Walterstown 110 kV Substation

PECR Appendix 12.1 - Photomontages

December 2025

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LVIA PHOTOMONTAGES

Walterstown 110kV Substation

This book contains imagery for the viewpoints chosen for the LVIA study

October 2025

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***Please Note:** There is no Photomontage or Mitigated Photomontage from this viewpoint as the proposed development is completely screened by existing vegetation and/or terrain

MACRO WORKS METHOD STATEMENT - Verified View Photomontage Production

Introduction

There is no industry-standard definition of what constitutes a ‘verified photomontage’, and it has been applied in two different ways, namely in terms of image size/scaling, and the accuracy of the camera location. Both are essentially concerned with the ability to audit the accuracy of the visual material.

The Landscape Institute Technical Guidance Note 06/19 – Visual representation of development proposals (TGN 06/19) states that:

“Visualisations should provide the viewer with a fair representation of what would be likely to be seen if the proposed development is implemented and should portray the proposal in scale with its surroundings. In the context of landscape/townscape and visual impact assessment, it is crucial that visualisations are objective and sufficiently accurate for the task in hand. In short, visualisation should be fit for purpose.”

Macro Works has produced the Verified View Montages (VVM) included in this document in accordance with TGN 06/19, guidance which is broadly consistent with Scottish Natural Heritage (now NatureScot) ‘Visual Representation of Wind Farms’ 2017. This guidance advocates a proportionate approach and appropriate levels of accuracy to the production of visual material.

In the context that the visual material is to accompany a planning application, Macro Works has followed a highly accurate and verifiable process to accurately communicate the scale, appearance, context, form, and extent of development, and ensure that the visual material is accurate, objective, and unbiased. The VVM are considered consistent with Type 4 in the guidance.

The photography was captured during good weather conditions with high levels of visibility. Photography has been taken to a very high standard in accordance with the guidance, and locational information is captured with a high degree of accuracy with regard to location and elevation.

The locations of the visualisations have been identified through the Landscape/Townscape and Visual Impact Assessment (LVIA or TVIA) process, and produced from 3D model information received from project architects/engineers.

This methodology has been prepared by Macro Works to explain the production of the VVM, ensuring the process is transparent and auditable.

Photography and GPS/GNSS Data

At the agreed locations, high-quality photography is captured in RAW format using either a Canon 5D Mark II or Canon 6D Mark II Full Frame Sensor camera. A Manfrotto tripod and panoramic head and leveller are used to ensure the photography is taken level and at consistent angles to ensure consistent overlapping.

Viewpoint locations are captured by inhouse trained personnel using a survey-grade GNSS unit and made compatible with the GIS referenced drawings of the proposed development. Where deemed necessary, the camera location is paint-marked and photographed and subsequently surveyed by a qualified topographical surveyor. In these circumstances, surveyors are given the photograph locations, together with marked-up photography that shows elements in the view (parapet heights, kerbing, lamp posts, etc.) that are to be surveyed as control points for model alignment within the panorama.

TGN 06/19 advocates the use of a 50mm prime lens as the industry standard, and this is the default approach adopted. In urban contexts, where a 50mm lens cannot fully capture the proposed development, the guidance accepts the use of alternative fixed-length prime lenses (Appendix 11, P.28). This approach is adopted dependent on the proximity of the development.

Following the site visit, RAW images are processed via Adobe Lightroom and panoramas are stitched and generated using the recommended industry standard software, PTGui Pro.

Post Production and Formatting

Post-production, the rendered image is taken into Adobe Photoshop where it is ‘masked’ into the existing captured panorama. This essentially involves ensuring that anything in the foreground of the proposals is brought in front of the rendered image.

Adjustments are made as required to ensure that the lighting, reflections, and material characteristics of each render are accurate to the time and date of the photography and that the images meet GDPR standards (via blurring faces and car registrations, etc.).

Proposed mitigation is added where indicated via a Landscape Mitigation Plan.

