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South Oxfordshire District Local Plan
Land at Mowbray Road, Didcot
Agricultural Land Classification
ALC Map and Report
September 1993

SOUTH OXFORDSHIRE DISTRICT LOCAL PLAN
LAND AT MOWBRAY ROAD, DIDCOT

AGRICULTURAL LAND CLASSIFICATION, REPORT

1 Summary

1 1 In September 1993 a detailed Agricultural Land Classification (ALC) survey was made on approximately 9 hectares of land either side of the disused railway line close to Mowbray Road Didcot in South Oxfordshire

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 proposals for inclusion in the South Oxfordshire District Local Plan

1 3 The classification has been made using 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 4 The fieldwork was carried out with an observation density of approximately one per hectare A total of 9 borings and two soil pits were examined

1 5 The table below provides the details of the grades found across the site The majority of the land is classified as good quality (Grade 3a) The key limitation is wetness

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
2	2 4	28 2	32 0
3a	5 1	60 0	68 0
Total Agricultural Area	7 5		100
Non Agricultural	1 0	11 8	
Total Area of Site	8 5	100	

1 6 The distribution of the ALC grades is shown on the attached map the information is presented at a scale of 1 5000 it is accurate at this level but any enlargement would be misleading This map supersedes any previous ALC information for this site

1 7 At the time of survey the land use on the site was permanent grassland to the west and rough grazing to the east of the railway line

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 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 (Met Office 1989) 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 Interpolation

Grid Reference	SU 523588	SU 527889
Altitude (m)	65	65
Accumulated Temperature (days)	1446	1446
Average Annual Rainfall (mm)	586	586
Field Capacity (days)	124	124
Moisture Deficit Wheat (mm)	115	114
Moisture Deficit Potatoes (mm)	109	109
Overall Climatic Grade	1	1

3 Relief

3 1 Land at this site is split by a disused railway line on an embankment It is all at approximately 65 m AOD slopes being very gentle and running from north and south Microrelief and gradient do not affect the classification of the site

4 Geology and Soil

4 1 The relevant published geological sheet (B G S Sheet 253 Abingdon) shows the area to be underlain by Cretaceous Upper Greensand deposits described as comprising bands of pale grey to white fine grained micaceous glauconitic siltstones calcareous siltstones and sandy limestone locally called 'Malmstone

4 2 The general soils map for the area (SSEW Sheet 6 1983 1 250 000) shows the main soil type to be the Harwell Association, describing them as well drained loamy soils over sandstone and some similar soils with slight seasonal waterlogging Shallow stony soils locally Soils of this nature were found at the site

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 is shown on the attached sample point map

5 3 Grade 2

Land of this grade occupies the north and north west of the site as a single unit spanning the disused railway line Soils here typically comprise a very slightly stony (c 2% flints by volume) medium clay loam topsoil to between c 15 and 25 cm depth This overlies a commonly gleyed stoneless moderately structured medium clay loam upper subsoil extending to between c 55 and 70 cm depth This then passes to a gleyed and slowly permeable (from structural observation, 2P Appendix III) stoneless heavy clay loam and/or clay extending to depth (120 cm) The depths at which the horizons showing evidence of drainage impedance occur are such that Wetness Class II (see Appendix II) is applicable which in combination with local climatic factors and the workability restrictions on medium clay loam topsoil lead to Grade 2 being most appropriate

5 4 Subgrade 3a

Land of this grade occupies the majority of the agricultural area of the site concentrated in the south and east The soils in this area were found to be of two general types both of which were limited by wetness The first was essentially similar to those described above (para 5 3) having a medium clay loam topsoil over heavy clay loam and clay except that the heavier textured subsoils which were found to be slowly permeable (structural observation 2P Appendix III) occurred higher in the profile (c 21 cm) and extended to 100 cm Below this the soils became lighter (medium clay loam) but remained gleyed Due to the depth of the slowly permeable horizons Wetness Class III (see Appendix II) was applied which allied with the local climatic regime and the workability restrictions of the topsoil leads to Subgrade 3a being appropriate

