

A1
LAND OFF MAIDSTONE ROAD
PEMBURY KENT
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
MAY 1993

LAND OFF MAIDSTONE ROAD PEMBURY KENT AGRICULTURAL LAND CLASSIFICATION REPORT

1 0 Summary

1 1 In May 1993 a detailed Agricultural Land Classification (ALC) was made on approximately 2 hectares of land west of Maidstone Road and south of Downing-bury Farm in Pembury Kent

1 2 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS in response to a commission by MAFF's Land Use Planning Unit to provide information on the quality of agricultural land affected by possible inclusion in the Tunbridge Wells Local Plan

1 3 All of the site has been classified as Grade 2 Soil wetness is the key limitation

1 4 The classification has been made using MAFF's revised guidelines and criteria for grading the quality of agricultural land 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 5 The site was surveyed previously in 1985 using MAFF's Original ALC system Fresh fieldwork was required to look at the soils in more detail and to confirm the grading under the Revised ALC guidelines

1 6 The fieldwork was carried out with an observation density of approximately one per hectare A total of 2 borings and 1 soil pit was examined

1 7 At the time of survey the land use on the site was a mixture of strawberries and bare soil

1 8 A general description of the grades and sub grades is provided as an appendix 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

2 0 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 the overall climatic limitation are annual average 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 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 affect the site

Table 2 _ Climatic Interpolations

Grid Reference TQ630421
Altitude (m) 90
Accumulated Temperature (days) 1413
Average Annual Rainfall (mm) 753
Field Capacity (days) 156
Moisture Deficit Wheat (mm) 105
Moisture Deficit Potatoes (mm) 98
Overall Climatic Grade 1

3 0 Relief

3 1 The land is either flat or very gently sloping with a north westerly aspect

4 0 Geology and Soil

4 1 The relevant geological sheets for the site show the underlying geology to be Lower Tunbridge Wells Sand which is a fine grained sandstone with thin beds of clay

4 2 The soil profiles may exhibit variable horizons sometimes sandy sometimes clayey which may result in a soil droughtiness or soil wetness limitation

5 0 Agricultural Land Classification

5 1 The location of the site is shown on the attached ALC map

5 2 The location of the soil observation points is shown on the attached auger sample point map

5 3 Grade 2 The whole of the site has been placed in this grade The soils are typically Medium Clay Loam topsoils overlying Medium Clay Loam upper subsoils which progress into light Sandy Clays in the lower subsoil The upper subsoils may exhibit shallow gleying but the structures throughout the profile are moderate There is therefore only a slight wetness limitation The soils are placed in Wetness Class II (see Appendix III for definition) This in combination with the topsoil texture and the prevailing Field Capacity level creates a slight wetness/workability limitation This in effect restricts the number of days when the land can be trafficked by machinery or grazed by livestock without causing structural damage The soil pit itself is classified as Grade 1 (ie there is no significant wetness or droughtiness limitation) but the variation in the wetness characteristics of the soils nearby developed over similar geology means that Grade 2 is the most appropriate grade for this small site

ADAS Reference 2014/70/93
MAFF Reference EL20/306

Resource Planning Team
Guildford Statutory Group

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB GRADES

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 on the 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.

Grade 3 Good To Moderate Quality Agricultural Land

Land with moderate limitations which affect the choice of crops, 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.

Sub grade 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.

Sub grade 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 very 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 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/airfields Also active mineral workings and refuse tips where restoration conditions to soft after uses may apply

Woodland

Includes commercial and non-commercial 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

REFERENCES

- * MAFF (1988) Agricultural Land Classification of England And Wales revised guidelines and criteria for grading the quality of agricultural land
- * Meteorological Office (1989) Climatological Data for Agricultural Land Classification
- * British Geological Survey (19) Sheet No 271 & 303

APPENDIX III

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

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

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years or if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days but not wet within 40cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years or if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 180 days but only wet within 40cm depth for 31-90 days in most years

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years or if there is no slowly permeable layer within 80cm depth it is wet within 40cm depth for 91-210 days in most years

Wetness Class V

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

Wetness Class VI

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

(The number of days is not necessarily a continuous period 'In most years' is defined as more than 10 out of 20 years)

APPENDIX IV

SOIL PIT AND SOIL BORING DESCRIPTIONS

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil profile and pit information obtained during ALC surveys is held on a database. This has commonly used notations and abbreviations as set out below.

BORING HEADERS

1 GRID REF National grid square followed by 8 figure grid reference

2 USE Land-use at the time of survey
 The following abbreviations are used

- | | |
|-------------------------------|-----------------------------|
| ARA - arable | PAS/PGR - permanent pasture |
| WHT - wheat | RGR - rough grazing |
| BAR - barley | LEY - ley grassland |
| CER - cereals | CFW - coniferous woodland |
| OAT - Oats | DCW - deciduous woodland |
| MZE - maize | SCR - scrub |
| OSR - Oilseed rape | HTH - heathland |
| BEN - field beans | BOG - bog or marsh |
| BRA - brassicae | FLW - fallow |
| POT - potatoes | PLO - ploughed |
| SBT - sugarbeet | SAS - set-aside |
| FCD - fodder crops | OTH - other |
| FRT - soft and top fruit | LIN - linseed |
| HOR/HRT - horticultural crops | |

3 GRDNT Gradient as measured by optical reading clinometer

4 GLEY/SPL Depth in centimetres (cm) to gleyed and/or slowly permeable horizons

5 AP (WHEAT/POTS) Crop-adjusted available water capacity. The amount of soil water (in millimetres) held in the soil profile that is available to a growing crop (wheat and potatoes are used as reference crops)

