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Aylesbury Vale Local Plan
Land at Furze Lane,
Winslow, Buckingham
Agricultural Land Classification Report
June 1996.

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

AYLESBURY VALE LOCAL PLAN LAND AT FURZE LANE, WINSLOW

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on approximately 17 hectares of land between Verney Road and the railway line, to the west of Furze Lane, Winslow, in Buckinghamshire. The survey was carried out during June 1996.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit, in Reading, in connection with the Aylesbury Vale Local Plan. The results of this survey supersede any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I
4. At the time of survey all of the agricultural land on this site was under permanent grassland. The areas shown as 'Other Land' include a recreation ground.

Summary

5. The findings of the survey are shown on the enclosed 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.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 below.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area	% Surveyed Area
2	1.8	10.5	11.7
3a	13.6	79.0	88.3
Other land	1.8	10.5	-
Total surveyed area	15.4	-	100.0
Total site area	17.2	100.0	-

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 17 borings and one soil inspection pit were described.

8. The majority of the agricultural land on this site has been classified as Subgrade 3a (good quality), the key limitation being soil wetness. A small area of Grade 2 land (very good quality) has also been mapped on the higher land, in the north east corner of the site, where soil droughtiness is limiting.

9. In general the profiles on the Subgrade 3a land are moderately drained, comprising medium clay loam topsoils over heavy clay loam upper subsoils. Below this, the poorly structured clay lower subsoils impede drainage resulting in prolonged seasonal waterlogging. Seed germination and growth will therefore be slightly restricted. Given the local climatic regime, the medium topsoil textures can also limit the timing of cultivations, as trafficking by farm machinery and grazing livestock can lead to structural damage. These profiles have therefore been classified as Subgrade 3a due to soil wetness. Occasional higher and lower quality profiles also occur within this mapping unit but these were too limited in number and extent to map separately at this scale.

10. To the north east of the site, the soil profiles are well drained, comprising a very slightly flinty medium clay loam over similar or marginally sandier upper subsoils with a slight flint content. The lower subsoils are only very slightly stony but distinctly sandier, comprising well structured loamy medium sands or medium sands. In this local climatic regime, the combination of soil textures, structures and stone contents acts to slightly reduce the amount of profile available water for crops. As a result the level and consistency of crop yields is restricted. With the help of additional detailed information from an adjacent site to the north, this land has therefore been classified as Grade 2 on the basis of a minor soil droughtiness limitation.

FACTORS INFLUENCING ALC GRADE

Climate

11. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

12. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

13. 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.

14. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation (this site is climatic Grade 1). However, climatic factors can interact with soil properties to influence soil wetness and droughtiness.

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SP 764 281	SP 766 282
Altitude	m, AOD	100	115
Accumulated Temperature	day°C (Jan-June)	1384	1367
Average Annual Rainfall	mm	675	678
Field Capacity Days	days	141	142
Moisture Deficit, Wheat	mm	104	102
Moisture Deficit, Potatoes	mm	95	92

16. Local climatic factors such as frost risk and exposure are not thought likely to adversely affect agricultural land use on this site.

Site

17. The land on this site slopes gently from 115m AOD in the north east and south east to 100m AOD in the bottom of a small valley which runs through the centre of the site.

18. Local site factors such as flooding, microrelief and gradient are not likely to affect land quality in this area.

Geology and soils

19. The relevant geological sheet (BGS, 1896) maps chalky Boulder Clay and Glacial sands on the higher land with Oxford Clay through the valley.

20. The most recently published soils information for this area (SSEW, 1983) maps the Ashley soil association across the site. These soils are described as 'Fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Associated with similar but wetter soils. Some calcareous and non-calcareous slowly permeable clayey soils.' (SSEW, 1983).

21. Detailed field examination revealed soils of a similar nature to those described above across the site.

Agricultural Land Classification

22. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

23. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix III.

