Outer Dowsing Offshore Wind

Onshore Substation Visualisations (Computer Generated Indicative Model)

Date: October 2023

OUTER DOWSING OFFSHORE WIND

Visualisation Methodology

Introduction

The viewpoint assessment is illustrated by a range of visualisations, including photographs and photomontages, which have been produced in accordance with Landscape Institute (2019) Technical Guidance Note (TGN) 06/19 Visual Representation of Development Proposals.

The photographs used to produce the photomontages have been taken using Canon EOS 5D and 6D Digital SLR cameras, with a fixed lens and a full-frame (35 mm negative size) CMOS sensor. The photographs are taken on a tripod with a pano-head at a height of approximately 1.5m above ground. To create the baseline panorama, the frames are individually cylindrically projected and then digitally joined to create a planar projected panorama with a 53.5-degree field of view. Tonal alterations are made using Adobe software to create an even range of tones across the photographs once joined.

A photomontage is a visualisation which superimposes an image of a Project upon a photograph or series of photographs. Photomontage is a widespread and popular visualisation technique, which allows changes in views and visual amenity to be illustrated and assessed, within known views of the 'real' landscape. Indicative 3D block models of the Air Insulated (AIS) Onshore Substation and Gas Insulated Switchgear (GIS) Onshore Substation (OnSS) options have been illustrated in the viewpoint visualisations in order to aid the viewer's understanding of the potential form and density of the proposals.

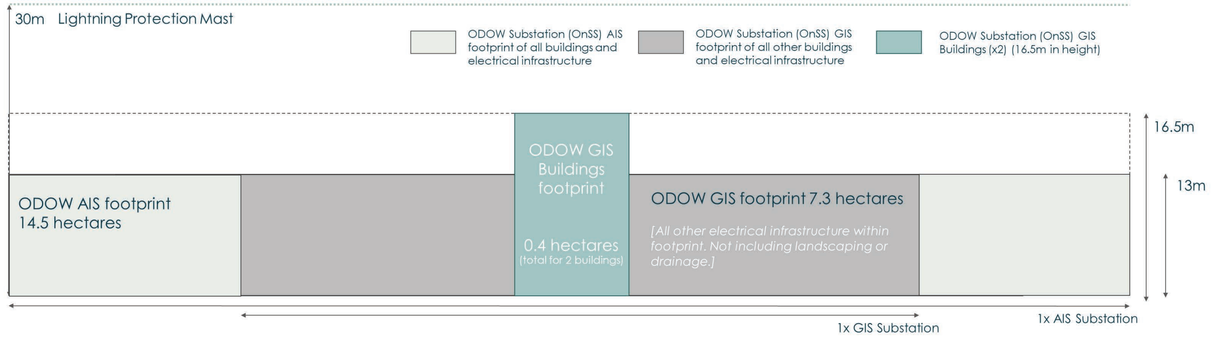
The maximum design envelope (MDS) is shown for each viewpoint, as represented by the dashed white lines on the photomontages. This indicates a maximum height and geographical extent which encompasses either the AIS or GIS options for the onshore substation. The final design of the OnSS will not be determined for some time, therefore whilst the elements of the proposals (buildings, electrical infrastructure etc) may move around within the MDS they would not exceed the height or geographical extent shown. This ensures that the landscape and visual impact assessment (LVIA)is based on the 'Rochdale Envelope' approach, as supported by The Planning Inspectorate Advice Note Nine (The Planning Inspectorate, 2018).

