APPENDIX 1C - LVIA METHODOLOGY

Introduction

1.1. This appendix sets out the methodology used for the Coolshamrock SID Landscape and Visual Impact Assessment (LVIA). Based on a non-EIA development an LVA has been undertaken following the approach for Landscape and Visual Assessment (LVIA) set out in GLVIA3[1]. For non-EIA development types, the Landscape Institute (LI) GLVIA3 Statement of Clarification[2] states that:

"In carrying out appraisals, the same principles and process as LVIA may be applied but, in so doing, it is not required to establish whether the effects arising are, or are not, significant given that the exercise is not being undertaken for EIA purposes."

1.2. The scope of the LVIA methodology reflects the fact that the Development does not require EIA in the following ways:

- This appraisal does not provide judgment on the relative level of 'significance' of landscape and visual effects, given this terms relation to formal EIA; and
- The term 'degree' of landscape or visual effect is used rather than 'significance'.

1.3. LVIA methodology is based on the approach set out in in the GLVIA3, along with other best practice, which are taken into consideration when determining professional judgement. Whilst an LVA is not for an Environmental Impact Assessment (EIA) development type, it follows much the same approach. The GLVIA3 guidance states that the level of assessment should be proportional to the scale of the project and the nature of the likely effects.

1.4. Together with the GLVIA3 the following guidance was also taken into consideration:

- Department of the Environment and Local Government. (June 2000) Landscape and Landscape Assessment;
- The Environmental Protection Agency (EPA) (2003) Advice Notes for Preparing Environmental Impact Statements and 2017 Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR);
- Future Analytics & SEAI (October 2016) Planning and Development Guidance Recommendations for Utility Scale Solar Photovoltaic Schemes in Ireland. Planning

[1] Landscape Institute and the Institute of Environmental Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)

[2] Landscape Institute Statement of Clarification 1/13, 10th June 2013

guidance for the development of large-scale ground mounted solar PV systems. BRE. (2013);

- BRE (2013) Planning guidance for the development of large-scale ground mounted solar PV systems;
- SNH (2017) Visual Representation of wind farms, Version 2.2
- Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19; and
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual representation of development proposals); and

Desk Based & Field Studies

Study Area

1.5. A study area of 5km was chosen for this project based on the potential influence of the Proposed Development and professional judgement. This extent has been adopted by Neo Environmental on other LVIAs conducted for solar farms in Ireland and the UK.

Desktop Study

1.6. An initial desktop study was undertaken to help establish the baseline and initial understanding of the landscape resources, potential views and visual amenity within the 5km study zone. This was done by reviewing a number of paper and online sources including County Development Plans, Council planning application searches, OSI maps and Google Earth aerial mapping, and the ZTV coverage.

Fieldwork Survey

1.7. Fieldwork was carried out in October 2022 to help verify the desktop data and gain a greater understanding of how the Proposed Development would interact with the existing landscape and visual amenity within the 5km study zone. The viewpoint photography was undertaken at the same time.

ZTV

1.8. A 'bare earth' Zone of Theoretical Visibility ("ZTV") (**Figure 1.3**), was computer generated based on a combination of the Application Site's detailed topographical survey and OSI terrain data of the surrounding area, with the viewer height set at 1.7m high and the maximum height of the telecommunication masts, lightning masts and tower at up to 20m above ground level. The ZTV does not account for any elements in the landscape such as trees, hedgerows, walls

or buildings that may help screen views, nor account for the influences of the weather upon any views. It therefore represents a 'worst case scenario'; nonetheless the ZTV is a useful computer-generated tool for determining the potential visibility of the Proposed Development and initial selection of viewpoints for the visual appraisal.

Viewpoints & Photography

1.9. A total of eleven representative viewpoints were chosen from a range of locations and receptors; each viewpoint is detailed in the LVIA (see **Figures 1.4** to **Figures 1.9**. The initial draft viewpoints were selected during the baseline desktop study and later refined when undertaking the field work.

1.10. The views at each viewpoint were recorded using a Canon 6D Full Frame camera and fixed prime lens with a focal length of 50mm. The location was recorded with a GPS unit, with the direction of view and weather noted. The weather conditions at the time of the viewpoint photography was dry with broken light cloud cover.

Visualisations

1.11. No photomontages have been produced due to the absence of site visibility from publicly accessible roads. The lack of visibility has been conveyed within each viewpoint photo included in **viewpoints & photography**.

LANDSCAPE, VISUAL AND CUMULATIVE APPRAISAL

Landscape Appraisal

1.12. The landscape appraisal identifies landscape receptors which have the potential to be affected by the Proposed Development and the extent of this interaction throughout all stages of development (construction, operation and decommissioning).