Each VVM is subject to a thorough review and approval process which includes discussions with project engineers and architects to ensure it accurately reflects the architectural proposals.

3D Modelling and VVM Creation

The proposed development is accurately modelled into a 3D environment in GIS mapping software and 3DS Max 2023 using a combination of data sources (REVIT files, AutoCAD drawings, DTM/DSM data etc.) received from the project architects and engineers.

Virtual 3D cameras are positioned according to the survey coordinates, and the focal length is set to match the captured photography.

For rural projects, the visualisation preparation methodology recommended in the Scottish Natural Heritage 2017 ‘Visual Representation of Wind Farms’ is strictly followed. This involves the creation of 360° wirelines using GIS software, which perfectly match the generated panoramas and 3DS Max renders for each viewpoint. This allows for the development to be accurately placed within the captured photography.

For urban projects, camera matching or photographic alignment is a method by which a combination of data is used to produce an accurate camera match for each view. Virtual 3D cameras are positioned and the captured photography is then placed into the background of the 3DS Max Viewpoint. The surveyed information is then matched to the existing buildings in the photography.

Where appropriate, colour palettes and material references provided by the wider design team are applied to the model to provide a real-world representation. To ensure a high degree of accuracy, renders of the development are generated from 3DS Max 2023 with identical image characteristics to that of the baseline photography, including reference to the date and time of capture.

Image Presentation

The objective of Type 4 visualisation is to present a printed image which gives a realistic impression of scale and detail.

VVMs are presented in accordance with the TGN 06/19 guidance, and final views are formatted into a booklet using Adobe InDesign, with all accompanying information relating to the photography, modelling, topography, post-production and viewpoints included.

For each viewpoint location, a 90° Horizontal Field of View (HFoV) cylindrical baseline photograph is provided to allow a 96% enlargement contextual reference. Image enlargement of 150% is recommended in the guidance (where feasible) to allow for binocular image scaling when printed, which results in an image with a 53.5° HFoV. Where this is not feasible because of proximity, or infrastructure occupying a wide field of view well beyond 53.5° that would necessitate splitting the view across multiple images, 90° HFoV cylindrical images are presented to avoid confusion for the viewer. A bounding box illustrates the extent of a 53.5° image where this is the case.

This document contains a site location map with VVM locations plotted, and all reference information, including photography, modelling, topographic, post-production, formatting, viewpoint and viewing instructions.

90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP1 St. Peter's GAA Dunboyne

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	701470
Northing (ITM):	741188
Direction of View:	212 ˚
Distance to Site:	2.1 km
Elevation:	72.73 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 10/26/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP1 St. Peter's GAA Dunboyne

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

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Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	2025:09:17 10:26
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

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90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP2 L2219 at Commons Upper

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	699919
Northing (ITM):	739807
Direction of View:	145 ˚
Distance to Site:	0.4 km
Elevation:	77.65 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 10/54/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP2 L2219 at Commons Upper

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	699919
Northing (ITM):	739807
Direction of View:	145 ˚
Distance to Site:	0.4 km
Elevation:	77.65 m

