

AGRICULTURAL LAND CLASSIFICATION  
LAND AT TUDOR PARK HOTEL AND MERRIAMS FARM  
BEARSTED MAIDSTONE KENT

ADAS ref 2007/132/92

MAFF ref EL 20/158

Resource Planning Team  
ADAS Statutory Group  
Reading

AGRICULTURAL LAND CLASSIFICATION  
LAND AT TUDOR PARK, MERRIAMS FARM, BEARSTED, MAIDSTONE, KENT

1 INTRODUCTION

1 1 In January 1993 an Agricultural Land Classification (ALC) survey was carried out on approximately 50 hectares of land at Tudor Park Merriams Farm Bearsted Maidstone Kent ADAS was commissioned by MAFF to determine the quality of land in connection with proposals for a golf course

1 2 The survey work was carried out at a detailed level of approximately 1 boring per hectare using a hand held Dutch soil auger In addition 3 soil inspection pits were dug to assess subsoil conditions Both the auger borings and the soil inspection pits were assessed using 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 agricultural use

At the time of the survey the agricultural land was in a variety of uses including grass orchard and recently ploughed land

1 3 The distribution of the grades and subgrades is shown on the attached map and the areas given in the table below The map has been drawn to a scale of 1 5000 Any enlargement of this scale would be misleading

Table 1 Distribution of Grades and Subgrades

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Agricultural Land</u>
2	20 8	45
3A	3 4	7
3B	19 3	42
4	2 9	<u>6</u>
Non Agricultural Land	3 7	<u>100%</u> (46 4 ha)
Urban	0 5	
Farm Buildings	<u>0 2</u>	
Total Area of Site	<u>50 8</u>	

A general description of the ALC grades and subgrades and landcover categories is attached

1 4 The majority of the site has been classified as grade 2 characterised by deep clayey soils with slight wetness and droughtiness limitations gently sloping land to the north south and central areas of the site

1 5 Slight to moderate wetness problems limit land mainly to the south east of the site Here land has been classified as subgrade 3A

1 6 Land classified as subgrade 3B is associated with lower lying land to the north and south of the site and is limited by significant wetness problems and slope angle between 7° and 11°

1 7 To the north of the site slope angles of between 11 5° and 16° limit land to grade 4 due to slope limitation

2 PHYSICAL FACTORS AFFECTING LAND QUALITY

Altitude and Relief

- 2 1 Site comprises land at an altitude of 30-85 metres AOD sloping gently northwards. Dissecting this are two valleys. One east of Caring Cottage and one towards the north boundary through which flows the River Lea. In both cases slope angles of between 7.5° and 10.5° limits the land to subgrade 3B. Additionally in places slope angles of between 11.5° and 16° limit areas of land in the valley of the River Lea.

Climate

- 2 2 Climate data for the site was obtained by interpolation of a 5 km grid dataset (Met Office 1989) for representative locations in the survey area.

Table 2 Climatic Interpolations

Grid Reference	TQ 802546	TQ804550	TQ804539	TQ805535
Altitude	30	50	70	80
Accumulated Temperature (day °)	1472	1449	1427	1415
Annual Average Rainfall (mm)	706	717	722	723
Field Capacity Days	145	147	148	148
Moisture Deficit wheat (mm)	118	115	113	111
Moisture Deficit potatoes (mm)	113	110	106	105

- 2 3 These climatic characteristics do not impose any climatic limitation on the ALC grading of the site. However both climate and soil factors interact to affect soil wetness and droughtiness limitations.

Geology and Soils

- 2 4 The published 1:50,000 scale British Geological Survey sheet 288 (1976) shows the site to be mapped as Cretaceous Lower Greensand deposits of the Hythe Beds and Atherfield Clay. Cretaceous Weald Clay and Alluvium are mapped in the valley of the River Lea. The published 1:250,000 scale soils map sheet 6 "Soils of South East England" shows the site to be mapped as the Malling Association - 'fine loamy over sandy limestone' (ragstone). A detailed examination of the soils indicates the presence of 2 soil types: slowly permeable clayey soils on lower lying land and better drained clayey soils on land at higher altitude.

3 AGRICULTURAL LAND CLASSIFICATION

Grade 2

- 3 1 Land of this grade has been mapped in north, south and central areas of the site. Profiles typically comprise topsoils of very slightly stony (2-5% flints by volume) heavy clay loam. Upper subsoils consist of very slightly stony to moderately stony (2-20% flints) clay, occasionally heavy clay loam. Lower subsoils comprise very slightly stony (2-5% flints) clay.

