



# Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

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## Preliminary Environmental Information Report

### Technical Appendix 15.1 – Agricultural Circumstances Assessment Methodology

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### **Appendix 15.1 Agricultural Circumstances Assessment Methodology**

#### **Introduction**

- 15.1.1. This appendix describes the methodology for the Agricultural Circumstances of the ES, focusing on:
- (i) data collection and analysis;
  - (ii) impact assessment.

#### **Study Area**

- 15.1.2. The study area for this topic is the Scheme in terms of agricultural land and soils.
- 15.1.3. Farms within the Proposed Development also farm land beyond the draft Order limits, and any effects on that land have also been considered.

#### **Sources of Information**

- 15.1.4. The assessment will involve an Agricultural Land Classification and soil survey, and farm interviews.
- 15.1.5. Agricultural land quality is assessed by use of the system of Agricultural Land Classification (ALC) devised by the Ministry of Agriculture, Fisheries and Food (MAFF). This is a methodology, last revised in 1988, that classifies land according to the extent to which its inherent physical or chemical characteristics impose long-term limitations on agricultural use.
- 15.1.6. The ALC system divides land into five grades 1 to 5, with grade 3 divided into subgrades of 3a and 3b. The National Planning Policy Framework (NPPF) (2021) places Grades 1, 2 and 3a within the definition of the 'best and most versatile agricultural land' (BMV). Natural England in their Technical Information Note TINO49 (2012) estimates that 42% of agricultural land in England is within the BMV category.
- 15.1.7. A semi-detailed ALC survey of the Proposed Development has been undertaken. This involved examining the soils on a regular 200m grid. It involved analysis of the soils and land quality at regular locations, from which it has been possible to map the distribution of land quality and soil types.
- 15.1.8. The results will be presented in the ALC report. The ALC identifies the areas in hectares and the proportions of land, in each grade. All figures are rounded to the nearest hectare or whole percentage point.
- 15.1.9. Farming circumstances will be identified via interviews with those farming the land, and a walk-over inspection of all the land within the Proposed Development and particularly the Solar PV Site.

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### Assessment Criteria and Assessment of Significance

- 15.1.10. The assessment of significance is based on the tables set out below. In respect of soils and agricultural land quality these tables take full account of the Institute of Environmental Management and Assessment (IEMA) Guide “A New Perspective on Land and Soil in Environmental Impact Assessment” (February 2022).
- 15.1.11. The assessment methodology identifies the sensitivity of the various receptors in terms of their importance (land quality) and their susceptibility to damage when being trafficked (soil type). It then identifies magnitude thresholds for environmental assessment and assesses the significance using a matrix of magnitude and sensitivity.
- 15.1.12. The impact magnitude in the IEMA Guide is based on the “permanent, irreversible loss of one or more soil functions or soil volumes (including the permanent sealing or land quality downgrading)”. The assessment therefore considers whether there is permanent sealing or downgrading as a result of the proposals.
- 15.1.13. Under the IEMA Guide the methodology considers the permanent sealing of land or ALC downgrading of more than 20 hectares to be a major adverse magnitude of impact, in line with the IEMA guide. It considers losses of 5 – 20 ha to be a moderate adverse magnitude and losses of less than 5 ha to be slight adverse.
- 15.1.14. The methodology considers land of ALC Grades 1 and 2 to be of very high sensitivity, and land of Subgrade 3a to be of high sensitivity. To accord with the methodology in the Scoping Report, it is proposed to amalgamate Very High and High into a single category.
- 15.1.15. The methodology considers soils of high clay content in wetter climate regions to be sensitive to damage from trafficking.
- 15.1.16. The methodology considers farm businesses to be more resilient to change. Full-time businesses that are terminated by proposals are a major adverse magnitude of impact, with farm businesses less affected being moderate or minor magnitude impacts.
- 15.1.17. The criteria used to determine sensitivity (Table 1) and magnitude (Table 2) for agricultural soils followed by the matrix used to determine the resulting significant of effects (Table 3).

**Table 1: Methodology for Determining Sensitivity for Agriculture and Soils**

Sensitivity	ALC/biomass production <sup>1</sup>	Sensitivity of topsoil and subsoil <sup>2</sup>	Agricultural businesses
Very high	Land of ALC Grades 1 and 2	-	-
High	Land of ALC Subgrade 3a	High clay soils where the FCD <sup>3</sup> is >150, or medium textured soils where the FCD is >225	-

Sensitivity	ALC/biomass production <sup>1</sup>	Sensitivity of topsoil and subsoil <sup>2</sup>	Agricultural businesses
Medium	Land of ALC Subgrade 3b	High clay soils where the FCD is <150, or medium textured soils where the FCD is <225	Full-time businesses, and farm businesses where the location of land is particularly important such as dairy farms. Farms affected outwith the site boundary.
Low	Land of ALC Grades 4 and 5	Soils with a high sand fraction where the FCD is <225	Part-time farms or farms with low sensitivity to change, eg arable land held on short-term arrangements.
Negligible	Land of ALC Grades 4 and 5 with only indirect links	-	Agricultural land that is not farmed or does not form part of a farm business.

<sup>1</sup> IEMA Table 2

<sup>2</sup> IEMA Table 4. For the full list please refer to the IEMA Guide (2022) Table 4

<sup>3</sup> Field Capacity Days, ie days when the soil is replete with water

**Table 2: Methodology for Determining Magnitude of Change for Agriculture and Soils**

Magnitude of Effect	Definition	
	Effects on Agricultural Land (Soils)	Effects on Farm Businesses (agricultural businesses)
<b>High</b>	The Proposed Development would directly lead to the loss (including permanent sealing or land quality downgrading) of one or more soil functions or soil volumes over an area of over 20 hectares of soil-related features; or potential for improvement in one or more soil functions over an area of more than 20 ha.	The impact of development would render a full-time agricultural business non-viable.
<b>Medium</b>	The Proposed Development would directly lead to the loss (including permanent sealing or land quality downgrading) of one or more soil functions or soil volumes over an area of	The impact of the development would require significant changes in the day-to-day management of a full-time agricultural business, or closure of a part-time agricultural business. Loss of buildings or impacts on

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	between 5 and 20 hectares of soil-related features; or potential for improvement in one or more soil functions over an area of between 5 ha and 20 ha.	drainage or water supplies affecting the potential for at least 5 ha of adjacent land to be farmed fully.
<b>Low</b>	The Proposed Development would directly lead to loss (including permanent sealing or land quality downgrading) of one or more soil functions or soil volumes over an area of less than 5 hectares of soil-related functions; or potential for improvement in one or more soil functions over an area of less than 5 ha.	Land take would require only minor changes in the day-to-day management / structure of a full-time agricultural business or land take would have a significant effect on a part-time business. Minor effects, direct or indirect, on surrounding land beyond the boundaries of the Site.
<b>Negligible</b>	No discernible loss or reduction or improvement of soil functions or volumes.	Land take would require only negligible changes in the day-to-day management of a full-time agricultural business or land take would require only minor changes to a part-time farm business

**Table 3: Methodology for Determining Sensitivity**

		Sensitivity of Receptor / Receiving Environment to Change / Effect			
		High	Medium	Low	Negligible
Magnitude of change/effect	High <sup>(1)</sup>	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor to Moderate	Negligible
	Low	Moderate	Minor to Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

<sup>(1)</sup> This amalgamates High and Very High from Table 1.

**References**

IEMA (2022). A New Perspective on Land and Soil in Environmental Impact Assessment.

Natural England (2012). Agricultural land Classification: protecting the best and most versatile agricultural land, Edition 2.

MAFF(1988). Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land.