6 MB (WHEAT/POTS) The moisture balance for wheat and potatoes obtained by subtracting the soil moisture deficit from the crop-adjusted available water capacity

7 DRT Grade according to soil droughtiness assessed against soil moisture balances

8 M REL Micro-relief)
 FLOOD Flood risk) If any of these factors are considered
 EROSN Soil erosion) significant in terms of the assessment
 EXP Exposure) of agricultural land quality a y will
 FROST Frost prone) be entered in the relevant column
 DIST Disturbed land)
 CHEM Chemical limitation))

- 9 LIMIT Principal limitation to agricultural land quality
The following abbreviations are used

OC - overall climate	CH - chemical limitations
AE - aspect	WE - wetness
EX - exposure	WK - workability
FR - frost	DR - drought
GR - gradient	ER - erosion
MR - micro-relief	WD - combined soil wetness/soil droughtiness
FL - flooding	ST - topsoil stoniness
TX - soil texture	
DP - soil depth	

PROFILES & PITS

- 1 TEXTURE Soil texture classes are denoted by the following abbreviations

S - sand
LS - loamy sand
SL - sandy loam
SZL - sandy silt loam
ZL - silt loam
MZCL - medium silty clay loam
MCL - medium clay loam
SCL - sandy clay loam
HZCL - heavy silty clay loam
SC - sandy clay
ZC - silty clay
C - clay

For the sand loamy sand sandy loam and sandy silt loam classes the predominant size of sand fraction may be indicated by the use of prefixes

F - fine (more than $\frac{2}{3}$ of the sand less than 0.2 mm)
C - coarse (more than $\frac{1}{3}$ of sand greater than 0.6 mm)
M - medium (less than $\frac{2}{3}$ fine sand and less than $\frac{1}{3}$ coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows

M - medium (less than 27% clay)
H - heavy (27-35% clay)

Other possible texture classes include

OL - organic loam
P - peat
SP - sandy peat
LP - loamy peat
PL - peaty loam
PS - peaty sand
MZ - marine light silts

2 MOTTLE COL Mottle colour

3 MOTTLE ABUN Mottle abundance

F - few - less than 2% of matrix or surface described

C - common - 2-2% of the matrix

M - many - 20-40% of the matrix

VM - very many - 40% + of the matrix

4 MOTTLE CONT Mottle continuity

F - faint - indistinct mottles evident only on close examination

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 Stone lithology One of the following is used

HR - all hard rocks or stones

MSST - soft medium or coarse grained sandstone

SI - soft weathered igneous or metamorphic

SLST - soft oolitic or dolomitic limestone

FSST - soft fine grained sandstone

ZR - soft argillaceous or silty rocks

CH - chalk

GH - gravel with non-porous (hard) stones

GS - gravel with porous (soft) stones

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 well developed

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

- ped shape S - single grain
M - massive
GR - granular
SB/SAB - sub-angular blocky
AB - angular blocky
PR - prismatic
PL - platy

8 CONSIST Soil consistence is decribed 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 MAIDSTONERD PEMBURY TWLP Pit Number 1P

Grid Reference TQ63024214 Average Annual Rainfall 753 mm
 Accumulated Temperature 1413 degree days
 Field Capacity Level 156 days
 Land Use Fallow
 Slope and Aspect degrees NW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	MOTTLES	STRUCTURE
0 32	MCL	10YR32 00	0	1		
32 65	MCL	10YR54 00	0	0	F	MCSAB
65 100	SC	75YR54 00	0	0	C	MCSAB
100 120	FSL	10YR54 00	0	0	F	

Wetness Grade 1 Wetness Class I
 Gleying 000 cm
 SPL No SPL

Drought Grade 1 APW 162mm MBW 57 mm
 APP 117mm MBP 19 mm

FINAL ALC GRADE 1
 MAIN LIMITATION

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEI	SPL	WETNLSS CLASS	GRADE	WHEAT AP	POTS IB	AP	MB	I REL DRT	EROSN FLOOD	FROST EXP	CHEI DIST	ALC LI IIT	COMMENTS	
1	T063094217	SFT	N	01	030		2 2		143	38	118	20	1				WE	2	NO SPL
1P	T063024714	FAL	NW		000		1 1		167	5	11	19	1					1	NO GLEY
2	T063054204	SFT	NW	01	065		1 1		113	5	116	15	2				DR	2	I IP

SAMPLE	DEPTH	TEXTURE	COLOUR	IOTILES		PED	STONES			STRUCT/	SUBS	STR	POR	IIP	SPL	CALC
				COL	ABUN		CONT	COL	GLEI							
1	0 30	mcl	10YR43 00						0	0	0					
	30 55	mcl	2.5Y 4 00 000C00 00 I						Y	0	0				I	
	50 120	c	10YR6S 00 000C00 00 C						Y	0	0				N	
1P	0 32	mcl	10YR32 00						0	0	HR	1				
	32 65	mcl	10YR54 00 000C00 00 F						0	0		0	MCS4B	FR	M	
	60 100	sc	7.5YR54 00 000C00 00 C						0	0		0	I SAB	FR	I	Y
	100 120	fsl	10YR54 00 000C00 00 F						0	0		0			I	
2	0-30	mcl	10YR13 00						0	0		0				
	30 60	mcl	10YR54 61 000C00 00 C						0	0	MSST	2			M	
	65 100	scl	2.5Y 54 00 000C00 00 C						Y	0	0	MSST	2		I	