sightline
LANDSCAPE

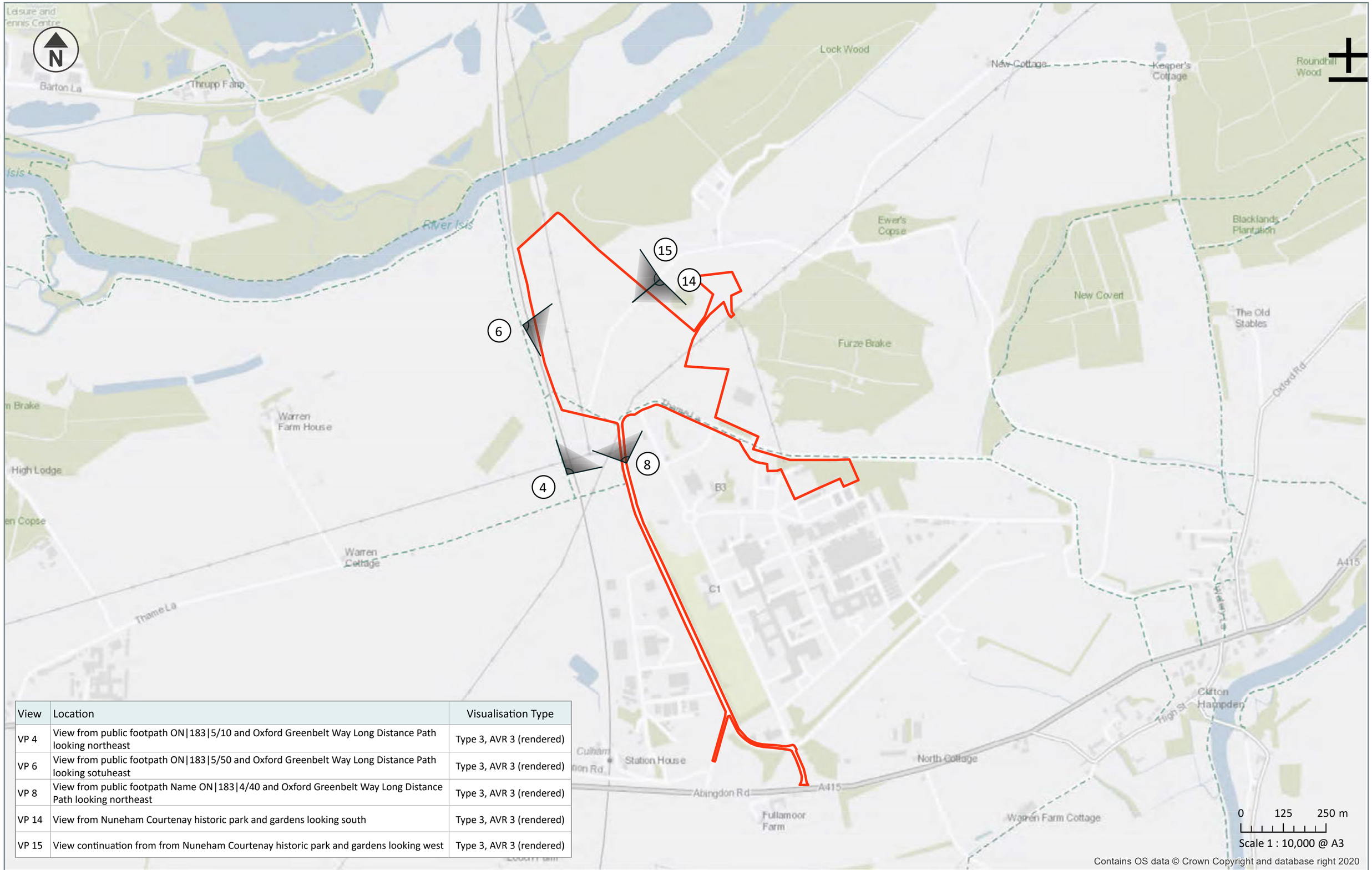
PROPOSED BATTERY ENERGY STORAGE SYSTEM, ADJACENT TO THE CULHAM SCIENCE CENTRE

LANDSCAPE AND VISUAL ASSESSMENT

APPENDIX C: ACCURATE VERIFIED REPRESENTATIONS

APRIL 2024

E:\Projects\Sightline\SL254_Culham Battery Storage\SL254_Culham BESS_Visualisations.indd



