

**A1**

**Canterbury District Local Plan  
WHT 15: Land Near Rabbit Shaw  
Agricultural Land Classification,  
ALC Map and Report.  
June 1995**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## CANTERBURY DISTRICT LOCAL PLAN WHT 15: LAND NEAR RABBIT SHAW.

### 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 in the Canterbury District of Kent. The work forms part of MAFF's statutory input to the preparation of the Canterbury District Local Plan.
- 1.2 The site comprises approximately 7 hectares of land near Rabbit Shaw, to the east of Chestfield, in Kent. An Agricultural Land Classification (ALC) survey was carried out during June 1995. The survey was undertaken at a detailed level of approximately one boring per hectare of agricultural land surveyed. A total of 6 borings and one soil inspection pit were described 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 a long term limitation on its use for agriculture.
- 1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of survey the majority of agricultural land was under ley grassland. The Non-agricultural areas comprise bramble and hawthorn scrub with a narrow strip of Woodland in the north east.
- 1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas and extent are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading. This information supersedes a previous survey carried out on the site in 1986 (ADAS Ref: 2002/003/86) prior to the revision of the ALC system. The results of the two surveys are essentially similar.

**Table 1: Distribution of Grades and Subgrades**

Grade	Area (ha)	% of Site
3b	6.7	84.8
Non-agricultural	0.9	11.4
Woodland	<u>0.3</u>	<u>3.8</u>
Total area of site	7.9ha	100.0

- 1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. The main classes 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 agricultural land on this site has been classified as Subgrade 3b (moderate quality), the principal limitation to land quality being soil wetness and workability. Non-calcareous heavy silty clay loam and silty clay topsoils overlie slowly permeable clay at shallow depths. Drainage through the profile is therefore significantly impeded resulting in wet soils susceptible to structural damage and which adversely affect crop germination and development. Land utilisation is thus restricted.

## 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. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. At this locality the low average annual rainfall, and correspondingly low field capacity days, reduce the likelihood of soil wetness. Similarly the high crop adjusted soil moisture deficits may increase the likelihood of soil droughtiness.

2.4 No local climatic limitations such as exposure or frost risk are believed to adversely affect this site.

**Table 2: Climatic Interpolation**

Grid Reference	TR 140 656
Altitude, (m, AOD)	15
Accumulated Temperature (day degrees C., Jan.-June)	1477
Average Annual Rainfall (mm)	584
Field Capacity Days	120
Moisture deficit, wheat (mm)	127
Moisture deficit, potatoes (mm)	125
Overall Climatic Grade	1

## 3. Relief

3.1 The site is relatively flat and low lying at approximately 15m to 17m AOD.

## 4. Geology and Soils

- 4.1 The published geological information (BGS, 1974), shows all of the site to be underlain by London Clay.
- 4.2 The most recent published soils information (SSEW, 1983), shows the site to be underlain by soils of the Windsor Association. The legend accompanying the map describes these soils as 'Slowly permeable seasonally waterlogged clayey soils mostly with brown subsoils. Some fine loamy over clayey and fine silty over clayey soils and, locally on slopes, clayey soils with slight seasonal waterlogging. (SSEW, 1983).
- 4.3 Detailed field examination revealed the soils on this site to be similar to those described in paragraph 4.2, comprising poorly drained silty clay loams and silty clays.

## **5. Agricultural Land Classification**

- 5.1 Paragraph 1.5 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.

### **Subgrade 3b**

- 5.3 All of the agricultural land on this site has been mapped as moderate quality. The soils are pale and gleyed throughout with very slightly stony (up to 2% total flints v/v) heavy silty clay loam or silty clay topsoils. The silty clay upper subsoils are poorly structured and slowly permeable from 25-30cm depth thus significantly impeding drainage through the profile. Wet soils such as these can restrict plant growth and yields. With heavy topsoils the profiles are also susceptible to structural damage thus reducing the number of days when cultivations and/or grazing may occur. In this local climatic regime the land has therefore been assessed as Wetness Class III, Subgrade 3b, on the basis of both a soil wetness and workability limitation.

ADAS Ref: 2002/082/95  
MAFF Ref: EL20/642

Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## **SOURCES OF REFERENCE**

British Geological Survey (1974), Sheet 273, Faversham, Solid & Drift Edition. 1:50,000

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

Soil Survey of England and Wales (1980), Bulletin No.9, Soils of Kent.

Soil Survey of England and Wales (1983), Sheet No.6, Soils of South-East England, 1:250,000, and Accompanying Legend.

