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Appendix H: Agricultural Land Assessment

**AGR 4 Solar Limited**  
**AGRICULTURAL LAND**  
**CLASSIFICATION REPORT**  
**FOR PRIORY FARM SOLAR ARRAY**

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**September 2021**

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## 1. INTRODUCTION

- 1.1 Richard Stock was instructed by Axis to prepare an Agricultural Land Classification report on behalf of AGR 4 Solar Limited for Priory Farm Solar Array, to the east of Great Wymondley, Hertfordshire. The survey area covers approximately 85 hectares.
- 1.2 The report is based on a soil survey which was undertaken between 9<sup>th</sup> and 11<sup>th</sup> September 2021 by sampling soil at 80 locations using a 1.2 metre dutch auger and spade and examining two soil profile pits. Further information has been obtained from the MAGIC website and the Soil Survey of England and Wales publications.
- 1.3 The site is located on the west side of the A1(M) approximately 2 km north of Junction 8. It is centred on National Grid Reference TL 222 286 at an average altitude of 94m AOD.
- 1.4 The soil survey details have been interpreted to grade the site in accordance with the Ministry of Agriculture, Fisheries and Food Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land) published in 1988. The system considers criteria relating to the **climate**, the **site** and the **soil**.

## 2. AGROCLIMATIC DATA

- 2.1 Agroclimatic data for the site influences the agricultural land classification in respect of growing conditions for crops, and the soil reaction in terms of wetness and drought.
- 2.2 The meteorological office has published agroclimatic data for England and Wales on a five-kilometer grid basis, which can be interpolated to produce data for specific grid points. Although the survey area is over 1km long it is considered that data for the centre of site will be representative of the whole site. The data is shown in the table below.

Grid Reference	TL 222 286
Altitude - ALT	94m
Average Annual Rainfall – AAR (mm)	616
Accumulated Temperature - Jan to June - ATO	1380
Moisture Deficit Wheat - MDMWHT	106
Moisture Deficit Potatoes - MDMPOTS	98
Duration of Field Capacity - FCD	119

- 2.3 The climatic criteria are considered first when classifying land as climate can be overriding irrespective of soil and site conditions. The main parameters used in the assessment of climatic limitation are Average Annual Rainfall (AAR), as a measure of overall wetness, and Accumulated Temperature (ATO, Jan to June), as a measure of the relative warmth of the area.
- 2.4 On the basis of Rainfall and Accumulated Temperature, there is no **climatic** limitation to grade.

### **3 THE SITE**

- 3.1 The site lies on the west side of the A1(M) between Graveley and the villages of Little and Great Wymondley. It comprises 5 gently undulating arable fields lying to the north and south of Graveley Lane. On the north side there are 3 fields which extend from the A1(M) in the east towards Great Wymondley, and on the south side there are 2 fields which extend from the A1(M) in the east towards Little Wymondley.
- 3.2 The site extends to approximately 85 hectares. At the time of survey cereal crops had been harvested from 4 of the fields and peas from the field at the south end. The fields south of Graveley Lane had been cultivated.
- 3.3 All the fields are gently undulating around a central elevation of 94m AOD.
- 3.4 The ground surface generally walked well, but where the land had been cultivated it became sticky after a light shower of rain. The surface stone was predominantly very slight to slight.
- 3.5 On the basis of **site** characteristics relating to gradient, microrelief and flooding there is no limitation to grade.

### **4 THE SOILS**

- 4.1 The soils are described in Soil Survey of England and Wales Bulletin 13 (Soils and Their Use in Eastern England) and identified on the 1:250,000 soil map of England and Wales for Eastern England (Sheet 3). The information given in the Bulletin and maps is limited in several ways and is not a definitive soil description. Firstly, soil patterns in England and Wales are commonly complex and vary greatly in composition. Secondly, the minimum area that can be shown on the map is 0.5 km<sup>2</sup> and because of this many soil associations include small patches of soils which, at a larger scale, would be correlated with a different map unit. It is therefore noted that within the limitations of the map, the survey area is shown to comprise 3 different Soil Associations. The site is shown as the Hanslope Association.
- 4.2 The Hanslope Association is described as '*Slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils. Slight risk of water erosion.*' This association includes soils in the Hanslope and Faulkbourne series, which are similar but the Faulkbourne soils are decalcified in the upper layers.
- 4.3 The soils typically comprise clay or clay loam topsoil overlying slightly stony mottled clay, sometimes with chalk stones at depth. The topsoil is sometimes calcareous but there are significant areas that are decalcified. It is understood that liming is practiced about every 5 years on targeted areas.
- 4.4 The detailed soil survey broadly confirms the published information, particularly in respect of the variable depth to calcareous clay.

### **5. AGRICULTURAL LAND CLASSIFICATION**

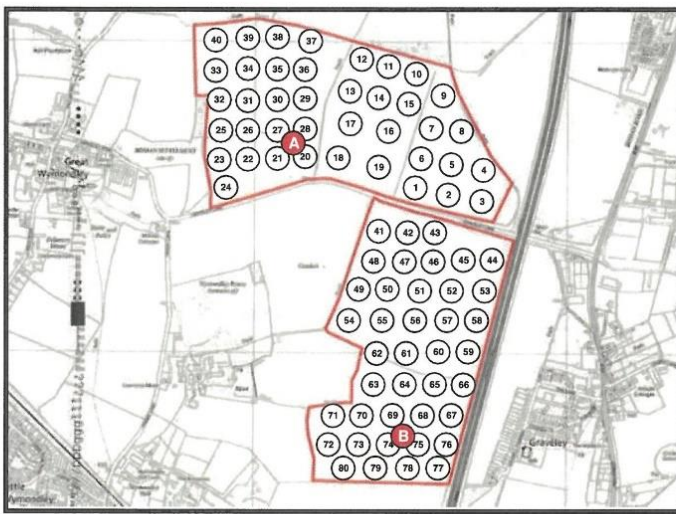
- 5.1 The site was graded by applying the survey details to the Ministry of Agriculture, Fisheries and Food Guidelines for Agricultural Land Classification (October 1988).
- 5.2 The current classification system was adopted in 1988 and was a refinement of the previous system. A series of Provisional ALC maps were produced at a scale of 1 inch to 1 mile between 1967 and 1974 based on the earlier classification system and were intended to be for guidance only for strategic planning purposes. A new series of soil maps at a scale of 1:250,000 based on the same information are available on MAGIC, an interactive, geographical information website. The 1:250,000 map for the area suggests that the site falls