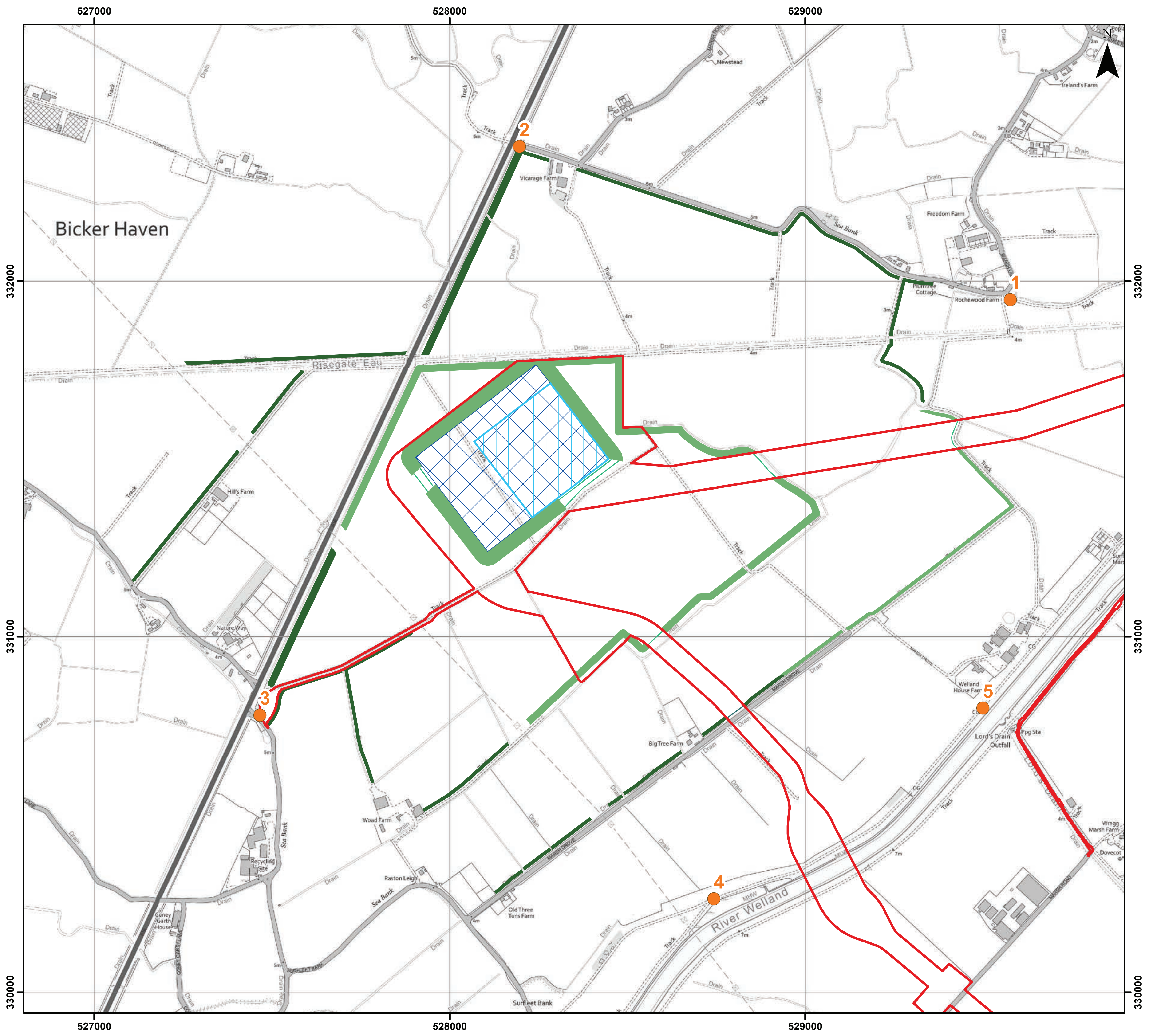
The diagram opposite illustrates the maximum design envelope *(grey dashed line on diagram – shown in dashed white on the visualisations)* for the OnSS, with a 16.5m maximum height applied to the extents of the main GIS building (shown in green) and 13m maximum height applied to all other infrastructure. While the lightning masts extend to a maximum of 30m, their slender design means they are not included in the overall consideration of maximum infrastructure height in the LVIA.

Photographs and photomontages have been prepared for 5 viewpoints and visualisation figures are listed in the table opposite. Further viewpoints will be included in the LVIA.

Viewpoint Visualisations Figure References

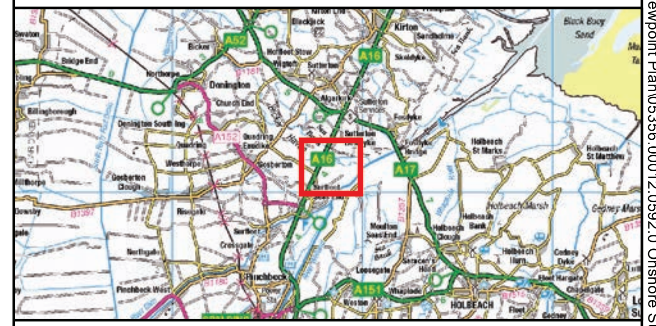
Receptor	Existing Baseline	Proposed AIS Onshore Substation	Proposed AIS Substation with Mitigation Planting (15 years growth)	Proposed GIS Onshore Substation	Proposed GIS Substation with Mitigation Planting (15 years growth)
Surfleet Marsh OnSS					
1. Marsh Lane near Manor House	1a	1b	1c	1d	1e
2. A16 near Marsh Lane junction	2a	2b	2c	2d	2e
3. A16 near Surfleet Bank junction	3a	3b	3c	3d	3e
4. Macmillan Way at Surfleet Bank	4a	4b	4c	4d	4e
5. Macmillan Way near Welland House Farm	5a	5b	5c	5d	5e