Soil Survey of England and Wales (1984), Bulletin No.15, Soils and their use in South-East England.

## APPENDIX I

### DESCRIPTION OF THE GRADES AND SUBGRADES

#### **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 or horticultural crops can usually be grown but on some land of this 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 land.

#### **Grade 3 : Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the 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 moist 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

## **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. 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, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

## APPENDIX II

### FIELD ASSESSMENT OF SOIL WETNESS CLASS

#### SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

#### Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. <sup>2</sup>
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

<sup>1</sup>The number of days specified is not necessarily a continuous period.

<sup>2</sup>'In most years' is defined as more than 10 out of 20 years.

**APPENDIX III**  
**SOIL PIT AND SOIL BORING DESCRIPTIONS**

**Contents :**

**Soil Abbreviations - Explanatory Note**

**Soil Pit Descriptions**

**Database Printout - Boring Level Information**

**Database Printout - Horizon Level Information**

## SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

### Boring Header Information

1. **GRID REF** : national 100 km grid square and 8 figure grid reference.
2. **USE** : Land use at the time of survey. The following abbreviations are used.

<b>ARA</b> : Arable	<b>WHT</b> : Wheat	<b>BAR</b> : Barley
<b>CER</b> : Cereals	<b>OAT</b> : Oats	<b>MZE</b> : Maize
<b>OSR</b> : Oilseed rape	<b>BEN</b> : Field Beans	<b>BRA</b> : Brassicae
<b>POT</b> : Potatoes	<b>SBT</b> : Sugar Beet	<b>FCD</b> : Fodder Crops
<b>LIN</b> : Linseed	<b>FRT</b> : Soft and Top Fruit	<b>FLW</b> : Fallow
<b>PGR</b> : Permanent Pasture	<b>LEY</b> : Ley Grass	<b>RGR</b> : Rough Grazing
<b>SCR</b> : Scrub	<b>CFW</b> : Coniferous Woodland	<b>DCW</b> : Deciduous Wood
<b>HTH</b> : Heathland	<b>BOG</b> : Bog or Marsh	<b>FLW</b> : Fallow
<b>PLO</b> : Ploughed	<b>SAS</b> : Set aside	<b>OTH</b> : Other
<b>HRT</b> : Horticultural Crops		

3. **GRDNT** : Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT** : Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

**MREL** : Microrelief limitation   **FLOOD** : Flood risk   **EROSN** : Soil erosion risk  
**EXP** : Exposure limitation   **FROST** : Frost prone   **DIST** : Disturbed land  
**CHEM** : Chemical limitation

9. **LIMIT** : The main limitation to land quality. The following abbreviations are used.

<b>OC</b> : Overall Climate	<b>AE</b> : Aspect	<b>EX</b> : Exposure
<b>FR</b> : Frost Risk	<b>GR</b> : Gradient	<b>MR</b> : Microrelief
<b>FL</b> : Flood Risk	<b>TX</b> : Topsoil Texture	<b>DP</b> : Soil Depth
<b>CH</b> : Chemical	<b>WE</b> : Wetness	<b>WK</b> : Workability
<b>DR</b> : Drought	<b>ER</b> : Erosion Risk	<b>WD</b> : Soil Wetness/Droughtiness
<b>ST</b> : Topsoil Stoniness		

## Soil Pits and Auger Borings

1. **TEXTURE** : soil texture classes are denoted by the following abbreviations.

<b>S</b> :	Sand	<b>LS</b> :	Loamy Sand	<b>SL</b> :	Sandy Loam
<b>SZL</b> :	Sandy Silt Loam	<b>CL</b> :	Clay Loam	<b>ZCL</b> :	Silty Clay Loam
<b>ZL</b> :	Silt Loam	<b>SCL</b> :	Sandy Clay Loam	<b>C</b> :	Clay
<b>SC</b> :	Sandy Clay	<b>ZC</b> :	Silty Clay	<b>OL</b> :	Organic Loam
<b>P</b> :	Peat	<b>SP</b> :	Sandy Peat	<b>LP</b> :	Loamy Peat
<b>PL</b> :	Peaty Loam	<b>PS</b> :	Peaty Sand	<b>MZ</b> :	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

<b>F</b> :	Fine (more than 66% of the sand less than 0.2mm)
<b>M</b> :	Medium (less than 66% fine sand and less than 33% coarse sand)
<b>C</b> :	Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M** : Medium (<27% clay) **H** : Heavy (27-35% clay)

2. **MOTTLE COL** : Mottle colour using Munsell notation.
3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

**F** : few <2% **C** : common 2-20% **M** : many 20-40% **VM** : very many 40% +

4. **MOTTLE CONT** : Mottle contrast

**F** : faint - indistinct mottles, evident only on close inspection  
**D** : distinct - mottles are readily seen  
**P** : prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL** : Ped face colour using Munsell notation.
6. **GLEYS** : If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.
7. **STONE LITH** : Stone Lithology - One of the following is used.