Landscape Sensitivity

The sensitivity of the landscape receptors is determined by combining judgment of their susceptibility to the particular type of change, or development proposed, and the value attached to the landscape.

Table 1-3: Landscape Sensitivity

Very High	A landscape of very highly valued characteristics with a very high susceptibility to any change resulting from the Proposed Development.
High	A landscape of highly valued characteristics with a high susceptibility of small change resulting from the Proposed Development.
Medium	A landscape of moderately valued characteristics with a moderate level of susceptibility to change from the Proposed Development.
Low	A landscape with low valued landscape characteristics with considerable tolerance to the change from the Proposed Development.
Negligible	A landscape void of any notable value with the lowest susceptibility to change from the Proposed Development.

Landscape Susceptibility

1.13. The susceptibility of a landscape receptor is defined by GLVIA3 (pg.88-89) as:

"The ability of the landscape receptor (whether it be overall character or condition of a particular landscape type or area, or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation."

1.14. Key characteristics of the landscape which are likely to have varying degrees of susceptibility to solar farm developments are outlined in the table below, as adapted from Cornwall Council's (2015)[3] *Annex 1: An assessment of the landscape sensitivity to on-shore wind energy*

[3] Cornwall Council (2015) *Cornwall Renewable Energy Supplementary Planning Document Consultation Draft Annex 1: An assessment of the landscape sensitivity to on-shore wind energy & large-scale photovoltaic development in Cornwall*
Available at: https://www.cornwall.gov.uk/media/10355153/Renewable-SPD-2014-Annex-1.pdf

& large-scale photovoltaic development in Cornwall. The underlying criteria used in the above landscape capacity study can be applied to this landscape appraisal.

Table 1-4: Indicative Landscape Characteristics Susceptibility to Solar Farm Developments

Landscape Characteristics	Susceptibility				
	Low	Low-Medium	Medium	Med-High	High
Landform	Lowland, flat, simple	Gently undulating lowland	Gently undulating lowland with some distinct open slopes	Prominent slopes or upland landscape	Steep slope, rugged and highly variable landform
Openness and Enclosure Pattern	Heavily Enclosed fields e.g. by woodland, tree shelterbelts or thick hedgerows	Enclosed lands with some open areas or fragmented lengths of hedgerow or tree belts	More mix of enclosed and open areas	Open lands with limited presence of trees or hedgerows	Open, expansive plateau, limited or no field boundaries
Field Pattern/Scale	Large scale, regular field patterns, modern fields	Majority of lands consisting of large scale modern fields	Mix of both modern large scale and smaller historic field system	Majority of lands consisting of smaller intrinsic historic field system	Small scale, irregular field patterns, intrinsic historic field system
Land cover	Urban, brownfield, arable lands	Arable or brownfield with some permanent pasture or semi-natural cover	Mix of pasture, arable and possibly brownfield or semi-natural	Predominantly permanent pasture with some arable or semi-natural cover	Predominantly semi-natural lands e.g. moorland with some permanent pasture cover
Perceptual qualities	A lot of evidence of human activity such as industrial areas, arable lands or some rural activity such as mixed or	A highly shaped rural landscape with intensively farmed large scale arable landscape	More mixed farmland or permanent pasture with strong evidence of human activity	Lesser evidence of human activity present e.g. more exposed uplands	Remote or peaceful landscape, limited evidence of human activity or disturbance, more

	pastoral lands.				naturalistic landscape
Scenic quality	Lacking any scenic quality or landscape designations e.g. an industrial estate	Has low-medium scenic quality but not within any designations	Has medium scenic quality with possibly within a local or county designation	Has a medium-high scenic quality which may contain part of or next to a national designation or route	High scenic qualities, typically within a nationally designated landscape e.g. National Parks, NHAs

Landscape Value

1.15. The value of the landscape needs to be considered in order to fully assess the potential impact upon it. This can mean "*the landscape as whole, or to individual elements, features and aesthetic or perceptual dimension which contribute to the character of the landscape*." (GLVIA3 pg.80).

1.16. Identifying any existing landscape designations is a useful way of finding any currently recognised value attached to the landscape. It is also necessary to be aware of the value attached to undesignated landscapes that may be of local importance, e.g. community woodland or greenspaces. Where no value is available it is determined by considering the criteria outlined below in Table 1.5, Table 1.6: Box 5.1 and other factors.

