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**Maidstone Borough Local Plan  
Site 3 Land off Hockers Lane,  
Detling  
Agricultural Land Classification  
ALC Map and Report  
October 1994**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## MAIDSTONE BOROUGH LOCAL PLAN SITE 3 LAND OFF HOCKERS LANE, DETLING

### 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 Maidstone Borough of Kent. The work forms part of MAFF's statutory input to the Maidstone Borough Local Plan.
- 1.2 The site comprises 2.1 hectares of land east of Hockers Lane in the village of Detling. An Agricultural Land Classification (ALC) survey was carried out in July 1994. The survey was undertaken at a detailed level of approximately four borings for every three hectares of agricultural land surveyed. A total of 2 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 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 agricultural land on the site was in permanent pasture. The agricultural buildings mapped in the middle of the site are stables and in the south of the site the buildings associated with Hocker's Farm. The area mapped as urban includes a hardcourt for caravans, a house and garden and small business establishments. The area marked as non-agricultural in the extreme north-east of the site comprises a track.
- 1.5 The distribution of 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 1:10,000. It is accurate at this scale but any enlargement would be misleading. This map supersedes any previous ALC survey information for this site.

**Table 1 Distribution of Grades and Subgrades**

Grade	Area (ha)	% of Site	% of Agricultural land
2	1.4	66.7	<u>100%</u> (1.4 ha)
Urban	0.5	23.8	
Non-agricultural	<0.1	<0.1	
Agricultural buildings	0.2	9.5	
Total area of site	<u>2.1</u>	<u>100%</u>	

- 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 land on the site has been classified as Grade 2 very good quality because of a slight soil droughtiness limitation. Topsoils typically comprise very slightly stony calcareous medium silty clay loams. These overlie well drained similar textured calcareous subsoils which become increasingly stony because of chalk fragments with depth. The interaction between these soil textures and profile stone contents with local climatic parameters may slightly restrict available water and affect plant growth and yield at this site.

## 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 are believed to affect the site. However climatic and soil factors interact to influence soil wetness and droughtiness limitations.

**Table 2 Climatic Interpolation**

Grid Reference	TQ794580
Altitude (m AOD)	93
Accumulated Temperature (°days Jan June)	1399
Average Annual Rainfall (mm)	691
Field Capacity Days	142
Moisture deficit wheat (mm)	110
Moisture deficit potatoes (mm)	103
Overall Climatic Grade	1

## 3 Relief

- 3 1 The site lies at an altitude of 90-95m AOD slightly rising from south to north. Nowhere on the site does relief or gradient affect agricultural land quality.

#### **4 Geology and Soils**

- 4 1 The published geological information (BGS 1976) shows the entire site to be underlain by Cretaceous Lower Chalk
- 4 2 The published soils information (SSEW 1980 1983 and 1984) shows the site to be underlain by soils of the Coombe 2 Association. The legend accompanying the map describes these as well drained calcareous fine silty soils over chalk or chalk rubble. Shallow soils in places especially on brows and slopes (SSEW 1983). Soils at this site commonly comprise fine silty clay loam topsoils and subsoils passing to chalk rubble at varying depths across the site.

#### **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.

##### **Grade 2**

- 5 3 Land of very good quality has been mapped for the whole of the agricultural area at this site, the principal limitation being soil droughtiness. Soil profiles typically comprise a very slightly stony (up to 5% v/v flints, 3% >2cm) calcareous medium silty clay loam topsoil over a similar though slightly more stony (up to 10% v/v flints) upper subsoil which was commonly impenetrable to the soil auger principally due to the dry soil conditions at the time of survey as well as flints within the soil matrix. In the pit observations 1p and 2p (see Appendix III) the upper subsoil passes to a very slightly to slightly chalky (up to 10% v/v chalk fragments) calcareous medium or heavy silty clay loam horizon. In the lower subsoil this passes to very chalky (c 50% chalk fragments) calcareous medium silty clay loam at 47cm in 2p. However at 1p the upper subsoil passes to a slightly chalky (c 15% v/v chalk fragments) calcareous medium silty clay loam horizon from 70cm to around 110cm. At 110cm a very chalky lower subsoil similar to that seen at 2p occurs (c 50% chalk fragments in a medium silty clay loam matrix). The combination of chalk fragments and flints in the soil profile leads to a very slight reduction in plant available water such that crop yields may be slightly reduced within the local climatic regime.

