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Maidstone Borough Local Plan
Site 60 Land off Lower Road/
Vicarage Lane, East Farleigh
Agricultural Land Classification
ALC Map and Report
August 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

MAIDSTONE BOROUGH LOCAL PLAN
SITE 60 LAND OFF LOWER ROAD/VICARAGE LANE, EAST FARLEIGH

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 60 comprises approximately 7 hectares of land adjacent to Lower Road and Vicarage Lane south of the village of East Farleigh 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 8 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 all of the agricultural land on the site comprised apple and pear orchards

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
2	1 3	18 6
3a	5 7	81 4
Total area of site	7 0 ha	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 The land on the site has been classified as Grade 2 and Subgrade 3a, very good and good quality land respectively with soil droughtiness as the main limitation Fine loamy and silty soils contain variable hard sandstone contents and tend to become

heavier and more stony with depth Soils in the north of the site on the lower ground tend to be less stony than those in the south hence the variation in grades the less stony soils being less droughty and thereby assigned to Grade 2 rather than Subgrade 3a

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 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 climatic factors do interact with soil properties to influence soil wetness and soil droughtiness limitations At this locality the climate is relatively warm and dry in a national context thereby enhancing the likelihood of soil droughtiness being a problem

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

Table 2 Climatic Interpolations

Grid Reference	TQ736530	TQ733532
Altitude (m AOD)	55	35
Accumulated Temperature (degree days Jan-June)	1446	1468
Average Annual Rainfall (mm)	683	674
Field Capacity (days)	139	138
Moisture Deficit Wheat (mm)	116	119
Moisture Deficit Potatoes (mm)	112	115
Overall Climatic Grade	1	1

3 Relief

3 1 The site lies at an altitude of approximately 35 60 m AOD the highest land being along the southern site boundary with land falling gently northwards towards the Medway valley Nowhere on the site do gradient or relief affect agricultural land quality

4 Geology and Soil

4 1 British Geological Survey (1976) shows the site to be underlain by Hythe Beds sandy limestones and calcareous sands

4 2 Soil Survey of England and Wales (1983) shows the site to comprise the Malling Association These are described as well drained fine loamy soils over limestone and some similar fine loamy over clayey soils (SSEW 1983)

4 3 Detailed field examination found the soils on the site to be fine loamy and silty becoming heavier with depth and containing variable amounts of hard sandstone brash typically becoming more stony with depth

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 Very good quality land has been mapped along the northern edge of the site across the lower lying land Soils tend to be deeper and/or less stony here than elsewhere on the site Consequently the soil droughtiness limitation which affects the land quality is only a minor one

Profiles typically comprise silt loam or sandy silt loam topsoils which are non calcareous and contain 5% total sandstone fragments (up to 3% of which are >2 cm in size) These overlie similar textures or silty clay loam subsoils which become heavier with depth and which are only very slightly stony (2 5% total sandstone fragments) These soils may exhibit signs of slightly imperfect drainage in the form of gleying in the lower subsoil but overall Wetness Class I is appropriate The interaction between soil properties ie textures structures and stone contents with the locally dry climate causes profile available water to be slightly restricted such that Grade 2 is appropriate due to minor soil droughtiness Yield potential may be affected accordingly

Subgrade 3a

5 4 The majority of the site has been assigned to Subgrade 3a good quality land also on the basis of soil droughtiness Soil profiles are similar to those described above in terms of textural and structural characteristics the difference being that subsoils lower subsoils in particular are more stony All profiles were impenetrable to soil auger between 40 and 65 cm depth as a result of stony subsoil horizons A subsequent soil inspection pit (1p) showed upper subsoils to contain approximately 15% total sandstone fragments by volume whilst lower subsoils became more stony containing about 25% sandstone brash The depth at which stone contents increase to 25% generally approximates to the depth at which profiles were

impenetrable to soil auger Profiles are generally well drained Wetness Class I The combination of soil properties particularly relatively high stone contents in the subsoil and a dry climatic regime at this locality results in reduced profile available water and therefore a soil droughtiness limitation Yield potential may be adversely affected whilst plants may suffer drought stress during the summer months

ADAS Ref 2007/159/94
MAFF Ref EL20/328

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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

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 (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	**FRT**	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	**FSST**	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 60 Pit Number 1P

