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Winchester District Local Plan
Site 57 Land at Curdrige
Hampshire
Agricultural Land Classification
ALC Map and Report
July 1994

AGRICULTURAL LAND CLASSIFICATION, REPORT

WINCHESTER DISTRICT LOCAL PLAN SITE 57 LAND AT CURDRIDGE HAMPSHIRE

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 Winchester district of Hampshire. The work forms part of MAFF's statutory input to the Winchester District Local Plan.
- 1.2 Site 57 comprises 5.6 hectares of land at Curdridge in Hampshire. An Agricultural Land Classification (ALC) survey was carried out in July 1994. The survey was undertaken at a detailed level. A total of 7 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 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 the survey the agricultural land was under permanent grass but had not been managed for some time.
- 1.5 The Agricultural Land Classification of the site is shown on the attached 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. This map supersedes any previous ALC survey information for this site.
- 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 agricultural land at this site has been classified as moderate quality (Subgrade 3b). The principal limitation is soil wetness. Clay loam topsoils overlie slowly permeable clay at shallow depths in the profile causing drainage to be severely impeded. This severely restricts the opportunities for cultivation and/or stocking without the risk of structural damage to the soil.

some deep coarse loamy soils affected by groundwater occur. Soils of the waterlogged fine loamy over clayey phase were encountered during the survey.

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.

Subgrade 3b

5.3 Land of moderate quality has been mapped for the whole of the site. The principal limitation is soil wetness due to poor drainage. Soil profiles typically comprise a stoneless to very slightly stony (up to 5% v/v flints) occasionally gleyed medium or heavy clay loam topsoil. This passes to a similarly stony gleyed slowly permeable clay subsoil as recorded in the pit observation (1P Appendix III). These subsoil characteristics cause the soils to be placed in Wetness Class IV (Appendix II) the topsoil texture and the prevailing field capacity level (168-170 days) restricts the grading to Subgrade 3b.

ADAS Ref 1513/113/94
MAFF Ref EL15/594

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1971) Sheet 316 Fareham 1 63 360 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 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 (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 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 (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.

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

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

APPENDIX III
SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents

Soil Abbreviations Explanatory Note

Soil Pit Descriptions

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 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 **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

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 **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

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 appropriate 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 WINCHESTER LP SITE 57 Pit Number 1P

Grid Reference SU52801340 Average Annual Rainfall 817 mm
 Accumulated Temperature 1531 degree days
 Field Capacity Level 170 days
 Land Use Rough Grazing
 Slope and Aspect 02 degree NW

HORIZON	TEXTURE	COLOUR	STONES	%	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	HCL	10YR42 00	0		5	HR	F				
25 57	C	05Y 62 00	0		2	HR	M	MDCPR	VM	P	

Wet Grade 3B Wet C1 IV
 Gleying 025 cm
 SPL 025 cm

D ight Grade APW 000mm MBW 0 mm
 APP 000mm MBP 0 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Wet

SAMPLE NO	GRID REF	ASPECT		WETNESS			WHEAT		POTS		M REL		EROSN	FROST	CHEM	ALC	COMMENTS	
		USE	GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1	SU52801340	RGR	NW	02	0	060	4	3B	122	11	115	10	2			WE	3B	SPL 30
1P	SU52801340	RGR	NW	02	025	025	4	3B	000	0	000	0				WE	3B	P57SPL25
2	SU52601330	PGR			025		2	2	090	21	097	8	3B			DR	3A	IMP60STN
3	SU52701330	RGR	NW	01	0	030	4	3B	094	17	106	1	3A			WE	3B	SPL 30
4	SU52601320	SET	E	02	030	030	4	3B	098	13	103	2	3A			WE	3B	
5	SU52701320	PGR	NW	02	020	020	4	3B	076	35	079	26	3B			WE	3B	SPL 20
6	SU52501310	SET	E	01	040	040	4	3B	104	7	109	4	3A			WE	3B	
7	SU52601310	SET	E	02	035	035	4	3B	115	4	106	1	3A			WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES			PED		STONES			STRUCT/	SUBS					
				COL	ABUN	CONT	COL	GLE	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1	0 30	hc1	25Y 42 00	10YR58	00	C		Y	0	0	0							
	30 60	c	25Y 42 52	10YR58	00	C		Y	0	0	0			P			Y	
	60 100	c	25Y 63 72	10YR58	00	M		Y	0	0	0			P			Y	
1P	0 25	hc1	10YR42	00	75YR58	00	F			0	0	HR	5					
	25-57	c	05Y 62 00	75YR58	00	M		25Y 52 00	Y	0	0	HR	2	MDCPR	VM	P	Y	Y
2	0 25	mc1	10YR42	00						0	0	HR	5					
	25-45	c	10YR52	00	000C00	00	M		Y	0	0	HR	2			M		
	45 60	c	25Y 52 00	000C00	00	M		Y	0	0	HR	5			M		IMP 60 STONES	
3	0 30	mc1	10YR41	00	10YR46	00	C		Y	0	0		0					
	30 70	c	25Y 72 00	10YR68	00	M		Y	0	0			0		P		Y	
4	0 30	mc1	10YR33	00						0	0	HR	5					
	30 80	c	25Y 72 00	10YR78	00	C		Y	0	0			0		P		Y	
5	0 20	mc1	10YR42	00						0	0	HR	5					
	20 55	c	25Y 62 00	000C00	00	M		Y	0	0	HR	1		P	Y		Y	
6	0 40	mc1	10YR32	00	75YR58	00	F			0	0	HR	3					
	40 80	c	25Y 70 00	10YR58	00	C		Y	0	0			0		P		Y	
7	0 35	mc1	10YR32	00						0	0	HR	5					
	35 100	c	25Y 60 00	10YR58	00	C		Y	0	0			0		P		Y	