

**A1**  
**Maidstone Borough Local Plan**  
**Objector Site 167,**  
**Northland, Old Ashford Road, Lenham**  
**Agricultural Land Classification**  
**Report and Map**  
**November 1996**



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**Resource Planning Team**  
**Guildford Statutory Group**  
**ADAS Reading**

**ADAS Reference 2007/157/96**  
**MAFF Reference EL 20/0862**  
**LUPU Commission 02637**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## MAIDSTONE BOROUGH LOCAL PLAN OBJECTOR SITE 167 NORTHLAND, OLD ASHFORD ROAD, LENHAM

### Introduction

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 7 hectares of land at a site to the east of Lenham Kent. The survey was carried out during November 1996.

2 The work was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with MAFF's statutory input to the Maidstone Borough Local Plan. 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 of 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 agricultural land on this site was ploughed.

### 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 below.

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area
2	6.9	100
Total site area	6.9	100

7 The fieldwork was conducted at an average density of 1 boring per hectare. A total of 7 borings and 2 soil pits were described.

8 All the land at this site has been classified as Grade 2 (very good quality) on the basis of minor soil wetness/workability and droughtiness limitations

9 The profiles commonly comprise silty clay loam topsoils over similar subsoils which either pass to clay or chalky deposits at depth The combination of these soil properties and the prevailing climate results in minor wetness/workability and/or droughtiness limitations

### Factors Influencing ALC Grade

#### Climate

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

11 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	SU 902 523
Altitude	m AOD	115
Accumulated Temperature	day°C (Jan June)	1374
Average Annual Rainfall	mm	758
Field Capacity Days	days	158
Moisture Deficit Wheat	mm	105
Moisture Deficit Potatoes	mm	97

12 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

13 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 (ATO January to June) as a measure of the relative warmth of a locality

14 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation Other local climatic factors such as exposure and frost risk are not believed to have a significant adverse effect on the site The site is climatically Grade 1

#### Site

15 The agricultural land at this site lies at an altitude of 115 125m AOD The majority of the land at the site is very gently sloping with slight undulations Nowhere does gradient or microrelief affect agricultural land quality

16 Flooding does not appear to be limiting on this site

## Geology and soils

17 The relevant geological sheet (BGS 1976) shows the majority of the site to be underlain by Lower Chalk which is soft marly chalk with 10 to 50% clay

18 The most recently published soils information for this area (SSEW 1983) shows the Coombe 2 Association to be mapped across the entire site. This association is described as Well drained calcareous fine silty soils over chalk or chalk rubble. Shallow soils in places especially on brows and steeper slopes (SSEW 1983)

## Agricultural Land Classification

19 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

20 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*

21 All of the agricultural land is been mapped as very good quality (Grade 2). The land is limited to a minor extent by soil droughtiness and/or soil wetness/workability. Two distinct soil types are found on the site

22 The first soil type is found towards the northern margin of the site and comprises calcareous medium or heavy silty clay loam topsoils which are slightly stony (up to 2% total flint fragments). The subsoils are variable but commonly comprise similar textures to above and are developed over fragmented chalky rubble. These subsoils contain up to approximately 50% chalk, are well drained (wetness class I) and moderately structured. Observed rooting depth into the chalk is 20cm (see pit 1 Appendix III). The overriding limitation to most of the this grade 2 land is minor soil droughtiness. The soil characteristics described above combined with the prevailing climatic conditions restrict the amount of water in the profile which will be available to plants. Moisture balance calculations indicate that there is insufficient soil moisture to meet the demands of a growing crop throughout the growing season. As a result the yield potential may be reduced such that land cannot be classified higher than ALC Grade 2

23 The second soil type occurs at the southern side of the site and comprises the same topsoil characteristics as described in paragraph 22. The subsoil horizons consist of similar or sometimes heavier (clay) textures to the topsoils with very few stones and are calcareous throughout. These profiles show signs of slightly impeded drainage in the subsoil through the presence of ochreous mottling at depths between 30cm and 65cm. There is no evidence of a slowly permeable horizon at depth and the subsoils are moderately well structured. The soils are thereby assessed as wetness classes I or II (see Appendix II) resulting in an ALC wetness grade of 1 or 2 (see Pit 2 Appendix III). The combining effect of these soil properties with the local climatic conditions gives rise to a land classification of Grade 2 on the basis of soil wetness/workability. This is likely to cause crop growth and development to be adversely affected as well as restricting the timing of cultivations and/or grazing.

Sharron Cauldwell  
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ADAS Reading

## SOURCES OF REFERENCE

British Geological Survey (1976) *Sheet 288 Maidstone* (1 50 000 Scale)

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

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

Soil Survey of England and Wales (1983) *Sheet 6 Soils of South East England*  
SSEW Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England.*  
SSEW Harpenden

# 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.



## 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.

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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

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#### 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)

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<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

**APPENDIX III**

**SOIL DATA**

**Contents**

**Sample location map**

**Soil abbreviations - Explanatory Note**

**Soil Pit Descriptions**

**Soil boring descriptions (boring and horizon levels)**

**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

<b>MREL</b>	Microrelief limitation	<b>FLOOD</b>	Flood risk	<b>EROSN</b>	Soil erosion risk
<b>EXP</b>	Exposure limitation	<b>FROST</b>	Frost prone	<b>DIST</b>	Disturbed land
<b>CHEM</b>	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 MAIDSTONE LP SITE 167 Pit Number 1P