Grid Reference TQ73505310 Average Annual Rainfall 674 mm
Accumulated Temperature 1468 degree days
Field Capacity Level 138 days
Land Use
Slope and Aspect 03 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 23	MSZL	10YR42 00	0	2	HR					
23- 43	MCL	10YR54 00	0	15	HR		MDCSAB	FR	M	
43- 60	C	75YR56 46	0	15	HR		MDCOAB	FR	M	
60 120	C	75YR56 00	0	25	HR				M	

Wetness Grade 1 Wetness Class I
Gleying cm
SPL No SPL

Drought Grade 2 APW 124mm MBW 5 mm
APP 106mm MBP -9 mm

FINAL ALC GRADE 2
MAIN LIMITATION Droughtiness

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
1	0-30	zl	10YR52 00						3	0	HR	5						
	30 45	zl	10YR52 00	10YR58 00	F				0	0	HR	2		M				
	45 70	mzcl	10YR52 53	10YR58 00	C		00MN00 00	Y	0	0	HR	2		M				
	70 80	hzcl	10YR43 44	10YR58 00	C		00MN00 00	S	0	0	HR	2		M			Imp 80	sandstone
1P	0 23	mszl	10YR42 00						0	0	HR	2						
	23 43	mcl	10YR54 00						0	0	HR	15	MDCSAB	FR	M			
	43 60	c	75YR56 46						0	0	HR	15	MDCOAB	FR	M			
	60 120	c	75YR56 00						0	0	HR	25		M				
2	0 30	mszl	10YR42 00						0	0	HR	5						
	30 120	zl	10YR54 00						0	0	HR	5		M				
3	0-25	zl	10YR52 00						0	0	HR	2						
	25 40	mzcl	10YR54 52	00MN00 00	F				0	0		0		M				
	40 50	mzcl	10YR54 00						0	0	HR	5		M			Imp 50	sandstone
4	0-25	zl	10YR52 00						3	0	HR	5						
	25 50	mzcl	10YR54 53	10YR58 00	F				0	0	HR	2		M				
	50-60	mzcl	75YR54 00						0	0	HR	5		M			Imp 60	sandstone
5	0 26	zl	10YR52 00						0	0	HR	3						
	26-50	mzcl	10YR53 00	10YR58 00	C			Y	0	0	HR	3		M				
	50 65	mzcl	10YR54 00	10YR58 00	C			S	0	0		0		M			Imp 65	sandstone
6	0 28	mszl	10YR42 00						0	0	HR	2						
	28 50	mcl	10YR54 00						0	0	HR	5		M				
	50-60	hcl	10YR54 00						0	0	HR	5		M			Imp 60	sandstone
7	0-29	mszl	10YR42 00						0	0	HR	2						
	29-50	mzcl	10YR54 00						0	0	HR	2		M				
	50 58	c	75YR46 00			C	00MN00 00		0	0	HR	5		M			Imp 58	sandstone
8	0 20	zl	10YR52 00						0	0	HR	3						
	20 35	mzcl	10YR54 00						0	0	HR	3		M				
	35-40	mzcl	10YR54 00						0	0	HR	10		M			Imp 40	sandstone

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS - CLASS	GRADE	-WHEAT AP	MB	POTS- AP	MB	DRT	M REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TQ73305320	ORC			045		1	1	136	17	140	25	2				DR	2	IMP 80
1P	TQ73505310	ORC	N	03			1	1	124	5	106	9	2				DR	2	BORDER 3A
2	TQ73405320	ORC					1	1	189	70	138	23	1					1	
3	TQ73575317	ORC					1	1	98	21	98	17	3B				DR	3A	IMP 50 SEE 1P
4	TQ73305310	ORC					1	1	106	-13	113	-2	3A				DR	3A	IMP 60 SEE 1P
5	TQ73405310	ORC			026		2	2	113	6	123	8	3A				DR	3A	IMP 65
6	TQ73505310	ORC	N	02			1	1	95	-24	101	14	3B				DR	3A	IMP 60 SEE 1P
7	TQ73505300	ORC	N	04			1	1	95	24	101	-14	3B				DR	3A	IMP 58 SEE 1P
8	TQ73605300	ORC	N	04			1	1	77	42	77	-38	3B				DR	3A	IMP 40 SEE 1P