Legend

- Proposed Substation Site (AIS)
- Proposed Substation Site (GIS)
- Indicative ES Boundary
- Core Mitigation Planting
- Core Hedgerow
- Off Site Mitigation Planting Under Consideration
- Off Site Hedgerow Under Consideration
- Viewpoint
  - 1 - Marsh Lane near Manor House
  - 2 - A16 near Marsh Lane junction
  - 3 - A16 at Surfleet Bank junction
  - 4 - Macmillan Way at Surfleet Bank
  - 5 - Macmillan Way near Welland House Farm



Coordinate System: British National Grid

0 — 0.5 km

Scale: 1:10,000

Viewpoint Location Plan

OUTER DOWSING OFFSHORE WIND

Date: 10/16/2023
Produced By: LA
Revision: 1

open optimised environments

Document Path: \\gisfs1as\GIS Projects 1\Projects\05356 - GoBe Consultants Ltd\00012 GTR4 Outer Dowsing\Tech\GIS\Dwgs\Wking\2023 10 PIDS Substation Viewpoint Plan\05356.00012.0592.0 Onshore Substation Viewpoint Location Plan.mxd

OS reference: 529577E 331949N
Eye level: 6 m AOD
Direction of view: 252°
Distance to site: 1.2 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 09:38:28

Enlargement Factor: 150% @A1

Figure 1a - Existing Baseline Photograph
Viewpoint 1: Marsh Lane near Manor House
OUTER DOWSING OFFSHORE WIND

OS reference: 529577E 331949N
Eye level: 6 m AOD
Direction of view: 252°
Distance to site: 1.2 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 09:38:28

Enlargement Factor: 150% @A1

Figure 1b - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 1: Marsh Lane near Manor House
OUTER DOWSING OFFSHORE WIND

OS reference:	529577E 331949N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	6 m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	252°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	1.2 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 09:38:28		

Figure 1c - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 1: Marsh Lane near Manor House
OUTER DOWSING OFFSHORE WIND

OS reference: 529577E 331949N
Eye level: 6 m AOD
Direction of view: 252°
Distance to site: 1.2 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 09:38:28

Enlargement Factor: 150% @A1

Figure 1d - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 1: Marsh Lane near Manor House
OUTER DOWSING OFFSHORE WIND

OS reference:	529577E 331949N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	6 m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	252°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	1.2 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 09:38:28		

Figure 1e - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 1: Marsh Lane near Manor House
OUTER DOWSING OFFSHORE WIND

OS reference: 528195E 332380N
Eye level: 6.1m AOD
Direction of view: 181°
Distance to site: 0.6 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:43:09

Enlargement Factor: 150% @A1

Figure 2a - Existing Baseline Photograph
Viewpoint 2: A16 near Marsh Lane junction
OUTER DOWSING OFFSHORE WIND

OS reference: 528195E 332380N
Eye level: 6.1m AOD
Direction of view: 181°
Distance to site: 0.6 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:43:09

Enlargement Factor: 150% @A1

Figure 2b - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 2: A16 near Marsh Lane junction
OUTER DOWSING OFFSHORE WIND

OS reference: 528195E 332380N
Eye level: 6.1m AOD
Direction of view: 181°
Distance to site: 0.6 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:43:09

Enlargement Factor: 150% @A1

Figure 2c - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 2: A16 near Marsh Lane junction
OUTER DOWSING OFFSHORE WIND

OS reference:	528195E 332380N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	6.1m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	181°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	0.7 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 13:43:09		

Figure 2d - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 2: A16 near Marsh Lane junction
OUTER DOWSING OFFSHORE WIND

OS reference: 528195E 332380N
Eye level: 6.1m AOD
Direction of view: 181°
Distance to site: 0.7 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:43:09

Enlargement Factor: 150% @A1

Figure 2e - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 2: A16 near Marsh Lane junction
OUTER DOWSING OFFSHORE WIND

OS reference: 527466E 330780N
Eye level: 6m AOD
Direction of view: 44°
Distance to site: 0.8 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:27:23

Enlargement Factor: 150% @A1

Figure 3a - Existing Baseline Photograph
Viewpoint 3: A16 at Surfleet Bank junction
OUTER DOWSING OFFSHORE WIND

OS reference: 527466E 330780N
Eye level: 6m AOD
Direction of view: 44°
Distance to site: 0.8 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:27:23