- into areas covered by Provisional Grades 2 and 3.
- 5.3 The agricultural land classification system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The principal factors considered are **Climate, Site and Soil**. These factors, together with interactions between them, form the basis for classifying land into one of five grades. Grade 1 is land of excellent quality and grade 5 is very poor. Grade 3 is divided into sub-grades 3a and 3b since this grade covers about half of England and Wales. The grade or sub-grade is determined by the most limiting factor present.
- 5.4 On this site there is no limitation to grade according to **Climate**.
- 5.5 The assessment of **Site** factors considers the way the topography affects agricultural machinery use and crop production. This site comprises gently undulating land and fundamentally offers no restrictions to agricultural use and cropping potential.
- 5.6 The main **Soil** properties, which may affect cropping potential, are texture, structure, depth, stoniness and chemical fertility. None of the individual properties are limiting to the grade.
- 5.7 The remaining consideration for ALC grading on this site relates to **Interactive** limitations affected by wetness and drought. The soils fall into 2 main soil types determined by the naturally calcareous nature of the soil. The soils are typically medium, sandy or heavy clay loam over slowly permeable clay.
- 5.8 With regard to wetness limitation the ALC grade is determined according to Wetness Class and topsoil texture. The ALC System describes the Wetness Class (WC) graphically by reference to the presence of gleying, the duration of field capacity (FCD) and the depth to a slowly permeable layer (SPL). In this climatic area, where there is gleying above 40cm and a slowly permeable layer above 59cm the profile is wetness class III and deeper than 59cm is Wetness Class II. WC III with non-calcareous medium and sandy clay loam topsoil is grade 3a but if the topsoil is naturally calcareous it is up-lifted to grade 2. Heavy clay loam topsoil in WC III is grade 3b but is up-graded to 3a if it is naturally calcareous. In WC II calcareous and non-calcareous medium and sandy clay loam topsoil are both grade 2. Non-calcareous heavy clay loam in WC II is grade 3a, which is up-lifted to grade 2 if it is naturally calcareous.
- 5.9 Droughtiness is assessed by soil Moisture Balance (MB), which is calculated on the basis of crop-adjusted Available Water Capacity of the soil (AP), and Moisture Deficit (MD). AP gives a measure of the amount of water held in the soil which is available to the crop, and the MD part of the calculation is a crop related variable of the balance between rainfall and potential evapotranspiration. The Moisture Balance is the Available Water Capacity less the Moisture Deficit ( $MB = AP - MD$ ). Moisture balance calculations have been made on representative soil profiles, which confirm a limitation to Grade 2.
- 5.10 The Agricultural Land Classification Plan reference W29/2 shows the distribution of grades 2, and 3a which is summarised in the table below. Within the Grade 3a land there are individual survey locations of grades 2 and 3b which are too small to map independently.

Grade	Hectares	%
2	27.4	32.2
3a	57.6	67.8
Total	85	100

## **PLANS**

- 1. Soil Survey Locations (W29/1)**
- 2. Agricultural Land Classification (W29/2)**

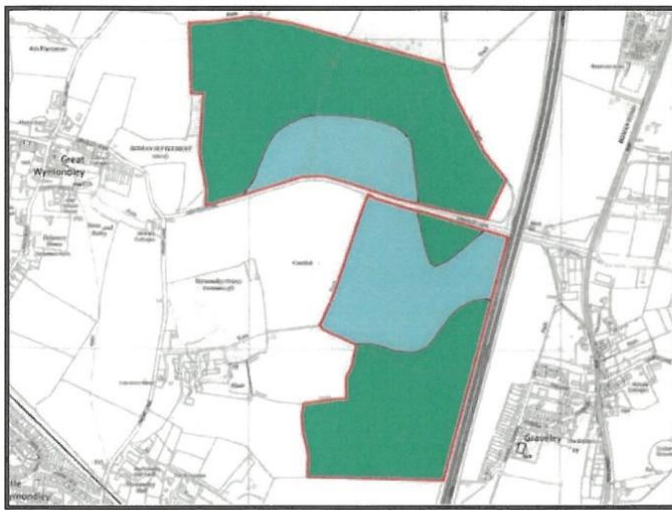


CLIENT	AGR 4 Solar Limited
SITE	Priority Farm Solar Array
TITLE	Soil Survey Locations
SCALE	NTS
REF	W29/1
DATE	September 2021





LEGEND		
Auger location	①	Pit location
		ⓐ
		Survey boundary
		—





<b>CLIENT</b>	<b>AGR 4 Solar Limited</b>
<b>SITE</b>	<b>Priory Farm Solar Array</b>
<b>TITLE</b>	<b>Agricultural Land Classification</b>
<b>SCALE NTS</b>	<b>N</b>
<b>REF</b>	<b>W29/2</b>
<b>DATE</b>	<b>September 2021</b>

<b>LEGEND</b>					
<b>Grade 2</b>		<b>Grade 3a</b>		<b>Survey boundary</b>	