The second soil type occurred mainly towards the east of the site Soils here were typically found to comprise a stoneless heavy clay loam topsoil over a gleyed but not slowly permeable (from structural observation, 1P Appendix III) clay upper subsoil from c 34 cm This passes at c 56 cm to a medium clay loam lower subsoil containing up to 25% soft fine sand stone considered to have derived from the lower Greensand deposit underlying the site These soils are limited to Wetness Class II (see Appendix II) by the shallow depth of gleying (<40 cm) and subsequently to Subgrade 3a by the workability restriction of a heavy clay loam topsoil within the local climatic regime

A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock It also affects seed germination and survival both by creating anaerobism and reducing soil

temperature and by inhibiting the development of a good root system Soil wetness also influences sensitivity to structural damage such that there is a restriction on the number of days that the soil may be cultivated and/or grazed Due to this limitation the type of crops that can be grown successfully is limited In this area Grade 2 would be expected to produce high yields of a wide range of crops Subgrade 3a land would only be expected to produce moderate yields of crops such as cereals grass oilseed rape and potatoes

5 5 The areas shown as Non Agricultural on the accompanying map include a dry pond bed covered with scrub to the west and an area of disturbed ground next to the disused railway line

ADAS REFERENCE 3303/169/93
MAFF REFERENCE EL 33/00278

Resource Planning Team
Guildford Statutory Group
ADAS Reading

Sources of Reference

* British Geological Survey (1971) Sheet No 253 Abingdon 1 63 360

* 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

* Soil Survey of England and Wales (1983) Sheet No 6 Soils of South East England 1 250000

* Soil Survey of England and Wales (1984) Soils and their use in South East England Bulletin No 15

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
1	0 28	hcl	10YR32 00						0	0		0						
	28 50	c	25Y 42 00	25Y 56 00	M			Y	0	0		0		M	Y			
	50 75	hcl	25Y 52 00	25Y 56 00	M			Y	0	0		0		M	Y			
1P	0 34	hcl	10YR31 00						0	0		0						
	34 56	c	25Y 52 62	10YR66 00	C		25Y 53 00	Y	0	0		0	MDCSAB	FR M	Y			
	56 85	mcl	25Y 62 00	10YR66 00	C			Y	0	0	FSST	25	WKMSAB	FR G				
	85 87	mcl	25Y 62 00	10YR66 58	M			Y	0	0	FSST	25		M				
2	0 35	hzcl	10YR31 00						0	0		0						
	35 70	mzcl	25Y 62 00	10YR58 00	C			Y	0	0		0		M				
2P	0 21	mcl	10YR42 00						0	0	HR	2						
	21 42	hcl	25Y 52 61	10YR46 00	C			Y	0	0		0	MDCAB	FR M			Y	
	42 100	c	25Y 72 00	10YR68 00	M		25Y 62 00	Y	0	0		0	MDCAB	FR M	Y		Y	
	100 120	mcl	25Y 72 00	10YR68 00	M			Y	0	0		0		M				
3	0 30	hcl	10YR42 00						0	0		0						
	30 50	c	10YR52 00	10YR58 61	C			Y	0	0		0		M				
	50 75	mcl	25Y 62 00	10YR58 00	C			Y	0	0		0		M				
4	0 35	hcl	10YR32 00						0	0		0						
	35 60	mcl	25Y 62 00	10YR58 00	C			Y	0	0		0		M				
5	0 15	mcl	10YR31 00						0	0		0						
	15 45	mcl	10YR34 00						0	0		0		M				
	45 55	mcl	25Y 42 00						0	0		0		M				
	55 75	hcl	25Y 53 00	10YR66 73	C			Y	0	0	HR	5		M			Y	
	75 120	c	25Y 62 00	10YR68 00	M			Y	0	0		0		M			Y	
7	0 25	mcl	25Y 42 00						0	0		0						
	25 35	mcl	25Y 62 00	25Y 56 00	M			Y	0	0		0		M				
	35 45	mcl	10YR32 00	10YR58 00	F			Y	0	0		0		M				
	45 120	hcl	25Y 52 00	10YR56 00	M			Y	0	0		0		M			Y	
8	0 20	mcl	10YR32 00	10YR58 00	F				0	0		0						
	20 35	mcl	25Y 32 00						0	0		0		M				
	35 45	mcl	25Y 31 00						0	0	HR	1		M				
	45 120	hcl	25Y 52 00	25Y 56 00	M			Y	0	0	HR	1		M			Y	
9	0 22	mcl	10YR41 00						0	0		0						
	22 45	mcl	25Y 62 00	10YR58 00	C			Y	0	0		0		M				
	45 70	mcl	25Y 52 00	10YR68 00	C			Y	0	0	HR	3		M				
	70 120	hcl	25Y 62 00	10YR56 00	F			Y	0	0	HR	3		M			Y	
10	0 24	mcl	10YR52 00	10YR46 00	C				0	0		0						
	24 35	mcl	10YR62 00	10YR58 00	C			Y	0	0		0		M				
	35 65	mcl	25Y 62 00	10YR56 00	C			Y	0	0	HR	3		M				
	65 120	c	25Y 62 00	10YR68 00	C			Y	0	0		0		M			Y	