Table 1-5: Criteria for Landscape Value

Very High	Typically a national or internationally designation e.g. World Heritage Site. Has a high quality and very distinctive characteristics, with areas noted for their wilderness, tranquillity and rarity.
High	Typically a national or internationally designation e.g. National Park, National Heritage Area. Has a high quality and very distinctive characteristics of note, with some rarity.
Medium	Typically a designated landscape of regional/county importance or non-designated but of local importance which may have some conservation, recreational or cultural associations. Common landscape characteristics or features but with some which are distinctive, of reasonable attractiveness and in ordinary to good condition.
Low	Typically local undesignated landscape which has poorly defined landscape characteristics and features, that are often common and of limited value or interest. May have some limited worthy features. Large presence of detractors adding to its unattractiveness, found in poor condition and in need of improvements.
Negligible	Typically undesignated landscape, denude of any distinct characteristics or features, derelict, highly unattractive and in need of extensive improvements.

Table 1-6: Factors Helping to Identify Landscape Value (Box 5.1, GLVIA3)

Factors Helping to Identify Landscape value	
Landscape Quality (Condition)	The degree to which the landscape is representative, intact and condition of individual elements.
Scenic quality	The extent to which the landscape appeals to the senses (primarily to the visual senses).
Rarity	The presence of unusual elements or features in the landscape or the presence of a rare Landscape Character Type.
Representativeness	Whether the landscape contains particular character and/or features or elements which are considered particularly important examples.
Conservation interests	Presence of ecological, historical or cultural interests which can add value to the landscape as well as having value in themselves.
Recreational value	Evidence that the landscape is valued for recreational activity where experience of the landscape is important, such as recognised scenic routes
Perceptual aspects	A landscape may be valued for it perceptual qualities, notably wildness and/or tranquillity.
Associations	Some landscapes are associated with particular people, such as artists or writers, or events in history that contribute to perceptions of the natural beauty of the landscape.

Magnitude of Landscape Effects

1.17. The effects of the Proposed Development upon each of the landscape receptors needs to be determined in terms of its size or scale, geographical extent, duration and reversibility, as outlined by paragraph 5.49 of GLVIA3.

Table 1-7: Magnitude of Landscape Effects

High (Adverse)	Total loss of, or major alteration to key elements/features/characteristics of the baseline, i.e. pre-development landscape and/or introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.
Medium (Adverse)	Partial loss of, or alteration to key elements/features/characteristics of the baseline, i.e. pre-development landscape and/or introduction of elements that may be prominent, but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.
Low (Adverse)	Minor loss of, or alteration to key elements/features/characteristics of the baseline, i.e. pre-development landscape and/or introduction of elements that may not necessarily be considered to be uncharacteristic when set within the attributes of the receiving landscape.

Negligible (Adverse)	Very minor loss of or alteration to key elements/features/characteristics of the baseline, i.e. pre-development landscape and/or introduction of elements that are not uncharacteristic with the surrounding landscape approximating the '*no change*' situation.
Low (Beneficial)	Minor improvement, or removal of small elements/features/characteristics that detract from the existing characteristics of the baseline and/or introduction of a new feature which fits into the existing landscape and may slightly enhance the existing character of the landscape.
Medium (Beneficial)	Medium improvement, or removal of small elements/features/characteristics that detract from the existing characteristics of the baseline and/or introduction of a new feature which fits into the existing landscape and may moderately enhance the existing character of the landscape.
High (Beneficial)	Major improvement, or removal of small elements/features/characteristics that detract from the existing characteristics of the baseline and/or introduction of a new feature which fits into the existing landscape and may substantially enhance the existing character of the landscape.

Visual Appraisal

1.18. The visual appraisal considers how the Proposed Development and loss, or addition of landscape elements will bring about changes to the content and character of people's (visual receptors) existing views and visual amenity, throughout all stages of the development.

Visual Sensitivity

1.19. The sensitivity of each visual receptor (person or group of people) is assessed in terms of susceptibility to change in views and visual amenity and also the value attached to particular views.

Susceptibility to Change

1.20. Visual receptors generally have differing responses to views and visual amenity, depending upon the context and their purpose for being in a particular place. The susceptibility to change in views is regarded to be a function of:

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

1.21. The table below identifies a number of indicative receptors typical of those found within the study zone.

Table 1-8: Susceptibility of Receptors to Change in their Views or Visual Amenity

High	• Residents with views from their dwellings or gardens. • Nationally recognised trails where views of the landscape forms an importance part of their experience. • Road users along routes noted for their valued views of the landscape e.g. scenic routes. • Visitors to important landscape features of physical, historical or cultural interest.
Medium	• People along local paths or roads where views of the landscape are not the focus of the activity e.g. dog walking. • Outdoor workers where the view forms an important setting to their activity. • Road users where views of the surroundings are secondary to the main purpose of travel e.g. rural minor road.