Enlargement Factor: 150% @A1

Figure 3b - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 3: A16 at Surfleet Bank junction
OUTER DOWSING OFFSHORE WIND

OS reference: 527466E 330780N
Eye level: 6m AOD
Direction of view: 44°
Distance to site: 0.8 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 13:27:23

Enlargement Factor: 150% @A1

Figure 3c - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 3: A16 at Surfleet Bank junction
OUTER DOWSING OFFSHORE WIND

OS reference:	527466E 330780N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	6m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	44°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	0.9 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 13:27:23		

Figure 3d - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 3: A16 at Surfleet Bank junction
OUTER DOWSING OFFSHORE WIND

OS reference:	527466E 330780N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	6m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	44°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	0.9 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 13:27:23		

Figure 3e - Proposed GIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 3: A16 at Surfleet Bank junction
OUTER DOWSING OFFSHORE WIND

OS reference: 528743E 330263N
Eye level: 9 m AOD
Direction of view: 335°
Distance to site: 1.2 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 12:42:24

Enlargement Factor: 150% @A1

Figure 4a - Existing Baseline Photograph
Viewpoint 4: Macmillan Way at Surfleet Bank
OUTER DOWSING OFFSHORE WIND

OS reference:	528743E 330263N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	9 m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	335°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	1.2 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 12:42:24		

Figure 4b - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 4: Macmillan Way at Surfleet Bank
OUTER DOWSING OFFSHORE WIND

OS reference: 528743E 330263N
Eye level: 9 m AOD
Direction of view: 335°
Distance to site: 1.2 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 12:42:24

Enlargement Factor: 150% @A1

Figure 4c - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 4: Macmillan Way at Surfleet Bank
OUTER DOWSING OFFSHORE WIND

OS reference: 528743E 330263N
Eye level: 9 m AOD
Direction of view: 335°
Distance to site: 1.2 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 12:42:24

Enlargement Factor: 150% @A1

Figure 4d - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 4: Macmillan Way at Surfleet Bank
OUTER DOWSING OFFSHORE WIND

OS reference:	528743E 330263N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	9 m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	335°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	1.2 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 12:42:24		

Figure 4e - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 4: Macmillan Way at Surfleet Bank
OUTER DOWSING OFFSHORE WIND

OS reference: 529500E 330799N
Eye level: 9.1m AOD
Direction of view: 298°
Distance to site: 1.3 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 12:58:41

Enlargement Factor: 150% @A1

Figure 5a - Existing Baseline Photograph
Viewpoint 5: Macmillan Way near Welland House Farm
OUTER DOWSING OFFSHORE WIND

OS reference: 529500E 330799N
Eye level: 9.1m AOD
Direction of view: 298°
Distance to site: 1.3 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 12:58:41

Enlargement Factor: 150% @A1

Figure 5b - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 5: Macmillan Way near Welland House Farm
OUTER DOWSING OFFSHORE WIND

OS reference:	529500E 330799N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	9.1m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	298°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	1.3 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 12:58:41		

Figure 5c - Proposed AIS Onshore Substation (AIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 5: Macmillan Way near Welland House Farm
OUTER DOWSING OFFSHORE WIND

OS reference:	529500E 330799N	**Horizontal field of view:**	53.5° (planar projection)	**Camera:**	Canon EOS 6D	**Enlargement Factor:**	150% @A1
Eye level:	9.1m AOD	**Principal distance:**	812.5 mm	**Lens:**	Canon EF 50mm f/1.4		
Direction of view:	298°	**Paper size:**	841 x 297 mm (half A1)	**Camera height:**	1.5 m		
Distance to site:	1.3 km	**Correct printed image size:**	820 x 260 mm	**Date and time:**	08/10/2022, 12:58:41		

Figure 5d - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (0 Years Growth)
Viewpoint 5: Macmillan Way near Welland House Farm
OUTER DOWSING OFFSHORE WIND

OS reference: 529500E 330799N
Eye level: 9.1m AOD
Direction of view: 298°
Distance to site: 1.3 km

Horizontal field of view: 53.5° (planar projection)
Principal distance: 812.5 mm
Paper size: 841 x 297 mm (half A1)
Correct printed image size: 820 x 260 mm

Camera: Canon EOS 6D
Lens: Canon EF 50mm f/1.4
Camera height: 1.5 m
Date and time: 08/10/2022, 12:58:41

Enlargement Factor: 150% @A1

Figure 5e - Proposed GIS Onshore Substation (GIS OnSS) Indicative Model with Mitigation Planting (15 Years Growth)
Viewpoint 5: Macmillan Way near Welland House Farm
OUTER DOWSING OFFSHORE WIND