SAMPLE NO	GRID REF	USE	ASPECT GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU52688880	PGR	028			2	3A		0		0					WE	3A	IMPEN 75 1P
1P	SU52208882	PGR	034			2	3A		0		0					WE	3A	PIT 87 AUG 87
2	SU52708880	PGR	035			2	3A		0		0					WE	3A	IMPEN 70 1P
2P	SU52328875	PGR	021	021		3	3A	143	28	115	6	3A				WE	3A	PIT 80 AUG 120
3	SU52808880	PGR	030			2	3A		0		0					WE	3A	IMPEN 75 1P
4	SU52908880	PGR	035			2	3A		0		0					WE	3A	IMPEN 60 1P
5	SU52308880	PGR	055	055		2	2	139	24	114	5	2				WE	2	WE & DR 2P
7	SU52408870	PGR	025	045		3	3A	155	40	117	8	2				WE	3A	? DISTURBED 2P
8	SU52658892	PGR	045	045		2	2	154	39	116	7	2				WE	2	WE & DR 2P
9	SU52208882	PGR	022	070		2	2	152	37	115	6	2				WE	2	WE & DR 2P
10	SU52428877	PGR	024	065		2	2	137	22	114	5	2				WE	2	WE & DR 2P

SOIL PIT DESCRIPTION

Site Name SOUTH OXON LP DIDCOT P t N mber 1P

Grid Reference SU52208882 A erage Annual Rainfall 586 mm
Accumulated Temperat re 1446 degree days
Field Capacity Level 124 days
Land Use Permanent Grass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0 34	HCL	10YR31 00	0	0		
34 56	C	25Y 52 62	0	0	C	MDCSAB
56 85	MCL	25Y 62 00	0	25	C	WKMSAB
85 87	MCL	25Y 62 00	0	25	M	

Wetness Grade 3A Wetness Class II
Gleying 034 cm
SPL cm

Dro ght G ade APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name SOUTH OXON LP DIDCOT Pit Number 2P

Grid Reference SU52328875 A erage Annual Rainfall 586 mm
Acc mulated Temperat re 1446 degree days
Field Capacity Level 124 days
Land Use Permanent Grass
Slope and Aspect deg ees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0 21	MCL	10YR42 00	0	2		
21 42	HCL	25Y 52 61	0	0	C	MDCAB
42 100	C	25Y 72 00	0	0	M	MDCAB
100 120	MCL	25Y 72 00	0	0	M	

Wet ess G ade 3A Wet ess Class III
Gleying 021 cm
SPL 021 cm

Dro ght Grade 3A APW 143mm MBW 28 mm
APP 115mm MBP 6 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Wetness