Low	• People at their place of work whose attention is likely to be focused on their work or activity e.g. office or factory. • People engaged in active outdoor sports or recreation and less likely to focus on the view e.g. on playing fields. • Main road routes and rail users likely to be travelling through at speed where the view is incidental to the purpose of travel.

Value Attached to Particular Views

1.22. Judgments are made on the value attached to views experienced, which take the following into consideration:

- Recognised value to a particular view, e.g. heritage assets or through planning designations e.g. protected views and scenic routes;
- Inclusion in guidebooks or on tourist maps, provision of facilities provided for enjoyment by visitors or references to the view in literature or art; and
- The relative number of people who are likely to experience the view.

Magnitude of Visual Effects

1.23. The magnitude of visual effects of a Proposed Development upon the views of receptors and their amenity is determined in terms of the size or scale, geographical extent, duration and reversibility (as outlined by paragraph 6.38 of GLVIA3).

Table 1-9: Magnitude of Visual Effect

High (Adverse)	A considerable deterioration in the existing view due to the introduction of the development's new features which would have a high contrast, very prominent and/or open impact on the view. The development would heavily occupy the views of the receptors.
Medium (Adverse)	A noticeable deterioration in the existing view where there would be a partial loss of, or alteration to the existing view as a result of the prominence of the development or extent of view it occupied.
Low (Adverse)	A barely perceptible deterioration in the existing view and limited views of the development. A minor loss of, or alteration to the existing views. The development would not be prominent and only occupies a small proportion of the view.
Negligible (Adverse)	No discernible deterioration or improvement in the existing view. Very minor loss of, or alteration to the existing view. Hard to clearly distinguish the development within the view.

Low (Beneficial)	A barely perceptible improvement in the existing view and limited views of the development. A minor addition of elements, or screening or removal of elements which already detract from the existing view.
Medium (Beneficial)	A noticeable improvement in the existing view, due to the addition of new elements, or the screening or removal of elements which already detract from the existing view.
High (Beneficial)	A considerable improvement in the existing view due to the introduction of the development's new features, the removal or screening of elements which already are detrimental upon the existing views.

Degree of Landscape and Visual Effects

1.24. A professional judgement is made by the landscape architect on the degree of effects a Proposed Development will have on those previously identified landscape and visual receptors which have the potential to be affected by the development. This is done by combining the level of sensitivity with the level of magnitude of change to provide the effects for each receptor using the matrix table below. These effects are graded as Major, Major/Moderate, Moderate, Moderate/Minor, Minor or No Change, either direct or indirect effects and can be characterised as adverse or beneficial.

1.25. This matrix approach, while helpful, is not a prescriptive tool, as at times the table may not provide a clear correlated value which is where professional judgment plays an important role in determining the overall degree of effect.

Table 1-10: Degree of landscape and visual effects

Sensitivity (Susceptibility & Value)	Magnitude of Change				
	High	Medium	Low	Negligible	None
High	Major	Major/ Moderate	Moderate	Moderate/ Minor	No Change
Medium	Major/ Moderate	Moderate	Moderate/ Minor	Minor	No Change
Low	Moderate	Moderate/ Minor	Minor	Minor/None	No Change
Negligible	Moderate/ Minor	Minor	Minor/ No Change	No Change	No Change
None	No Change	No Change	No Change	No Change	No Change

Table 1-11: Landscape and visual effects Criteria

Degree of Effect	Landscape Character	Visual Amenity
Major Adverse	Large scale changes in the landscape with a complete change to the character and permanent degradation of the landscape.	Large scale change where the development would dominate views
Moderate Adverse	The development would have a noticeable change to the landscape where it would appear to be out of place.	The development would have a noticeable change to views
Minor Adverse	The development would be slightly at odds with the landscape.	The development would cause little damage to views
No Change	The development would have no noticeable change to the landscape	The development would be barely noticeable.
Minor Beneficial	The development would have some improvements on the landscape character and site elements.	The development would result in a slight improvement to views
Moderate Beneficial	The development would have notable improvements on the landscape character and quality	The development would have a notable improvement to views
Major Beneficial	The development would result in significant improvements on the landscape character and quality	The development would result in significant improvements to views

Cumulative Effects

1.26. The cumulative appraisal follows the same approach as the GLVIA outlined above. It considers the potential effects of additional Proposed Development interacting with the effects of other similar types of development across the 5km baseline study zone. Cumulative effects are defined by the GLVIA3 paragraph 7.2 as:

"Result from additional changes to the landscape or visual amenity caused by the Proposed Development in conjunction with other developments (associated with or separate to it), actions that occurred in the past, present or are likely to occur in the foreseeable future."