Grade 2

24. A small area of Grade 2 agricultural land has been mapped on the highest point of this site. The profiles are typically well drained and non-calcareous, comprising very slightly stony (0-2% total flints) medium clay loam topsoils over moderately structured, slightly stony (5-10% total flints), medium clay loam or sandy clay loam upper subsoils. Occasional profiles were impenetrable to the soil auger at approximately 60cm depth as a result of the extremely dry conditions and slight stone content. Where the profile was not impenetrable, the lower subsoils comprised a moderately well structured sandy clay loam with 10% total stone over well structured, very slightly stony (1-5 % total flint) loamy medium sands and medium sands. Soil inspection Pit 1, from an adjacent survey (ADAS Ref: 0301/004/96) is believed to be representative of this soil unit and confirms the subsoil structural conditions. Therefore, in this locally cool and dry climatic regime, the combined effects of soil texture, structure and stone content lead to a slight soil droughtiness limitation as the amount of profile available water for crops is slightly reduced.

25. The majority of the agricultural land on this site has been mapped as Subgrade 3a due to a moderate soil wetness limitation. Soil inspection Pit 1 (from this site) typifies the Subgrade 3a soil unit. Here, a medium clay loam topsoil overlies a moderately structured heavy clay loam upper subsoil before passing to a poorly structured clay from approximately 43cm depth (38-65cm in the borings). The profiles are generally gleyed from the surface and contain little or no stone. The poorly structured clay lower subsoils are slowly permeable (being massive in structure) and impede drainage through the profile. The resultant waterlogged soils can inhibit seed germination and crop growth. In this local climatic regime the combined affect of medium topsoil textures and wet soils may also lead to a reduction in the flexibility of cultivations as, trafficking by farm machinery and grazing livestock can cause structural damage.

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ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1896) *Sheet No. XIX, Bucks.* 1:10,560 Series. Drift.
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
SSEW: Harpenden

SOIL PIT DESCRIPTION

Site Name : AYLESBURY LP,FURZE LANE Pit Number : 1P

Grid Reference: SP76602800 Average Annual Rainfall : 675 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 141 days
 Land Use : Permanent Grass
 Slope and Aspect : 02 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MCL	10YR41 42	0	1	HR	M				
27- 43	HCL	10YR41 00	0	0		M	MDCSAB	FM	M	
43-120	C	05Y 52 51	0	0		C	MASSVE	VF	P	Y

Wetness Grade : 3A Wetness Class : III
 Gleying : 0 cm
 SPL : 043 cm

Drought Grade : 2 APW : 132mm MBW : 28 mm
 APP : 109mm MBP : 14 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB					
1	SP76402820	PGR W	01	0 048	3	3A	106	2 111	16	3A			WE	3A	S1. Calc
1P	SP76602800	PGR W	02	0 043	3	3A	132	28 109	14	2			WE	3A	At Boring 11
2	SP76502820	PGR W	02		1	1	87	-17 89	-6	3A			DR	2	I55-1P 44/96
4	SP76302810	PGR		0 045	3	3A	106	2 110	15	3A			WE	3A	S1. Calc
5	SP76402810	PGR W	02	0 040	3	3A	102	-2 107	12	3A			WE	3A	Calc 40
6	SP76502810	PGR W	02	0 038	4	3B	101	-3 106	11	3A			WE	3B	Border 3a
7	SP76602810	RGR			1	1	126	22 109	14	2			DR	2	See 1P 44/96
8	SP76302800	PGR N	03	0 064	3	3A	140	36 117	22	1			WE	3A	Border 2
9	SP76402800	PGR SW	04	0 045	3	3A	134	30 111	16	1			WE	3A	Calc 45
10	SP76502800	PGR W	02		1	1	90	-14 94	-1	3A			DR	2	I60 Q Deeper
11	SP76602800	PGR W	01	0 040	3	3A	102	-2 107	12	3A			WE	3A	See Pit 1
12	SP76402790	PGR N	03	060	1	1	126	22 108	13	2			WE	3A	Wet Valley
13	SP76502790	PGR SW	04		1	1	104	0 115	20	3A			DR	2	I70 Q Deeper
14	SP76602790	PGR SW	04	0 060	3	3A	138	34 115	20	1			WE	3A	
15	SP76402780	PGR N	03	0 055	3	3A	131	27 107	12	2			WE	3A	Calc 55
16	SP76502780	PGR N	03	030 030	4	3B	129	25 106	11	2			WE	3B	Calc 45
17	SP76602780	PGR N	03	065 065	2	2	138	34 114	19	1			WE	2	Calc 65