<b>HR</b> :	all hard rocks and stones	<b>SLST</b> :	soft oolitic or dolimitic limestone
<b>CH</b> :	chalk	<b>FSST</b> :	soft, fine grained sandstone
<b>ZR</b> :	soft, argillaceous, or silty rocks	<b>GH</b> :	gravel with non-porous (hard) stones
<b>MSST</b> :	soft, medium grained sandstone	<b>GS</b> :	gravel with porous (soft) stones
<b>SI</b> :	soft weathered igneous/metamorphic rock		

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).



SOIL PIT DESCRIPTION

Site Name : CANT LP, WHT 15 Pit Number : 1P

Grid Reference: TR14106560 Average Annual Rainfall : 584 mm  
 Accumulated Temperature : 1477 degree days  
 Field Capacity Level : 120 days  
 Land Use : Ley  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 26	ZC	10YR42 00	0	2	HR	M				
26- 39	ZC	25Y 62 00	0	2	HR	M	MDCAB	VM	P	
39-120	ZC	25Y 53 00	0	0		M	STCAB	VM	P	

Wetness Grade : 3B Wetness Class : III  
 Gleying : 0 cm  
 SPL : 026 cm

Drought Grade : 3A APW : 121mm MBW : -6 mm  
 APP : 96 mm MBP : -29 mm

FINAL ALC GRADE : 3B  
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS	
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP		DIST
1	TR14106580	LEY	0	030	3	3B	129	2	104	-21	3A			WE	3B	HZCL/ZC T/S
1P	TR14106560	LEY	0	026	3	3B	121	-6	96	-29	3A			WE	3B	
2	TR14006570	LEY	0	028	3	3B	127	0	102	-23	3A			WE	3B	
3	TR14106570	LEY	0	030	3	3B	108	-19	104	-21	3A			WE	3B	
4	TR14006560	LEY	0	020	3	3B	122	-5	97	-28	3A			WE	3B	
5	TR14106560	LEY	0	025	3	3B	122	-5	97	-28	3A			WE	3B	
7	TR14106550	LEY	0	028	3	3B	122	-5	97	-28	3A			WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLY	>2	>6		LITH	TOT	STR	POR	IMP	SPL
1	0-30	hzc1	10YR42 00	10YR58 00	M			Y	0	0	HR	2					
	30-40	zc	10YR53 00	10YR58 00	M			Y	0	0	HR	2		P			Y
	40-120	zc	10YR53 00	10YR56 00	M			Y	0	0		0		P			Y
1P	0-26	zc	10YR42 00	75YR58 00	M			Y	0	0	HR	2					
	26-39	zc	25Y 62 00	75YR58 00	M		25Y 52 00	Y	0	0	HR	2	MDCAB	VM	P	Y	Y
	39-120	zc	25Y 53 00	75YR68 00	M		25Y 52 00	Y	0	0		0	STCAB	VM	P	Y	Y
2	0-28	hzc1	10YR42 00	75YR58 00	C			Y	0	0	HR	2					
	28-45	zc	25Y 62 72	75YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y
	45-120	zc	10YR53 61	75YR68 00	M		00MN00 00	Y	0	0		0		P			Y
3	0-30	hzc1	10YR42 00	10YR46 52	M			Y	0	0	HR	2					
	30-45	zc	10YR52 00	10YR46 56	M			Y	0	0		0		P			Y
	45-90	zc	25Y 53 00	10YR56 00	M			Y	0	0		0		P			Y
4	0-20	hzc1	10YR42 00	75YR58 00	C			Y	0	0	HR	2					
	20-120	zc	25Y 53 61	75YR68 00	M			Y	0	0		0		P			Y
5	0-25	zc	10YR42 00	10YR58 00	M			Y	0	0		0					
	25-45	zc	25Y 51 00	10YR56 00	M			Y	0	0		0		P			Y
	45-120	zc	10YR51 53	10YR68 56	M		00MN00 00	Y	0	0		0		P			Y
7	0-28	zc	10YR52 00	75YR58 00	M			Y	0	0	HR	2					
	28-120	zc	10YR53 61	75YR68 00	M			Y	0	0		0		P			Y