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Swale Borough Local Plan
Site A, Sittingbourne
Agricultural Land Classification
Report
April 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

SWALE BOROUGH LOCAL PLAN
SITE A, SITTINGBOURNE

1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites around Sittingbourne and on the Isle of Sheppey in Kent. The work forms part of MAFF's statutory input to the preparation of the Swale Borough Local Plan.

1.2 Approximately 16 hectares of land to the east of Sittingbourne was surveyed in March 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 14 soil auger borings and two soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on its use for agriculture.

1.3 The survey work was carried out by members of the Resource Planning Team in the Eastern Statutory Centre of ADAS.

1.4 At the time of survey, the land-use on the site was that of an orchard.

1.5 The distribution of the grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement may be misleading. This map supersedes any previous ALC information for the site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% Total Agricultural Land
1	2.9	20.3
2	5.4	37.8
3a	6.0	41.9
Urban	0.4	100% (14.3 ha)
Agricultural Buildings	1.0	
Total area of site	15.7	

1.6 A general description of the grades and land use categories identified in this survey is provided as an appendix. The grades are described in terms of the type of limitation that can occur, the typical cropping range, and the expected level and consistency of yield.

1.7 The major limitation associated with this site is soil droughtiness which results from a restricted rooting depth into underlying chalk. Moisture balance figures for the soils on the site reveal that some profiles may be slightly to moderately droughty where chalk is encountered at variable depths beneath well drained,

silty clay loam soils. Where deep Brickearth soils occur, there is no restriction on land quality.

2. Climate

2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office, 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site.

2.4 No local climatic factors such as exposure or frost risk affect the site. However, climatic and soil factors interact to influence soil wetness and droughtiness limitations. At this locality, the climate is relatively warm and dry in regional terms.

Table 2 :Climatic Interpolations

Grid Reference	TQ907625	TQ908622
Altitude, (m, AOD)	35	40
Accumulated Temperature (°days, Jan-June)	1460	1455
Average Annual Rainfall (mm)	654	665
Field Capacity Days	131	133
Moisture deficit, wheat (mm)	116	114
Moisture deficit, potatoes (mm)	111	109
Overall Climatic Grade	1	1

3. Relief

3.1 The site lies at an altitude of approximately 35 to 40 metres sloping gently from south to north. Neither gradient or microrelief affect land quality.

4. Geology and Soils

4.1 The published geological information (BGS, 1977) shows the majority of the site to be underlain by Cretaceous Upper Chalk. A small area towards the north east is shown as having recent Head Brickearth as a drift deposit overlying the Chalk.

4.2 The published soil information (SSEW, 1983) map shows the site to comprise soils from the Coombe 1 Association. These are described as "well drained calcareous fine silty soils, deep in valley bottoms, shallow to chalk on valley

sides in places". During the survey, soils were typically found to either overlie impenetrable flints or chalk at moderate depths (45 to 100 cm) and as such broadly agree with the description.

5. Agricultural Land Classification

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points are shown on the attached sample point map.

Grade 1

5.3 An area of excellent quality land is mapped towards the east and south east of the site with no physical limitation to land quality. Profiles typically comprise a non-calcareous very slightly stony medium silty clay loam or silt loam topsoil over a stoneless medium, occasionally heavy, silty clay loam upper subsoil. This commonly passes to a stoneless heavy silty clay loam horizon overlying a very slightly stony occasionally calcareous silty clay. Occasionally the heavy silty clay loam horizon is not present, the upper subsoil passing directly to silty clay to around 100 cm where soft weathered chalk occurs. Occasional profiles become impenetrable due to flints in the profile around 85 cm. Due to the free draining nature of the porous substrate there is no significant soil wetness limitation. Equally, the moisture retentive nature of the soil leads to there not being a significant soil droughtiness problem, and the fine loamy nature of the topsoils means that they are capable of being worked at most times of the year. As such the land is classified as Grade 1.

Grade 2

5.4 Land of very good quality is mapped in a band from north to south through the centre of the site. The principal limitation is soil droughtiness caused by chalk underlying the soil at depths between approximately 75 cm and 100 cm. Profiles typically comprise a very slightly stony non-calcareous medium clay loam, or medium silty clay loam topsoil, overlying a non-calcareous very slightly stony medium silty clay loam, occasionally heavy silty clay loam upper subsoil. This passes to a calcareous slightly stony (flints and chalk), heavy silty clay loam lower subsoil horizon which lies on the chalk. Chalk has the effect of restricting plant rooting depth and subsequently reduces plant available water such that, in this area, a slight droughtiness risk occurs.

Subgrade 3a

5.5 Land of good quality occurs towards the south west and west of the site. The principal limitation is soil droughtiness due to chalk underlying the soil at moderate depth (approximately 50 to 75 cm). Typical profiles comprise a very slightly to slightly stony calcareous medium silty clay loam or medium clay loam, occasionally silt loam topsoil, overlying a slightly stony calcareous and non-calcareous medium or heavy silty clay loam, occasionally clay upper subsoil. Commonly this passes to a similarly textured though moderately stony and chalky horizon over pure chalk. Occasionally, the upper subsoil directly overlies chalk. The limitation here is similar to that for the Grade 2 land, except that, because the pure chalk occurs at a shallower depth, rooting and profile available water is more restricted, such that in this locality Subgrade 3a is appropriate.

5.6 The area shown as urban is a public footpath fenced off from the surrounding fields. The agricultural buildings comprise a large packing shed and courtyard.

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Resource Planning Team
Eastern Statutory Centre
ADAS

SOURCES OF REFERENCE

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