Grid Reference TQ90425219 Average Annual Rainfall 758 mm  
 Accumulated Temperature 1374 degree days  
 Field Capacity Level 158 days  
 Land Use Ploughed  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR42 00	1	2	HR					Y
30- 48	HZCL	10YR44 00	0	2	HR		MDCSAB	FR	M	Y
48- 64	MZCL	10YR64 00	0	50	CH				M	Y
64- 85	CH	10YR72 82	0	5	HR				M	Y

Wetness Grade 1 Wetness Class I  
 Gleying cm  
 SPL cm  
 Drought Grade 2 APW 115mm MBW 10 mm  
 APP 113mm MBP 16 mm

FINAL ALC GRADE 2  
 MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name MAIDSTONE LP SITE 167 Pit Number 2P

Grid Reference TQ90425210 Average Annual Rainfall 758 mm  
 Accumulated Temperature 1374 degree days  
 Field Capacity Level 158 days  
 Land Use Ploughed  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR42 00	0	2	HR					Y
30- 50	HZCL	10YR44 00	0	2	HR		MDCSAB	FR	M	Y
50- 75	HZCL	10YR56 00	0	5	HR	F	MDCSAB	FR	M	
75-120	C	10YR66 00	0	5	HR	C	MDCSAB	FR	M	

Wetness Grade 1 Wetness Class I  
 Gleying S75 cm  
 SPL cm

Drought Grade 1 APW 147mm MBW 42 mm  
 APP 122mm MBP 25 mm

FINAL ALC GRADE 1  
 MAIN LIMITATION

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
1	TQ90205230	PL0			1	1	106	1	110	13	3A			DR	2	IMP70 SEEPIT 1
1P	TQ90425219	PL0			1	1	115	10	113	16	2			DR	2	BORDER HZCL
2	TQ90205220	PL0			1	1	158	53	122	25	1				1	BORDER HZCL
2P	TQ90425210	PL0		S75	1	1	147	42	122	25	1				1	BORDER HZCL
3	TQ90305220	PL0		S65	1	1	146	41	122	25	1				1	SEE PIT 2
4	TQ90305212	PL0		030	2	2	114	9	123	26	2			WE	2	IMP75 SEEPIT 2
5	TQ90425219	PL0			1	1	097	-8	101	4	3A			DR	2	IMP60 SEEPIT 1
6	TQ90425210	PL0		S50	1	1	145	40	121	24	1				1	SEE PIT 2
7	TQ90515213	PL0			1	1	107	2	119	22	3A			DR	2	IMP70 SEEPIT 1



SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES----				STRUCT/	SUBS	SPL	CALC	
				COL	ABUN	CONT	COL	GLE	>2	>6	LITH	TOT	CONSIST			STR
1	0-30	mzc1	10YR52 00					1	0	HR	1				Y	BORDERLINE HZCL
	30-55	mzc1	10YR63 00					0	0	CH	20		M		Y	
	55-75	ch	10YR73 00					0	0		0		M		Y	
1P	0-30	mzc1	10YR42 00					1	0	HR	2				Y	BORDERLINE HZCL
	30-48	hzc1	10YR44 00					0	0	HR	2	MDCSAB	FR M		Y	
	48-64	mzc1	10YR64 00					0	0	CH	50		M		Y	
	64-85	ch	10YR72 82					0	0	HR	5		M		Y	
2	0-29	mzc1	10YR42 52					1	0	HR	1				Y	BORDERLINE HZCL
	29-45	hzc1	10YR53 00					0	0	HR	1		M		Y	
	45-120	hzc1	10YR63 00					0	0	CH	10		M		Y	
2P	0-30	mzc1	10YR42 00					0	0	HR	2				Y	BORDERLINE HZCL
	30-50	hzc1	10YR44 00					0	0	HR	2	MDCSAB	FR M		Y	
	50-75	hzc1	10YR56 00	10YR58 00 F			00MN00 00	0	0	HR	5	MDCSAB	FR M			
	75-120	c	10YR66 00	75YR58 00 C			00MN00 00 S	0	0	HR	5	MDCSAB	FR M			
3	0-29	mzc1	10YR42 00					2	0	HR	2				Y	BORDERLINE HZCL
	29-65	hzc1	10YR43 44					0	0	HR	2		M		Y	
	65-80	c	10YR44 54	10YR58 00 C			00MN00 00 S	0	0	HR	5		M		Y	
4	0-30	mzc1	10YR42 00					2	0	HR	2				Y	BORDERLINE HZCL
	30-55	hzc1	10YR42 00	75YR46 00 C			00MN00 00 Y	0	0		0		M		Y	
	55-75	hzc1	10YR52 00					Y	0	0	CH	10		M		Y
5	0-35	mzc1	10YR42 00					1	0	HR	3				Y	BORDERLINE HZCL
	35-45	hzc1	10YR43 00	10YR46 00 F				0	0	HR	2		M		Y	
	45-65	ch	10YR81 72					0	0		0		M		Y	
6	0-32	mzc1	10YR42 00					1	0	HR	2				Y	BORDERLINE HZCL
	32-50	hzc1	10YR43 00					0	0	HR	1		M		Y	
	50-100	c	10YR43 00	10YR46 00 C			00MN00 00 S	0	0	HR	2		M		Y	
	100-120	c	10YR43 00	10YR46 00 C			00MN00 00 S	0	0	CH	10		M		Y	
7	0-29	mzc1	10YR43 00					1	0	HR	2				Y	BORDERLINE HZCL
	29-40	hzc1	10YR54 00					0	0	HR	2		M		Y	
	40-70	mzc1	10YR64 00					0	0	CH	20		M		Y	