View	Location	Visualisation Type
VP 4	View from public footpath ON|183|5/10 and Oxford Greenbelt Way Long Distance Path looking northeast	Type 3, AVR 3 (rendered)
VP 6	View from public footpath ON|183|5/50 and Oxford Greenbelt Way Long Distance Path looking sotuheast	Type 3, AVR 3 (rendered)
VP 8	View from public footpath Name ON|183|4/40 and Oxford Greenbelt Way Long Distance Path looking northeast	Type 3, AVR 3 (rendered)
VP 14	View from Nuneham Courtenay historic park and gardens looking south	Type 3, AVR 3 (rendered)
VP 15	View continuation from from Nuneham Courtenay historic park and gardens looking west	Type 3, AVR 3 (rendered)

sightline LANDSCAPE

Key

Site boundary

Revision:	-	Sheet Size:	A3
Drawn:	GS	Checked:	CMcD
Date:	February 2024	Authorised:	CMcD

Project:	Culham BESS
Client:	Statera Energy
Title:	Viewpoint location plan

Fig: 1

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	60 m
Bearing to:	37° from north
Viewpoint grid reference:	E: 452758 N: 196195
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 10:19
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 4 Existing View

Fig:

2.1

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	60 m
Bearing to:	37° from north
Viewpoint grid reference:	E: 452758 N: 196195
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Date & time of photo:	15/03/2023 10:19
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Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 4 Proposed View Year 1

Fig:

2.2

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	60 m
Bearing to:	37° from north
Viewpoint grid reference:	E: 452758 N: 196195
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 10:19
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 4 Proposed View Year 10

Fig:

2.3

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	70 m
Bearing to:	110° from north
Viewpoint grid reference:	E: 452656 N: 196523
Viewpoint ground height:	65 m AOD
Date & time of photo:	15/03/2023 10:31
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 6 Existing View

Fig:

3.1

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	70 m
Bearing to:	110° from north
Viewpoint grid reference:	E: 452656 N: 196523
Viewpoint ground height:	65 m AOD
Date & time of photo:	15/03/2023 10:31
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 6 Proposed View Year 1

Fig:

3.2

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	70 m
Bearing to:	110° from north
Viewpoint grid reference:	E: 452656 N: 196523
Viewpoint ground height:	65 m AOD
Date & time of photo:	15/03/2023 10:31
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 6 Proposed View Year 10

Fig: 3.3

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	130 m
Bearing to:	340° from north
Viewpoint grid reference:	E: 452962 N: 196147
Viewpoint ground height:	63 m AOD
Date & time of photo:	15/03/2023 10:48
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 8 Existing View

Fig:

4.1

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	130 m
Bearing to:	340° from north
Viewpoint grid reference:	E: 452962 N: 196147
Viewpoint ground height:	63 m AOD
Date & time of photo:	15/03/2023 10:48
Camera:	Nikon D800
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Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 8 Proposed View Year 1

Fig:

4.2

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	130 m
Bearing to:	340° from north
Viewpoint grid reference:	E: 452962 N: 196147
Viewpoint ground height:	63 m AOD
Date & time of photo:	15/03/2023 10:48
Camera:	Nikon D800
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Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 8 Proposed View Year 10

Fig:

4.3

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	10 m
Bearing to:	180° from north
Viewpoint grid reference:	E: 453028 N: 196667
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 11:11
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 14 Existing View

Fig:

5.1

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	10 m
Bearing to:	180° from north
Viewpoint grid reference:	E: 453028 N: 196667
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 11:11
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 14 Proposed View Year 1

Fig:

5.2

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	10 m
Bearing to:	180° from north
Viewpoint grid reference:	E: 453028 N: 196667
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 11:11
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 14 Proposed View Year 10

Fig: 5.3

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	10 m
Bearing to:	260° from north
Viewpoint grid reference:	E: 453028 N: 196667
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 11:12
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 15 Existing View

Fig:

6.1

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	10 m
Bearing to:	260° from north
Viewpoint grid reference:	E: 453028 N: 196667
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 11:12
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 15 Proposed View Year 1

