

London Borough of  
Croydon Unitary Development Plan  
Land at Kent Gate Way  
Agricultural Land Classification  
ALC Report  
June 1995

Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

ADAS Reference 2704/136/95  
MAFF Reference EL 27/00150  
LUPU Commission 02032

# AGRICULTURAL LAND CLASSIFICATION REPORT

## LONDON BOROUGH OF CROYDON UNITARY DEVELOPMENT PLAN LAND AT KENT GATE WAY

### INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 14.1 hectares of land at Kent Gate Way near Addington in the London Borough of Croydon. The survey was carried out in June 1995.

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) Land Use Planning Unit Reading in connection with the preparation of the unitary development plan for the Croydon borough. The site is an objector site. This survey supersedes previous ALC surveys on this land.

3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group in ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF 1988). A description of the ALC grades and subgrades is given in Appendix I.

4 At the time of survey the land use on the site was permanent grass being grazed by horses. Some of the fields had young scattered scrub bushes.

### SUMMARY

5 The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale but any enlargement would be misleading.

6 The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

**Table 1 Area of grades and other land**

Grade/Other land	Area (hectares)	% of site
2	4.1	29.1
3b	10.0	70.9
Total survey area	14.1	100

7 The fieldwork was conducted at an average density of one boring per hectare. A total of 12 borings and 2 soil pits were described.

8 Given the very dry nature of the soil profiles at the time of survey the subsoils could not be penetrated by a soil auger the classification is therefore based heavily on the interpretation from the two soil pits Geological information for the site suggests that soils of the lowerlying land in the west and south are developed over Dry Valley deposits One soil pit described in this area revealed very stony topsoils and subsoils which have led to a classification of Subgrade 3b (moderate quality) on the basis of topsoil stoniness and soil droughtiness The soils of the higher land in the north and east are developed over Chalk A soil pit described in this area revealed deeper chalky profiles which may be placed in Grade 2 (very good quality) as a result of a minor soil droughtiness limitation

## FACTORS INFLUENCING ALC GRADE

### Climate

9 Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics

10 The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met Office 1989)

**Table 2 Climatic and altitude data**

Factor	Units	Values
Grid reference	N/A	TQ 369 634
Altitude	m AOD	90
Accumulated Temperature	days°C	1410
Average Annual Rainfall	mm	711
Field Capacity Days	days	150
Moisture Deficit Wheat	mm	107
Moisture Deficit Potatoes	mm	99

11 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

12 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR) as a measure of overall wetness and accumulated temperature (AT0 January to June) as a measure of the relative warmth of a locality

13 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation affecting the site There are also no local climatic factors that are significant at the site Climatically the site may be classified as Grade 1

## Site

14 The topography of the site involves a minor dry valley feature with higher land on either side. Steep gradients occur in part of the eastern slopes.

## Geology and soils

15 The published geological information for the area (BGS 1981) shows the lowerlying valley land to be developed over Dry Valley deposits with Chalk on the adjacent higher land.

16 The published soils information for the area (SSEW 1983 & 1984) shows the entire site to comprise soils of the Frilsham Association. These are typically fine loamy flinty drift over chalk. The fieldwork revealed very stony soils on the lowerlying land with deeper chalky soils on the higher land in the west.

## AGRICULTURAL LAND CLASSIFICATION

17 The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1 page 1.

18 The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix III.

### Grade 2

19 The higher land in the north and east of the site has been placed in this grade with soil droughtiness as the key limitation. The pit in this map unit (Pit 2) describes a soil resource that extends down to at least 90 cm before becoming impenetrable given the dry conditions the pit was only dug to 60 cm and then augered below this depth. The soils are much less stony in the topsoil and upper subsoil than those on the Subgrade 3b land and become chalky from approximately 40 cm. Medium clay loam topsoils overlie subsoils of medium silty clay loam texture that become heavier with depth. Structures were assessed as moderate in condition throughout with no signs of soil wetness.

20 It is unclear exactly what is happening below 90 cm. Chalk may be present within 120 cm for example or the chalky nature of the subsoil may simply increase. Whatever the scenario there is insufficient available water in the profile to allow this land to be classified higher than Grade 2 due to the droughtiness limitation.

### Subgrade 3b

21 The lowerlying land that is developed over Dry Valley geology has been placed in this lower grade due to significant topsoil stoniness and droughtiness limitations. There is also a small area of the higher land that experiences a gradient limitation where slopes in excess of seven degrees occur.

