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Maidstone Borough Local Plan
Site 20 Land South of Vicarage Road, Yalding
Agricultural Land Classification
ALC Map and Report
August 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

MAIDSTONE BOROUGH LOCAL PLAN
SITE 20 LAND AT SOUTH OF VICARAGE ROAD, YALDING

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 district of Kent This work forms part of MAFF's statutory input to the Maidstone Borough Local Plan

1 2 Site 20 comprises approximately 3 hectares of land to the south of Vicarage Road in the village of Yalding in Kent An Agricultural Land Classification (ALC) survey was carried out in August 1994 The survey was undertaken at a detailed level of approximately one boring per hectare of agricultural land A total of 4 borings and one soil inspection pit 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 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 the survey the agricultural land on the site was permanent grassland and a tree nursery Land mapped as non agricultural includes unmanaged scrub field margins and allotments The area marked as urban comprises a playing field

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 survey information for this site

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	2 0	64 5	100% (2 0 ha)
Non-agricultural	0 8	25 8	
Urban	0 3	9 7	
Total area of site	3 1	100%	

1 6 Appendix 1 gives a general description of the grades and landuse categories identified in this survey The main classes are described in terms of limitation that can occur the typical cropping range and expected level and consistency of yield

1 7 All of the agricultural land on the site has been classified as Grade 2 very good quality land with minor soil droughtiness as the main limitation Soil profiles tended to comprise medium textured topsoils overlying similar or sandier textures in the subsoil A number of profiles have sufficient reserves of available water to be classified as Grade 1 although the sandier subsoils in some areas do cause a slight droughtiness restriction such that an overall classification of Grade 2 is appropriate

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 degree days Jan June) 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 grid point 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 the field capacity days for the site are relatively low in regional and national terms and therefore the likelihood of any soil wetness problems may be decreased

2 4 No local climatic factors such as exposure or frost risk are believed to affect the site

Table 2 Climatic Interpolation

Grid Reference	TQ701500
Altitude (m AOD)	15
Accumulated Temperature (degree days Jan June)	1493
Average Annual Rainfall (mm)	650
Field Capacity (days)	135
Moisture Deficit Wheat (mm)	123
Moisture Deficit Potatoes (mm)	121
Overall Climatic Grade	1

3 Relief

3 1 The site is flat lying at an altitude of 15m AOD

4 Geology and Soil

4 1 The relevant geological sheet (BGS 1976) shows the entire site to be underlain by river brickearth

4 2 The published Soil Survey map (SSEW 1983) shows the soils on the site to comprise those of the Shabbington association These soils are described as deep fine loamy over sandy soils variably affected by groundwater (SSEW 1983)

4 3 Detailed field examination found the soils on the site to be silty in nature occasionally with sandier subsoils and signs of slight groundwater gleying

5 Agricultural Land Classification

5 1 Table 1 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 All of the agricultural land on the site has been classified as Grade 2 very good quality due to a slight droughtiness limitation that may affect the level and consistency of crop yields Soil profiles typically comprise a medium clay loam sandy silt loam or silt loam topsoil overlying similar or sandier subsoils showing variability across the site All of the soils on the site tend to be stoneless throughout A soil inspection pit (Pit no 1) was dug towards the centre of the site where textures tend to comprise both loamy or silty topsoils and subsoils A stoneless medium clay loam topsoil overlies a stoneless silt loam upper subsoil which extends to 75 cm The lower subsoil consists of a stoneless medium silty clay loam The profile shows no signs of any wetness limitation and is therefore assigned to Wetness Class I However towards the east of the site the soils showed signs of slight groundwater gleying and are therefore assigned to Wetness Class II The soil profile as evidenced in the pit shows no signs of any limitation on the amount of profile available water for plant growth and is therefore assigned to Grade 1 excellent quality land It should be noted that although a number of soil observations on the site showed land to be of excellent quality with no limitations the variability in the nature of soils at this location means that an overall classification of Grade 2 is appropriate as a result of slight restrictions on profile available water particularly where subsoils comprise more sandy texture