Fig: 6.2

Please note: To view this image digitally, calibrate the scale bar on the right side of the page for a correct scale representation, view the printed A1 sheet at a comfortable arm's length

sightline LANDSCAPE

Distance to site:	10 m
Bearing to:	260° from north
Viewpoint grid reference:	E: 453028 N: 196667
Viewpoint ground height:	67 m AOD
Date & time of photo:	15/03/2023 11:12
Camera:	Nikon D800
Lens, FL, max aperture:	50mm fixed lens, panorama, F9

Revision:	-	Sheet Size:	A1
Drawn:	GS	Checked:	CMcD
Date:	April 2024	Authorised:	CMcD
Image enlargement		96%	
Weather:		Light Cloud	
Visibility:		Moderate to Good	

Notes/comments:

Project:	Culham BESS
Client:	Statera Energy
Drawing title:	Viewpoint 15 Proposed View Year 10

Fig:

6.3

Appendix A: Methodology

The purpose of the viewpoint visualisations is to accurately and objectively demonstrate the proposed development in-situ, using standardised, best practice recommendations. This is to aid and facilitate in the planning and decision making process.

The following information is true, and has been prepared and provided in accordance with the current professional guidelines*

The camera/viewpoint locations were identified by Sightline Landscape in consultation with Statera Energy and Dorset Council.

The following visualisations are based on an outline planning layout rather than a fully detailed scheme. Drawings provided by Sighline Landscape and Statera Energy who verify the proposal and the selected viewpoints.

Site visit, photography & equipment

- **Nikon D800**
- **Nikon 50mm f/1.8G AF-S lens**
- **Neewer Professional Heavy Duty Panoramic Head**
- **Harwerrel 120mm Quick Release Plate**
- **Manfrotto MT055XPRO3 Tripod**
- **Andoer Tri-wheel Leveller**
- **Tape measure**
- **Tri-axis camera mounted spirit level**

The LVIA was prepared by Sighline Landscape. Winter views was selected to show the proposal in a worst case scenario in terms of the screening effect of existing vegetation.

At each location the camera body and lens were attached to a panoramic head with a leveller. A tripod was used and set to a height of 1.6m to represent the average height of the human eye. A fixed 50mm lens was used to ensure a consistent 50mm focal length across all photographs. 50mm is the industry standard for the visual representation of a development. 50mm has been chosen as the focal length which closely matches human eyesight and minimising optical distortion (please read the Landscape Institutes' guidance for more information)

Modelling & visualisation production process

The photographs taken from the site visit were stitched together in Photoshop to create the panoramas using the cylindrical layout method.

An accurate geo-referenced 3D model was created by precisely combining the information provided by Sightline Landscape Masterplan 'SL259_L_X_MP_1' and 1m LiDAR DSM (Digital Surface Model) into one universal 3D model.

The viewpoint coordinates were input into the 3D model space using the OS British National Grid system (OS GB 1936). Virtual 'cameras' were then created and aligned to these coordinates, replicating the position, focal length/field of view and elevation of the original viewpoint photographs. Photograph locations were not surveyor measured as this was not considered proportionate for the Type of visualisations selected.

Common reference points were then added to the model. These reference points locate elements that can be seen in the view such as; existing building corners, roof apexes and lampposts. This method was used to aid in aligning the model to the real image and allowed to further increase the accuracy of the proposal's scale and position.

Sightline Landscape Masterplan 'SL259_L_X_MP_1 provided the development parameters and the FFL's.

At post-production stage, Photoshop software was used to allow for fine tuning of the integration of the proposed wireframe image into the viewpoint photograph. This was where masking of the proposal, by existing obscuring features (like foreground vegetation and buildings) occurred.

Reproduction

A1 paper size was selected to capture enough context of the view and to match the current LVIA baseline photographs. A3 single frame views are also included as this represents the minimum distortion created by panoramas and is more comfortable to read whilst making on site comparison.

The printed result allows for the viewer to make direct compassion's between the proposed viewpoint visualisations and the real-life existing view. This can be achieved by standing in-situ at the relevant viewpoint location and holding up the printed images at a comfortable arm's length. Please be sure the printed image is to scale (A3 & A1 respectively).