Horizontal Field of View:	90˚ (cylindrical projection)
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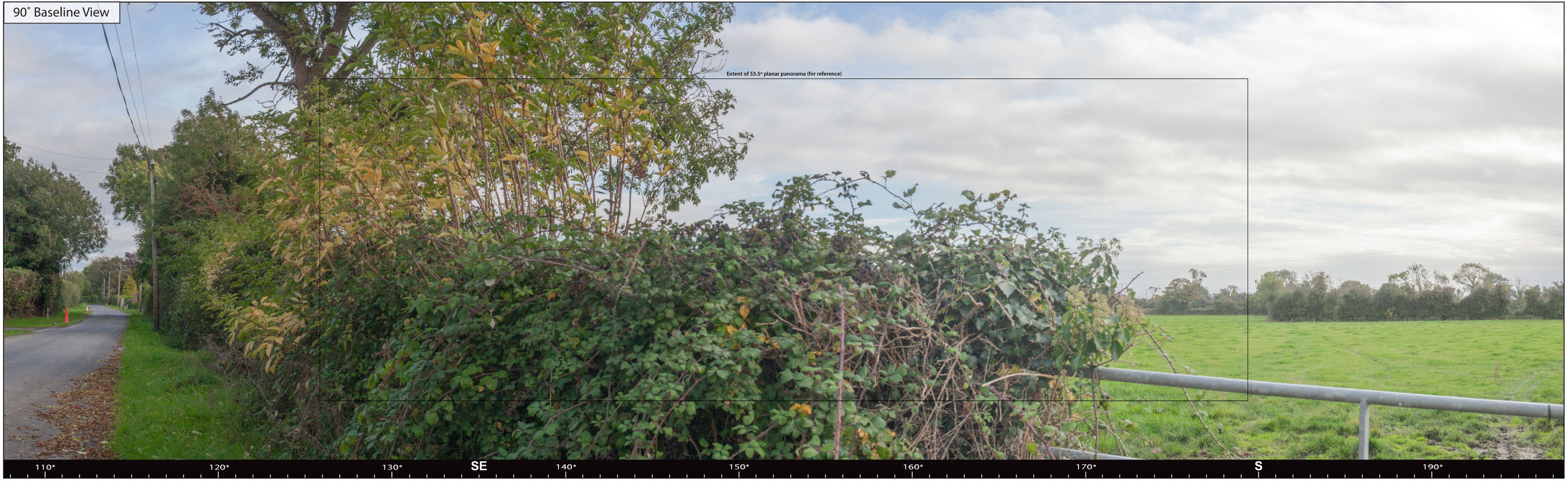

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3a L2220 at Walterstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	700318
Northing (ITM):	739384
Direction of View:	153 ˚
Distance to Site:	0 km
Elevation:	70.89 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 15/20/00
Camera:	Canon 5D Mark II Digital SLR
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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3a L2220 at Walterstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

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Date and Time:	2025:10:01 15:20
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90˚ Photomontage

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3a L2220 at Walterstown

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Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3a L2220 at Walterstown

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90˚ Baseline View

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3b L2220 at Walterstown

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Easting (ITM):	700318
Northing (ITM):	739384
Direction of View:	219 ˚
Distance to Site:	0 km
Elevation:	70.89 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 15/20/00
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GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3b L2220 at Walterstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

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Distance to Site:	0 km
Elevation:	70.89 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
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Enlargement Factor:	96%

Date and Time:	2025:10:02 15:20
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Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

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90˚ Photomontage

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3b L2220 at Walterstown

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Horizontal Field of View:	90˚ (cylindrical projection)
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Topographical Data:	LiDAR/OSI Terrain Data
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Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3b L2220 at Walterstown

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Topographical Data:	LiDAR/OSI Terrain Data
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90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP4 L2220 at Jarretstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	701042
Northing (ITM):	738879
Direction of View:	299 ˚
Distance to Site:	0.7 km
Elevation:	65.93 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 15/42/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP4 L2220 at Jarretstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	701042
Northing (ITM):	738879
Direction of View:	299 ˚
Distance to Site:	0.7 km
Elevation:	65.93 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	2025:10:01 15:42
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP5 L2220 near Cullaghreeva

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	701614
Northing (ITM):	738817
Direction of View:	289 ˚
Distance to Site:	1.3 km
Elevation:	68.22 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 11/21/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
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GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP5 L2220 near Cullaghreeva

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	701614
Northing (ITM):	738817
Direction of View:	289 ˚
Distance to Site:	1.3 km
Elevation:	68.22 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	2025:09:17 11:21
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
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GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53 cylindrical panorama projection enlarged

330° 340° 350° N 10° 20° 30° 40° NE 50°

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP6 L2218 at Moor of Meath

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	700163
Northing (ITM):	738648
Direction of View:	9 ˚
Distance to Site:	0.5 km
Elevation:	65.27 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 11/37/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP6 L2218 at Moor of Meath