SOURCES OF REFERENCE

British Geological Survey (1976) Sheet No 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 (1983) Sheet 6 Soils of South East England 1 250 000 and accompanying legend

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 religous buildings cemetries 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[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years [2]
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

[1]The number of days specified is not necessarily a continuous period

[2] In most years is defined as more than 10 out of 20 years

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents

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

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

3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer

4 **GLEY/SPL** 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

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

Soil Pits and Auger Borings

1 TEXTURE soil texture classes are denoted by the following abbreviations

S	Sand	LS	Loamy Sand	SL	Sandy Loam
SZL	Sandy Silt Loam	CL	Clay Loam	ZCL	Silty Clay Loam
ZL	Silt Loam	SCL	Sandy Clay Loam	C	Clay
SC	Sandy Clay	ZC	Silty Clay	OL	Organic Loam
P	Peat	SP	Sandy Peat	LP	Loamy Peat
PL	Peaty Loam	PS	Peaty Sand	MZ	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

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 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 GLEY 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

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

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

8 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	

9 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

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

11 POR Soil porosity If a soil horizon has less than 0 5% biopores >0 5 mm a Y will appear in this column

12 IMP If the profile is impenetrable to rooting a Y' will appear in this column at the appropiate horizon

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

14 CALC If the soil horizon is calcareous a Y will appear in this column

15 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 20 Pit Number 1P

Grid Reference TQ70105000 Average Annual Rainfall 650 mm
Accumulated Temperature 1493 degree days
Field Capacity Level 135 days
Land Use
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MCL	10YR32 00	0	0						
30- 75	ZL	10YR54 00	0	0			MDCSAB	FR	M	
75-120	MZCL	10YR56 00	0	0			MDCSAB	FR	M	

Wetness Grade 1 Wetness Class I
Gleying cm
SPL No SPL

Drought Grade 1 APW 178mm MBW 55 mm
APP 142mm MBP 21 mm

FINAL ALC GRADE 1
MAIN LIMITATION

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
1P	0-30	mcl	10YR32 00						0	0		0						
	30-75	zl	10YR54 00						0	0		0	MDCSAB FR	M				
	75 120	mzcl	10YR56 00						0	0		0	MDCSAB FR	M				
2	0-30	mcl	10YR43 00						0	0		0						
	30-75	mcl	10YR54 00						0	0		0		M				
	75-85	scl	10YR54 00	10YR63 00	F				0	0		0		M				
	85 120	scl	10YR54 00	75YR58 00	C		10YR73 00	S	0	0		0		M				
3	0-32	mzcl	10YR43 00						0	0	HR	2						
	32-70	zl	10YR54 00						0	0		0		M				
	70-120	scl	10YR56 00	00MN00 00	F				0	0		0		M				
4	0-32	mcl	10YR42 00						0	0		0						
	32-40	mcl	10YR53 00	75YR46 00	C		25 Y74 00	Y	0	0		0		M				
	40-70	hcl	10YR52 00	75YR46 00	M		10YR63 72	Y	0	0		0		M				
	70-120	mzcl	10YR52 00	75YR46 00	M		10YR63 72	Y	0	0		0		M				
5	0-30	zl	10YR43 00						0	0	HR	2						
	30-60	zl	10YR44 00						0	0	HR	2		M				
	60-100	mzcl	10YR56 00						0	0		0		M				
	100-120	zl	10YR56 00						0	0		0		M				

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	- WETNESS - SPL	CLASS	GRADE	WHEAT- AP	WHEAT- MB	-POTS AP	-POTS MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1P	TQ70105000	HOR					1	1	178	55	142	21	1					1	
2	TQ70105010	HOR		085			1	1	156	33	118	3	2				DR	2	
3	TQ70105000	PGR					1	1	177	54	143	22	1					1	
4	TQ70185000	HOR		032			2	2	156	33	118	3	2				WD	2	
5	TQ70100499	PGR					1	1	193	70	149	28	1					1	