22 The stony nature of these soils is illustrated by the pit that was dug in this area (Pit 1). Topsoils with over 15% stones greater than 2 cm in thickness and total stone contents of approximately 38% overlie subsoils of approximately 50% stone content. The subsoils were

not examined in any depth it has been assumed that there would be sufficient available water in the horizons below 30 cm to allow these soils to be placed in Subgrade 3b Where topsoil stoniness is not the single most limiting factor soil droughtiness will limit the land to this grade

23 However given the very dry nature of the conditions at the time of survey fieldwork a wetter time of the year may reveal a variation in subsoil conditions across the site that differs from those found in the two pits

## SOURCES OF REFERENCE

British Geological Survey ([date]) *Sheet No* [number] [sheet location name in italics]  
BGS London

Ministry of Agriculture Fisheries and Food (1988) *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* MAFF London

Met Office (1989) *Climatological Data for Agricultural Land Classification*  
Met Office Bracknell

Soil Survey of England and Wales ([date]) *Sheet* [sheet number] [title in italics]  
SSEW Harpenden

Soil Survey of England and Wales ([date]) *Soils and their Use in* [location in italics]  
SSEW Harpenden

## APPENDIX I

### DESCRIPTIONS 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 (e.g. 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

## APPENDIX II

### SOIL WETNESS CLASSIFICATION

#### Definitions of Soil Wetness Classes

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.

---

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

---

#### Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* (MAFF 1988).

---

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

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



SAMPLE	DEPTH	TEXTURE	COLOUR	- MOTTLES-- -			PED COL	- --STONES			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLE	2	>6		LITH	TOT	STR	POR	IMP	SPL
1P	0 25	mc1	10YR43 00						18	0	HR	38					
	25-30	mc1	75YR44 00						0	0	HR	50		M			
2	0 20	mzc1	10YR43 00						0	0	HR	5					
2P	0 28	mc1	10YR43 00						3	0	HR	10					
	28 40	mzc1	10YR44 00						0	0	HR	10		M			
	40 60	mzc1	10YR54 00						0	0	CH	20		M			
	60 90	hzc1	10YS64 00						0	0	CH	33		M			
3	0 20	mc1	10YR43 00						0	0	HR	5					
4	0-20	mzc1	10YR43 00	000C00	00	C			0	0	HR	2					
	20-50	mzc1	10YR54 00	000C00	00	C		S	0	0		0		M			
	50-75	hc1	10YR54 00	000C00	00	C		S	0	0		0		M			
	75-120	c	75YR44 00	000C00	00	F		S	0	0		0		M			
5	0-20	mzc1	10YR43 00						0	0	HR	5					
6	0-20	mc1	10YR42 00						0	0	HR	5					
7	0-20	mc1	10YR42 00						0	0	HR	5					
8	0-20	mzc1	10YR42 00						0	0	HR	5					
9	0-20	mc1	10YR42 00						0	0	HR	5					
10	0 20	mc1	10YR42 00						0	0	HR	5					
12	0-20	mzc1	10YR43 00						0	0	HR	5					
13	0 20	mzc1	10YR43 00						0	0	HR	5					
15	0-20	mzc1	10YR43 00						0	0	HR	5					

SAMPLE NO	GRID REF	ASPECT USE	-WETNESS -		-WHEAT-		POTS-		M REL		EROSN	FROST	CHEM	ALC	COMMENTS	
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST		LIMIT
1P	TQ369 634	PGR		000	1	1	033	-74	033	-66	4			ST	3B	PIT30IMP
2	TQ37006370	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
2P	TQ371 635	PGR	NW 05	000	1	1	116	9	110	11	2			DR	2	IMP
3	TQ37106370	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
4	TQ36906360	PGR		020	1	1	149	42	120	21	1				1	
5	TQ37006360	PGR		000	1	1	000	0	000	0				DR	3A	IMPX3QDR
6	TQ37106360	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
7	TQ37206360	PGR		000	1	1	000	0	000	0				DR	3A	IMPQDR
8	TQ36906350	PGR		000	1	1	000	0	000	0				DR	3A	IMPX3QDR
9	TQ37006350	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
10	TQ37106350	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
12	TQ36806340	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
13	TQ36906340	PGR		000	1	1	000	0	000	0				DR	3A	IMPX2QDR
15	TQ36806330	PGR		000	1	1	000	0	000	0				DR	3A	IMPQDR