompanied by one volume and five appendices as follows:

- *EIAR Volume 2: Photomontage Booklet*, presenting existing and cumulative imagery of the Proposed Project turbines in multiple fields of view from 15 no. representative viewpoints in the study area;
- *Appendix 13-1: LVIA Methodology*, outlining the detailed methodology of the assessment conducted in this chapter;
- *Appendix 13-2: LCA Assessment Tables*, assessing landscape, visual and cumulative effects of 6 no. LCAs in the study area;

- *Appendix 13-3: Photomontage Visual Impact Assessment Tables*, assessing landscape, visual and cumulative effects of the 15 no. representative viewpoints presented in the Photomontage Booklet;
- *Appendix 13-4: A0 LVIA Baseline Map*, showing all baseline landscape features, viewpoints, and visual receptors;
- *Appendix 13-5: Photowire Visualisation Booklet*, presenting 18 no. supplemental photowire locations throughout the study area that demonstrate representative views of the proposed turbines.

The Proposed Wind Farm is located in LCA-8 Slieve Bernagh Uplands of Co. Clare. The Proposed Wind Farm is sited within a combination of low-intensity agricultural land and coniferous forestry which has been highly altered by human activity, with all 7 no. turbines sited within an area that is 'Open to Consideration' for wind development as designated by the local planning policies CCDP and CWES of Co. Clare. LCA-8 Slieve Bernagh Uplands is afforded the lowest sensitivity rating to wind energy development by the CCDP and CWES.

The siting and design of the Proposed Project are found to comply with development guidelines for wind energy (WEDGs, DoEHLG, 2006; and Draft WEDGs, DoHPLG, 2019) in terms of its location in a 'Transitional Marginal Landscape' type; this includes adherence to the 4-times-tip-height set-back distance from residential visual amenity set out in the Draft Revised WEDGs. The Proposed Project is compliant with appropriate siting and design guidance for Transitional Marginal Landscape in relation to the spatial extent, the spacing and layout of northern and southern turbines, the height and scale of the proposed turbines within the landscape, and capacity of the wider landscape setting to absorb cumulative wind energy developments.

Imagery was captured from a total of 33 no. viewpoints in the LVIA Study Area for the production of photomontages and photowire visualisations. These visualisations were used to assess the landscape and visual effects of the proposed turbines on all receptors scoped in for assessment during preliminary analysis using ZTV mapping. Out of 33 total, 15 no. viewpoints (VP01—VP15) were selected for photomontage production and full visual impact assessment in the *EIAR Volume 2: Photomontage Booklet* accompanying this Chapter, and the remaining 18 no. viewpoints (PW-A to PW-R) were produced as draft-stage photowires to aid in visual impact discussions, presented in *Appendix 13-5: Photowire Visualisation Booklet*.

A total of 23 no. visual receptors in the LVIA Study Area were identified and assessed for the effects of visual impact, comprising 4 no. designated Scenic Routes and Views, 1 no. OSi Viewing Area, 6 no. settlements, 2 no. recreational routes (i.e. walking trails), 1 no. cultural heritage destination and 9 no. prominent transport routes. These are represented within the 15 no. selected photomontage viewpoints (*Photomontage Booklet*) and 18 no. photowire viewpoints (*Appendix 13-5*).

6 no. designated LCAs were selected and comprehensively assessed for landscape and visual effects within the LVIA Study Area: 3 no. from Co. Clare, 1 no. from Co. Limerick and 2 no. from Co. Tipperary. The LCA in which the Proposed Project site is located is LCA-8 Slieve Bernagh Uplands, found to have 'Low' sensitivity, a 'Moderate' magnitude of change, giving a final overall significance rating of 'Slight'.

The assessments reported in this Chapter determined that the proposed turbines have limited visibility from receptors and other LCAs outside of the enclosure of the Glenomra Valley (located within LCA-8). When visibility does occur from other LCAs in the wider landscape, the proposed turbines are seen to be well set-back within another landscape area, thus having very minimal impact on the key characteristics and sensitivities of the other LCAs. For all other LCAs, the effects were found to have significance ratings of 'Imperceptible' to 'Not Significant'.

Of the 15 no. viewpoints selected and comprehensively assessed for landscape and visual effects, six were located within 5km of the Proposed Wind Farm. Five viewpoints (the majority) were found to have 'Not Significant' residual visual effects. The remaining viewpoints were found to have 'Moderate'

(4 no.) and 'Slight' (3 no.) residual visual effects. No effects were found to be 'Profound' or 'Very Significant' at any viewpoint locations. 3 no. viewpoints had residual visual effects rating as 'Significant'; these were:

- VP04: Scenic Route SR-26 Cloonyconry More;
- VP13: Killeagy/East Clare Way;
- VP14: Kilbane.

The key mitigation factors contributing to the residual visual effects ratings were:

- The Proposed Wind Farm meets the conditions of good windfarm design for 'Transitional Marginal Landscape' character type according to the WEDGs (DoEHLG, 2006) and Draft Revised WEDGs (2019, DoPHLG);
- The Proposed Wind Farm meets the conditions of required set-back from housing according to the WEDGs (DoEHLG, 2006) as well as the 4-times-tip-height set back prescribed for residential visual amenity in the Draft Revised WEDGs (2019, DoPHLG);
- The Proposed Wind Farm is sited within LCA-8 Slieve Bernagh Uplands, a landscape character area classified in *Table 4a* of the CWES as having good capacity for 'absorbing' multiple (cumulative) wind farm developments and afforded the lowest sensitivity classification for LCAs in Co. Clare;
- The spatial enclosure and narrowness of the Glenomra Valley make it a relatively small visual unit, providing visual separation and screening from many visual receptors, as well as in-combination effects with other permitted and proposed wind farm developments outside the valley;
- For Scenic Route SR-26, the view is not '*seriously hindered or obstructed*' from the route and the Proposed Project is '*designed and located to minimise the visual impact*' from the route, thereby meeting specific wording of CCDP policy relating to development impacting designated scenic routes;
- For Kilbane village, on-site visibility appraisals and photomontage visualisation indicate localised visual screening by vegetation and buildings and appropriate scale and set-back of the proposed turbines within the setting of Glenomra Valley and the wider Slieve Bernagh range;
- For East Clare Way, an Information Lookout Point and widening of the road are proposed to improve the value and safety of the trail where it passes through the Proposed Wind Farm; moreover, the primary long-ranging views are not obstructed by the proposed turbines.

