

Desk Review of Soils & Agriculture
at Silfield Garden Village (Land
Research Associates)

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AGRICULTURE AT
SILFIELD GARDEN VILLAGE
NORFOLK**

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1.0 Introduction

- 1.1 This review provides provisional information on the soil resources and agricultural quality of approximately 451 ha of land near Wymondham, South Norfolk. The farming circumstances of land within the site is also reviewed.
- 1.2 The land comprises a number of large arable fields lying to the north and south of the A11. The site slopes gently to the south-east, at an average elevation of approximately 50 m AOD.
- 1.3 1:50,000 scale BGS information records the geology of the land as Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (undifferentiated). The basal geology is recorded to be overlain by superficial deposits of Lowestoft Formation till, with a small area of Lowestoft Formation Sand and Gravel in the north and strips of alluvium in the west.
- 1.4 The National Soil Map (published at 1:250,000 scale) shows the site as Burlingham 1 Association, deep coarse and fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Also within this Association are some well drained coarse and sandy soils¹.

¹Hodge, C.A.H., *et al.*, (1984). *Soils and their Use in Eastern England*, Soil Survey of England and Wales Bulletin No. 13, Harpenden.

2.0 Farming Circumstances

- 2.1 The farming circumstances of the land were obtained by questionnaire. All of the land within the Application Site is landowner-farmed. The site is part of an arable farming operation growing wheat, barley, oil seed rape, peas and parsley. The landowner also farms c. 325 ha of land outside the Application Site which would not be affected by the Proposed Development.

3.0 Agricultural land quality

- 3.1 To assist in assessing land quality, the Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF ALC system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced in the 1960s and revised in 1988.
- 3.2 Land of grades 1, 2 and subgrade 3a is considered to be of the best and most versatile agricultural quality; deemed the most flexible, productive and efficient in response to inputs, it is the best to deliver future crops for food and non-food uses (such as biomass, fibres and pharmaceuticals). Subgrade 3a, grade 4 and 5 land is considered poorer quality land.
- 3.2 The agricultural climate is an important factor in assessing the agricultural quality of land and has been calculated using the Climatological Data for Agricultural Land Classification². The relevant site data for the site is given below.
- Average annual rainfall: 667 mm
 - January-June accumulated temperature >0°C 1379 day°
 - Field capacity period 134 days
(when the soils are fully replete with water) late Nov-early Apr
 - Summer moisture deficits for: wheat: 112 mm
potatoes: 105 mm
- 3.2 There are no climatic limitations to agricultural land quality at this locality.
- 3.3 There is no overriding flood risk or topographic constraint which would limit land quality.

ESTIMATION OF LAND QUALITY

- 3.4 This assessment considers the following properties:
- Published soils and geology
 - Climatic data for the site (which interact with soil properties to affect soil wetness and droughtiness constraints in the ALC system issued in 1988 by MAFF³).

²Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

³MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

- Relevant detailed ALC surveys in the area
- Historical aerial imagery

- 3.5 The majority of the site is overlain by superficial deposits of glacial till. Within the Burlingham 1 Association, the main soil series formed in this geology are: fine loamy Burlingham Series; loamy over clayey Ashley Series; and clayey Hanslope Series. These soils are typically seasonally waterlogged (imperfectly draining Soil Wetness Class III) although better structured soils of the Burlingham Series provide land that suffers only occasional waterlogging (Wetness Class II). This land is likely to be of grade 3 agricultural quality, although a detailed ALC survey would be required to determine the extent of subgrade 3b and 3a land.
- 3.6 Land of poorer quality within the Site can be identified flanking the A11 where borehole data show the topsoils to directly overlie slowly permeable chalky boulder clay (Hanslope Series). This land is likely to be of subgrade 3b agricultural quality.
- 3.7 The Burlingham 1 Association is extensive across Norfolk, covering 615 km². Land directly adjoining Wymondham is shown to be formed on sand and gravel deposits, typically giving land of best and most versatile agricultural quality. Elsewhere in the South Norfolk district, land is predominantly formed on superficial deposits of glacial till - usually providing a mixture of subgrade 3a and 3b agricultural quality land. From the information available, the site is of average agricultural quality for the locality.
- 3.8 There are no ALC surveys to current guidelines within an 8 km radius of the site.

4.0 Conclusions

- 4.1 The available published information indicates that land within the Application Site is likely to comprise fine loamy and loamy over slowly permeable land of grade 3 agricultural quality (subgrade 3a and 3b). Land quality within the Application Site is typical of the locality, with the majority of land formed in superficial deposits of glacial till. Borehole data shows poor quality subgrade 3b land likely to be found flanking the A11, where loamy topsoil directly overlies slowly permeable chalky boulder clay. Overall however, there is a general lack of information available regarding land quality and confirmation of ALC grades is subject to further investigations at a later stage.
- 4.2 The site is landowner farmed with a large amount of available land outside the Application Site to continue the farming operation should the Proposed Development go ahead.