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

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Northing (ITM):	738648
Direction of View:	9 ˚
Distance to Site:	0.5 km
Elevation:	65.27 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	2025:09:17 11:37
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
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GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP7 L1015 at Confey

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	699793
Northing (ITM):	737761
Direction of View:	18 ˚
Distance to Site:	1.5 km
Elevation:	66.87 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 11/45/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Outline View

indicating physical position and scale of the proposed development irrespective of screening

Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP7 L1015 at Confey

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

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Enlargement Factor:	96%

Date and Time:	2025:09:17 11:45
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Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
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Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
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Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP8 L2218 at Walterstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	700084
Northing (ITM):	738926
Direction of View:	26 ˚
Distance to Site:	0.3 km
Elevation:	67.02 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	24/03/1900 15/00/00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
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Walterstown 110kV Substation - Landscape and Visual Impact Assessment

Viewpoint Ref: VP8 L2218 at Walterstown

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

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Modelling Software:	3DS Max 2023
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GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
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GNSS Unit:	Trimble Catalyst (GNSS)
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Walterstown 110 kV Substation

PECR Appendix 12.2 - Landscape and Ecological Mitigation Plan

December 2025

PROPOSED HEDGEROW

Figure LMP1.2 - Typical section of proposed mitigation screen planting of advanced nursery stock.

NATIVE WOODLAND/THICKET MIX SPECIES:2515.5sqm

Botanical name	Common name	Size	%
High Canopy (Dominants);			
Quercus patraea	Sessile Oak	Standard Tree, 200-300cm, bare root	<10%
Pinus sylvestris	Scots Pine	Feathered Trees, 200-300cm, root ball	
Low Canopy (Sub-dominants);			
Alnus glutinosa	Alder	Feathered Trees, 200-300cm, bare root	20-25%
Betula pubescens	Downy Birch	Feathered Trees, 200-300cm, bare root	
Prunus avium	Wild Cherry	90-120cm, bare root	
Understory and fringe (higher shrubs);			
Prunus Padus	Crab Apple	90-120cm	20-40%
Corylus avellana	Hazel	90-120cm	
Ilex aquifolium	Holly	90-120cm	
Crataegus monogyna	Hawthorn	90-120cm	
Understory and edge (lower shrubs);			
Prunus spinosa	Blackthorn	40-60cm	15-25%
Rosa-canina	Dog-rose	40-60cm	
Euonymus europaeus	Spindle	40-60cm	

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Registered Landscape Architect

Legend

- Proposed thicket
- Field margins/ grass seeding
- Existing hedgerows
- Existing trees

Notes

It is imperative to use native Irish species in so far as possible as they are adapted to Irish conditions and therefore more likely to thrive compared to imported stock. Selected species should also represent woodland and hedgerows in the surrounding environs although non-native species are not to be used, unless otherwise agreed with the Planning Authority.

All plants supplied shall be exactly true to name as shown in the plant schedules. Varieties with variegated and/or coloured leaves will not be accepted, and any plant found to be of this type upon leafing-out shall be replaced by the contractor. Bundles of plants shall be marked in conformity with BS3936: Part 1: 1965 and BS3936: part 4: 1966. The nursery supplier shall replace any plants which, on leafing out, are found not to conform to the labels.

Proposed Landscape Figures:
Proposed native thicket : 620m length, 2515.5 sqm.
Species-rich grassland : 13237 sqm.

Prepared by:
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Prepared for:
ESB
27 Fitzwilliam Street Lower, Dublin 2, D02 KT92, Ireland

Site location:
COUNTY MEATH

Drawing Title:
LANDSCAPE MITIGATION PLAN

Project:
WALTERSTOWN 110KV SUBSTATION

Drawn by: MMCK
Checked by: RB

Drawing Ref:
LD_WLTSTWN_LMP_1.0

Scale: 1:750@ A1
Date: NOVEMBER 2025

PLANNING