The analysis of cumulative effects identified several possibilities of potential effects arising in different cumulative scenarios (existing, permitted and proposed) with a total of 7 no. other wind energy developments identified within the LVIA Study Area:

- Permitted Carrownagowan Wind Farm (19 no. turbines);
- Permitted Fahy Beg Wind Farm (8 no. turbines);
- Proposed Knockshanvo Wind Farm (9 no. turbines);
- Proposed Oatfield Wind Farm (11 no. turbines);
- Proposed Ballycar Wind Farm (12 no. turbines);
- Existing Parteen (1 no.) and existing Vistakon (1 no.) single turbines.

Of these, the permitted Carrownagowan, permitted Fahy Beg, proposed Knockshanvo, and proposed Oatfield wind farms are located in Co. Clare within LCA-8 Slieve Bernagh Uplands, designated in wind energy zoning by the CCDP and CWES as an upland area suitable for accommodating multiple wind energy developments. The proposed Ballycar Wind Farm is also located almost entirely within LCA-8 Slieve Bernagh Uplands in Co. Clare, with 11 out of its 12 no. turbines inside the LCA border yet is situated well outside (<11km) the spatial enclosure of Glenomra Valley to the south-west.

The two single existing turbines, Parteen and Vistakon, are located outside Slieve Bernagh Uplands, in Co. Clare and Co. Limerick (respectively) in the lowlands to the south of Glenomra Valley and do not greatly contribute to cumulative effects, excepting in very occasional instances in Limerick City where in-combination effects can occur within long-ranging views towards the Slieve Bernagh Uplands in the distance.

As the Carrownagowan and Fahy Beg wind farms are permitted, they present the highest certainty of cumulative landscape and visual effects occurring in combination with the Proposed Project, explained as follows.

The permitted Carrownagowan Wind Farm is located 2.2km north of the Proposed Wind Farm, immediately outside the spatial enclosure of Glenomra Valley, with the highest peaks of Slieve Bernagh range separating the two projects. The permitted Fahy Beg Wind Farm is located 1.3km south of the Proposed Wind Farm on the southern aspect of Lackareagh Mt, partially inside the spatial enclosure of Glenomra Valley at the valley's southern end. Cumulative visual effects will arise for receptors within Glenomra Valley where the proposed turbines will be seen in combination with permitted Fahy Beg Wind Farm turbines in and around Glennagalliagh Mt and Lackareagh Mt peaks; most of these views will likely be successional in a journey scenario due to the staggering of all turbines across ridges and upland slopes both inside and outside of the spatial enclosure of the valley. Similar cumulative visual effects may occur to a much lesser degree with the permitted Carownagowan turbines, as those turbines are located outside the spatial enclosure of the valley. The cumulative landscape effects are in line with expectations of LCA-8 Slieve Bernagh Uplands being designated as suitable for absorbing multiple wind energy developments.

As the Knockshanvo, Oatfield and Ballycar wind farms are proposed, cumulative landscape and visual effects can only potentially occur in a future receiving environment, which is an uncertain scenario, explained as follows. The proposed Knockshanvo and proposed Oatfield wind farms are located within an upland landscape at the north-western end of Glenomra Valley, near Broadford Gap. Neither development is likely to be seen from receptors in the lower lying areas of Glenomra Valley. In a few isolated instances, in-combination visual effects may potentially occur due to intervisibility of these proposed developments and the Proposed Project. The proposed Ballycar Wind Farm is outside Glenomra Valley and most likely to be visible in combination with the Proposed Project only from areas in and around Limerick City at great distance (<11km); the potential cumulative effects with proposed Ballycar are limited owing to the Proposed Project being shielded inside Glenomra Valley.

This LVIA addressed all potential cumulative interactions through the use of photomontage visualisations and written descriptions. Further, the LVIA emphasises that the probability of cumulative effects with other proposed developments is reliant upon the consenting process and multiple post-consent factors influencing whether the project is constructed.

The final proposed turbine layout of the Proposed Project was informed by an extensive iterative design process. Through this process, the proposed turbine layout was designed with potential significant effects on landscape and visual amenity and potential for cumulative effects a key consideration in the final design of the Proposed Project. In this regard, the impact assessments in this Chapter have determined that the Proposed Project is an appropriately designed wind farm. Although some significant visual impacts will occur from a small number of local residential receptors, these effects have been mitigated where possible through use of appropriate set-back distances (e.g. 740m set-back from residential dwellings, greater than 4-times-tip-height) and alignment with design guidance in the WEDGs (DoEHLG, 2006) and Draft Revised WEDGs (DoHPLG, 2019).

In conclusion, the assessments in this Chapter have determined that the scale of the Proposed Project is suitable for the landscape of Glenomra Valley within the Slieve Bernagh Uplands which is capable of effectively accommodating the Proposed Wind Farm; an upland landscape which is also designated in local planning policy as having low sensitivity and the capacity to absorb multiple wind energy developments.