## **SOURCES OF REFERENCE**

British Geological Survey (1976) Sheet 288 Maidstone 1 50 000 Solid & 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) Climatic datasets for Agricultural Land Classification

Soil Survey of England and Wales (1980) Soils of Kent Bulletin No 15 Map scale 1 250 000

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) Soils and their use in South-East England Bulletin No 15

# 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 (e.g. 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 (e.g. 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 e.g. 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

### DEFINITION OF SOIL WETNESS CLASS

#### Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years

#### Wetness Class 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 180 days but only wet within 40 cm depth for 31-90 days in most years

#### Wetness Class 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

#### Wetness Class 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

#### Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years

#### Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years



## **APPENDIX III**

### **SOIL PIT AND SOIL BORING DESCRIPTIONS**

#### **Contents**

**Sample Point Map**

**Soil Abbreviations - explanatory note**

**Database Printout - soil pit information**

**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 database. This has commonly used notations and abbreviations as set out below.

### Boring Header Information

- 1 **GRID REF** national 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 measured by a hand held optical clinometer
- 4 **GLEYSPL** Depth in cm to gleying or slowly permeable layers
- 5 **AP (WHEAT/POTS)** Crop adjusted available water capacity
- 6 **MB (WHEAT/POTS)** Moisture Balance
- 7 **DRT** Best grade according to soil droughtiness
- 8 If any of the following factors are considered significant an entry of '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	<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>ST</b> Topsoil Stones
<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	

## 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>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 prefixes

**F** Fine (more than 66% of the sand less than 0.2mm)  
**M** Medium (less than 66% fine sand and less than 33% coarse sand)  
**C** 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
- 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

- 6 **STONE LITH** 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>GH</b> gravel with non porous (hard) stones
<b>SI</b> soft weathered igneous/metamorphic rock	

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

- 7 **STRUCT** the degree of development size and shape of soil peds are described using the following notation

degree of development **WK** weakly developed **MD** moderately developed

**ST** strongly developed

ped size **F** fine **M** medium **C** coarse **VC** very coarse

ped shape **S** single grain **M** massive **GR** granular **AB** angular blocky

**SAB** sub angular blocky **PR** prismatic **PL** platy

- 8 **CONSIST** Soil consistence is described using the following notation

**L** loose **VF** very friable **FR** friable **FM** firm **VM** very firm **EM** extremely firm

**EH** extremely hard

- 9 **SUBS STR** Subsoil structural condition recorded for the purpose of calculating profile droughtiness **G** good **M** moderate **P** poor

- 10 **POR** Soil porosity If a soil horizon has less than 0.5% biopores >0.5 mm a 'Y' will appear in this column

- 11 **IMP** If the profile is impenetrable a 'Y' will appear in this column at the appropriate horizon

- 12 **SPL** Slowly permeable layer If the soil horizon is slowly permeable a 'Y' will appear in this column

- 13 **CALC** If the soil horizon is calcareous a 'Y' will appear in this column

- 14 Other notations

**APW** available water capacity (in mm) adjusted for wheat

**APP** available water capacity (in mm) adjusted for potatoes

**MBW** moisture balance wheat

**MBP** moisture balance potatoes

SOIL PIT DESCRIPTION

Site Name MAIDSTONE LP SITE 3 Pit Number 1P

Grid Reference TQ79405800 Average Annual Rainfall 691 mm  
 Accumulated Temperature 1399 degree days  
 Field Capacity Level 142 days  
 Land Use Permanent Grass  
 Slope and Aspect 01 degrees SW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 24	MZCL	10YR43 00	1	3	HR					Y
24- 50	MZCL	10YR44 00	0	5	HR		MDCSAB	FR	M	Y
50- 70	HZCL	10YR44 00	0	2	CH				M	Y
70- 95	MZCL	10YR54 00	0	15	CH				M	Y
95-110	MZCL	10YR63 54	0	15	CH				M	Y
110-120	MZCL	10YR63 00	0	50	CH				M	Y