- 3 2 Profiles are typically well drained wetness class I However heavy topsoil textures limit the land to Grade 2 due to a slight wetness/workability limitation Poorly drained profiles of grades 3A and 3B wetness class II and III respectively with slowly permeable layers in the lower subsoil were found also However due to their limited number and extent these were included in this map unit
- 3 3 In combination with wetness land also suffers from a slight droughtiness limitation due to the high moisture deficits reflecting the somewhat drier nature of the climate in Kent Consequently land is also classified as grade 2 due to droughtiness

Subgrade 3a

- 3 4 Good quality agricultural land has been mapped in 2 areas of the site Profiles typically comprise topsoils of very slightly stony (2-3% flints by volume) heavy clay loam occasionally clay Upper subsoils consist of clay with similar stone content over lower subsoils of clay sandy clay and sandy clay loam which are very slightly to slightly stony (2-10% flints)
- 3 5 Land to the South East of the site is typically limited by moderate droughtiness due to the presence of hard Lower Greensand fragments in the lower subsoil Consequently land is limited to subgrade 3A profile stone and stone at depth reducing the available water for plant growth A small area of land South West of Caring Cottage is limited by moderate wetness/workability limitations Profiles are typically slowly permeable in the subsoil with a wetness class of II though occasionally I heavy clay loam and clay topsoil textures limit the land to this subgrade

Subgrade 3B

- 3 6 Moderate quality agricultural land is limited wetness droughtiness and slope limitations Profiles typically comprise stoneless to very slightly stony (0-5% flints by volume) clay occasionally heavy clay loam In places a thin organic horizon was found in the topsoil Upper subsoils consist of stoneless to slightly stony (0-10% flints and soft/hard sandstone) heavy clay loam and clay Lower subsoils comprise clay and sandy clay which is stoneless to very slightly stony (0-5% flints soft/hard sandstone)
- 3 7 Areas of land north of Puddlets Wood adjacent to the River Lea and in a valley feature to the south of the site are limited by significant wetness imperfections Profiles are typically wetness class IV gleyed above 40 cm and slowly permeable in the upper subsoil Occasionally better drained profiles with slowly permeable layers at depth or gleyed topsoils limit land to this subgrade due to clay topsoils Some profiles similar to those described in paragraph 3 1 were found however these were few in number and scattered in location and were therefore included in this map unit
- 3 8 A small area west of Caring Farm was found to have particularly stony subsoils impenetrable to auger and was classified as subgrade 3B due to significant droughtiness limitation

3 9 To the north and central area of the site land is limited by slope gradient Using an optical reading clinometer slope angles of between 7 5° and 10 5° were recorded Gradient such as this impedes the safe and efficient use of machinery and limits land to subgrade 3B

Grade 4

3 10 In places land bordering the River Lea is limited to grade 4 due to site gradient Again using an optical reading clinometer slope angles of between 11 5° and 16° further restrict safe and efficient machine operations

February 1993  
ADAS Ref 2007/132/92  
MAFF REF EL 20/158

Resource Planning Team  
ADAS Statutory Group  
Reading

Sources of Reference

BRITISH GEOLOGICAL SURVEY 1976 Sheet 288 (Maidstone) 1 50 000 scale  
Solid and drift edition

MAFF 1988 Agricultural Land Classification of England and Wales Revised  
guidelines and criteria for grading the quality of agricultural  
land

METEOROLOGICAL OFFICE 1989 Climatological datasets for Agricultural Land  
Classification

SOIL SURVEY OF ENGLAND AND WALES 1983 Sheet 6 Soils of South East  
England 1 250 000 scale

SOIL SURVEY OF ENGLAND AND WALES 1984 Bulletin 15 "Soils and their use  
in South East England

## DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur typical cropping range and the expected level and consistency of yield. In practice the grades are defined by reference to physical characteristics and the grading guidance and cut offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5 which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

### **Grade 1 – excellent quality agricultural land**

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

### **Grade 2 – very good quality agricultural land**

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

### **Grade 3 – good to moderate quality agricultural land**

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

#### **Subgrade 3a – good quality agricultural land**

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

#### **Subgrade 3b – moderate quality agricultural land**

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

#### **Grade 4 – poor quality agricultural land**

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In most climates yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

#### **Grade 5 – very poor quality agricultural land**

Land with very severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops.

#### **Descriptions of other land categories used on ALC maps**

##### **Urban**

Built up or hard uses with relatively little potential for a return to agriculture including housing, industry, commerce, education, transport, religious buildings, cemeteries. Also hard surfaced sports facilities, permanent caravan sites and vacant land, all types of derelict land including mineral workings which are only likely to be reclaimed using derelict land grants.

##### **Non agricultural**

Soft uses where most of the land could be returned relatively easily to agriculture including private parkland, public open spaces, sports fields, allotments and soft surfaced areas on airports/air fields. Also active mineral workings and refuse tips where restoration conditions to soft after uses may apply.

##### **Woodland**

Includes commercial and non commercial woodland. A distinction may be made as necessary between farm and non farm woodland.

##### **Agricultural buildings**

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

##### **Open water**

Includes lakes, ponds and rivers as map scale permits.

##### **Land not surveyed**

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types eg buildings in large grounds and where map scale permits the cover types may be shown separately. Otherwise the most extensive cover type will usually be shown.