TGN-06-19 Para 1.2.13 page 2 of 58; *''Two-dimensional visualisations, however detailed and sophisticated, can never fully substitute what people would see in reality. They should, therefore, be considered an approximation of the three-dimensional visual experiences that an observer might receive in the field.''*

Each viewpoint is supplied with a viewpoint map, tripod location and the following metadata:

- **Distance to site (metres)**
- **Bearing (degrees)**
- **Viewpoint location (coordinates)**
- **Viewpoint ground height (mAOD)**
- **Camera make/model**
- **Lens Type, Focal length (FL) and max aperture**
- **Weather**
- **Visibility**
- **Date & time of photo:**
- **Field of View (HFoV)**

** Landscape Institute TGN-06-19 Visual Representation of Development Proposals*

Visualisation Types 1	2	3	4	Photography	Responses
✓	✓	✓	✓	Visualisation Types Methodology	Yes- see page viewpoint location plan and view information page prior to visualisations
		✓	✓	Method used to establish the camera location (e.g. handheld GPS/GNSS, GNSS/RTK, survey point, visual reference)	ArcGIS Collector and visual reference on high quality aerial photograph
		✓	✓	Likely level of accuracy of location (#m, #cm etc)	≤ 1m
		✓	✓	If lenses other than 50mm have been used, explain why a different lens is appropriate	N/A
			✓	Written description of procedures for image capture and processing	Yes- see 'Appendix A: Methodology'
			✓	If panoramas used: make and type of Pano head and equipment used to level head	Neewer Professional Heavy Duty Panoramic Head, Andoer Tri-wheel Leveller
			✓	If working outside the UK, geographic co-ordinate system (GCS) used (e.g. WGS-84)	N/A
				3D Model / Visualisation	
		✓	✓	Source of topographic height data and its resolution	LiDAR 1m DSM (Digital Surface Model)
		✓	✓	How have the model and the camera locations been placed in the software?	Point coordinates added to geo-referenced dwg file containing topo survey and proposed layout. Points loaded into 3D program and camera added to points.
			✓	Elements in the view used as target points to check the horizontal alignment	Multiple existing features in photograph/view matched to topo plan, used a reference points/markers, camera automatically set to level horizontally
			✓	Elements in the view used as target points to check the vertical alignment	Multiple existing features in photograph/view are matched to topo plan, used a reference points/markers, camera automatically set to level vertical alignment
				Generally	
✓		✓	✓	Any limitations in the overall methodology for preparation of the visualisations?	The visual representations are based on an outline planning layout rather than a fully detailed scheme.

Visualisation Types				Photography	Responses
1	2	3	4		
✓	✓	✓	✓	Visualisation Type	Type 3
		✓	✓	Projection	Planar (A3 single frames) and Cylindrical (A1 panroamas)
		✓	✓	Enlargement factor for intended sheet size	See individual sheets for image enlargement factors
		✓	✓	Date and Time of captured photography	Dates and times vary, see view information page prior to visualisations
			✓	Make and model of camera, and its sensor format	Nikon D800 and SONY ICLE-7 FFS (full frame sensor)
			✓	Make, focal length of the camera lens(es) used.	Nikon and SONY FE 50mm fixed lens
			✓	Horizontal Field of View (HFoV) of photograph / visual	27**°** and 39.6**°** (A3 single frames) 53.5**°** and 90**°** (A1 panoramas)
		✓	✓	Direction of View: bearing from North (0°) or Compass Direction	Bearings vary, see view information page prior to visualisations
		✓	✓	Camera location grid coordinates: eastings & northings to relevant accuracy; height of ground in mAOD	See view information page prior to visualisations
			✓	Distance to the nearest site boundary, or key development feature, as most appropriate.	See view information page prior to visualisations
			✓	Height of the camera lens above ground level and, if above 1.65m or below 1.5m, why?	1.6m
				Additional imagery	
✓		✓	✓	Baseline photograph	Exisitng view / baseline photograph included prior to visualisations
			✓	A composite view generated by overlaying multiple layers of image data: the photograph, 3D model of terrain (LiDAR DTM) and / or 3D model of LiDAR DSM, 3D model of proposed development, 3D model of landscape mitigation. This can explain how the photomontage has been generated.	Wireframe views included
			✓	A photograph of the tripod location to confirm the camera / tripod location	N/A