Wetness Grade 1 Wetness Class I  
 Gleying cm  
 SPL No SPL

Drought Grade 1 APW 153mm MBW 43 mm  
 APP 120mm MBP 17 mm

FINAL ALC GRADE 1  
 MAIN LIMITATION

SOIL PIT DESCRIPTION

Site Name MAIDSTONE LP SITE 3 Pit Number 2P

Grid Reference TQ79335790 Average Annual Rainfall 691 mm  
 Accumulated Temperature 1399 degree days  
 Field Capacity Level 142 days  
 Land Use Permanent Grass  
 Slope and Aspect 01 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 21	MZCL	10YR42 43	3	5	HR					Y
21- 37	MZCL	10YR54 00	0	10	HR		MDCSAB	FR	M	Y
37- 47	MZCL	10YR64 00	0	10	CH		MDCSAB	FR	M	Y
47- 90	MZCL	10YR64 00	0	50	CH		MDCSAB	FR	M	Y

Wetness Grade 1 Wetness Class I  
 Gleying cm  
 SPL No SPL

Drought Grade 2 APW 117mm MBW 7 mm  
 APP 110mm MBP 7 mm

FINAL ALC GRADE 2  
 MAIN LIMITATION Droughtiness

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SAMPLE NO	GRID REF	ASPECT USE	GRDNT	WETNESS--	-WHEAT-		-POTS		M REL		EROSN	FROST	CHEM	ALC	COMMENTS
					GLEY	SPL	CLASS	GRADE	AP	MB					
1	TQ79405800	PGR SW	01		1	1	55	-55	55	48	4			DR 3B	IMPFLS30 SEE1P
1P	TQ79405800	PGR SW	01		1	1	153	43	120	17	1			1	PIT 55 AUGD120
2	TQ79335790	PGR S	01		1	1	106	-4	117	14	3A			DR 2	IMPFL70 SEE2P
2P	TQ79335790	PGR S	01		1	1	117	7	110	7	2			DR 2	IMPCHALK 90

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED COL	----STONES --			STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
				COL	ABUN	CONT		GLE	>2	>6							LITH
1	0-24	mzc1	10YR43 00					0	0	CH	1					Y	
	24-30	mzc1	10YR44 00					0	0	CH	5		M			Y	IMP FLINTS 30
1P	0-24	mzc1	10YR43 00					1	0	HR	3					Y	
	24-50	mzc1	10YR44 00					0	0	HR	5	MDCSAB	FR	M		Y	PIT DUG TO 55
	50-70	hzc1	10YR44 00					0	0	CH	2		M			Y	
	70-95	mzc1	10YR54 00					0	0	CH	15		M			Y	
	95-110	mzc1	10YR63 54					0	0	CH	15		M			Y	
	110-120	mzc1	10YR63 00					0	0	CH	50		M			Y	Pit AUG D TO 120
2	0-20	mzc1	10YR42 43					0	0	CH	2					Y	
	20-50	mzc1	10YR56 00					0	0	CH	3		M			Y	
	50-65	mzc1	10YR54 64					0	0	CH	15		M			Y	
	65-70	ch	25Y 71 00					0	0		0		P			Y	IMP CHALK 70
2P	0-21	mzc1	10YR42 43					3	0	HR	5					Y	
	21-37	mzc1	10YR54 00					0	0	HR	10	MDCSAB	FR	M		Y	
	37-47	mzc1	10YR64 00					0	0	CH	10	MDCSAB	FR	M		Y	MBW=33 MBP=7 TO 120
	47-90	mzc1	10YR64 00					0	0	CH	50	MDCSAB	FR	M		Y	IMP CHALK 90