



**HELIOS** RENEWABLE  
ENERGY  
PROJECT

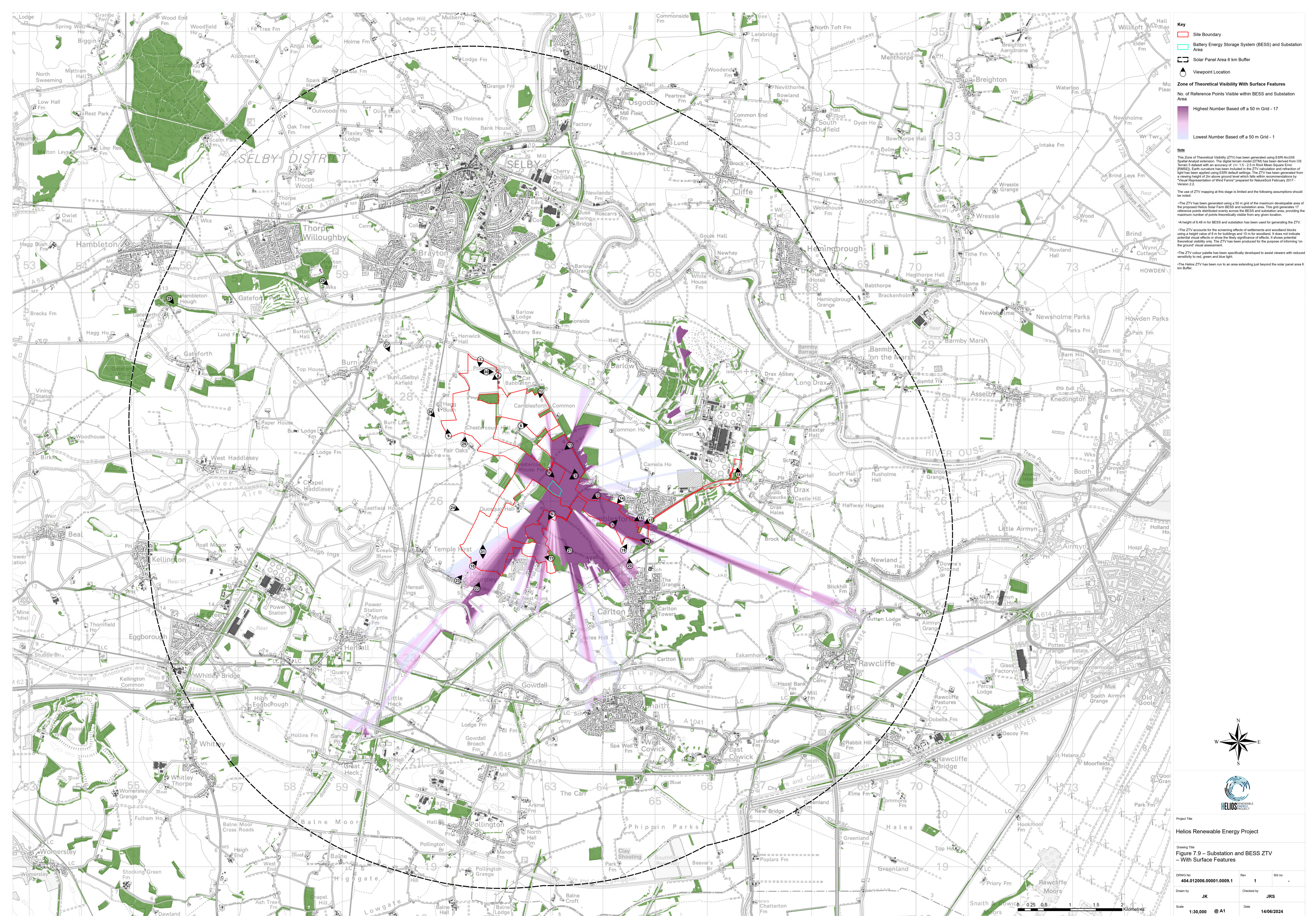
**PINS Document Number:**  
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**Pursuant to:**  
APFP Regulation 5(2)(a)

## **Environmental Statement Figure 7.9: Substation and BESS ZTV – With Surface Features**

June 2024



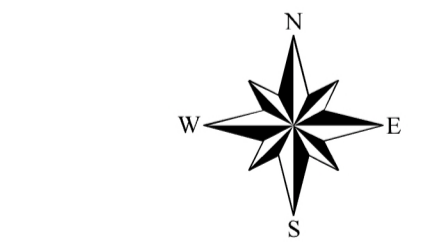


**Key**

- Site Boundary
- Battery Energy Storage System (BESS) and Substation Area
- Solar Panel Area 6 km Buffer
- Viewpoint Location
- Zone of Theoretical Visibility With Surface Features
- No. of Reference Points Visible within BESS and Substation Area
- Highest Number Based off a 50 m Grid - 17
- Lowest Number Based off a 50 m Grid - 1

**Note**  
 This Zone of Theoretical Visibility (ZTV) has been generated using ESRI ArcGIS Spatial Analyst extension. The digital terrain model (DTM) has been derived from OS Terrain 5 dataset with an accuracy of +/- 1.5 - 2.5 m Root Mean Square Error (RMSE). Earth curvature has been included in the ZTV calculation and refraction of light has been applied using ESRI default settings. The ZTV has been generated from a viewing height of 2m above ground level which falls within recommendations by 'Visual Representation of Wind Farms' prepared for NatureScot February 2017, Version 2.2.

The use of ZTV mapping at this stage is limited and the following assumptions should be noted:  
 -The ZTV has been generated using a 50 m grid of the maximum developable area of the proposed Helios Solar Farm BESS and substation area. This grid generates 17 reference points distributed evenly across the BESS and substation area, providing the maximum number of points theoretically visible from any given location.  
 -A height of 6.48 m for BESS and substation has been used for generating the ZTV.  
 -The ZTV accounts for the screening effects of settlements and woodland blocks using a height value of 8 m for buildings and 10 m for woodland. It does not indicate potential visual effects or show the likely significance of effects. It shows potential theoretical visibility only. The ZTV has been produced for the purpose of informing on the ground visual assessment.  
 -The ZTV colour palette has been specifically developed to assist viewers with reduced sensitivity to red, green and blue light.  
 -The Helios ZTV has been run to an area extending just beyond the solar panel area 6 km buffer.



Project Title  
**Helios Renewable Energy Project**

Drawing Title  
**Figure 7.9 – Substation and BESS ZTV – With Surface Features**

DRWS No <b>404.012006.00001.0009.1</b>	Rev <b>1</b>	Site No <b>-</b>
Drawn by <b>JK</b>	Checked by <b>JRS</b>	Date <b>14/06/2024</b>
Scale <b>1:30,000 @ A1</b>		