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South Oxfordshire District Local Plan
Land at Wenham Road Thame
Agricultural Land Classification
ALC Map and Report
September 1993

SOUTH OXFORDSHIRE DISTRICT LOCAL PLAN
LAND AT WENHAM ROAD THAME

AGRICULTURAL LAND CLASSIFICATION REPORT

1 0 Summary

1 1 In September 1993 a detailed Agricultural Classification (ALC) survey was made on approximately 4 5 hectares of land at Wenham Road Thame 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 development 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 6 borings and one soil pit were examined

1 5 The table below provides the details of the grades found across the site The land is classified moderate quality (subgrade 3b) The key limitation is wetness as evidenced by a gleyed and slowly permeable clay horizon present immediately beneath the topsoil

Table 1 Distribution of Grades and Sub grades

Grade	Area ha)	% of Site	% of Agricultural Area
3b	4 5	100	100
Total Area of Site	4 5		

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 had recently been drilled with a crop

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 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 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 Interpolations

Grid Reference	SP 717048
Altitude (m)	75
Accumulated Temperature (days)	1424
Average Annual Rainfall (mm)	648
Field Capacity (days)	136
Moisture Deficit Wheat (mm)	107
Moisture Deficit Potatoes (mm)	99
Overall Climatic Grade	1

3 0 Relief

3 1 Land within the survey area lies at approximately 75m AOD falling gently from north to south across the site Neither altitude microrelief or slope gradient affect the grading at this site

4 0 Geology and Soil

4 1 The relevant published geological sheet (Geological Survey of England and Wales Sheet 13 Oxford 1868) shows the area to be close to the border of Jurassic Portland stone (an Upper Oolitic limestone) and Cretaceous Lower Greensand deposits

4 2 The soil type that occurs on the site as shown by the Soil Survey of England and Wales map of South East England (SSEW 1983 Sheet 6) is of the Denchworth Association describing it as a slowly permeable seasonally waterlogged clayey soil Soil of this type was found at the site

5 0 Agricultural Land Classification

5 1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade 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 Subgrade 3b

The land at this site was observed to be entirely of moderate quality The soils here were found to consist of a virtually stoneless heavy clay loam or clay topsoil which often exhibited mottling over a gleyed and slowly permeable from structural observation clay subsoil between 20 and 30 cm depth This was occasionally found to contain a few flints (up to 2% by volume) these were not considered to interfere with the drainage characteristics of the soil

A soil wetness limitation exists where the soil water regime adversely affects plant growth and/or imposes restrictions on cultivations or grazing by livestock Excessive soil wetness adversely affects seed germination and survival by reducing temperature and increasing anaerobism it also hinders root system development It can also influence soil sensitivity to structural damage such that there is a restriction on the number of days that the soil may either be cultivated or grazed Land of the quality found in this area would for instance be expected to produce only moderate yields of a narrow range of crops principally cereals or grass

ADAS REFERENCE 3303/170/93
MAFF REFERENCE EL 33/00278

Resource Planning Team
Guildford Statutory Group
ADAS Reading

Sources of Reference

* Geological Survey of England and Wales (1868) Sheet No 13 Oxford 1 63360

* 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

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

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

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 re claimed 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

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 III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and a ger boring information collected during ALC fieldwork is held on a database This h s commonly sed otations and bbre iations as set out below

Boring Header Information

1 GRID REF tional grid square and 8 f gure 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 Brassica POT Potatoes SBT Sugar Beet FCD Fodder Crops LIN Linseed
FRT Soft d Top Fru t HRT H rticultural Crops PGR Permanent Pasture LEY Ley G ss RGR Rough Grazing
SCR Scrub CFW Coniferous Woodland DCW Deciduous Woodland HTH Heathland BOG Bog or Marsh
FLW F llow PLO Ploughed SAS Set side OTH Other

3 GRDNT Gradient as measured by a hand held optical clinometer

4 GLEY/SPL Depth in cm to gleying or slowly permeable layers

5 AP (WHEAT/POTS) Crop- dj sted ilable w ter capacity

6 MB (WHEAT/POTS) Moisture Balance

7 DRT Best grade ccording to soil droughtiness

8 If any of the following factors are co sidered s gnificant an entry of Y will be entered in the relevant column

MREL M crorelief limitatio FLOOD Flood risk EROSN Soil erosion risk EXP Exposure limitation FROST Frost
DIST Disturbed land CHEM Chemical limitation

9 LIMIT The main limitation to land qu lity Th f llowing bbre iations are used

OC O erall Climate AE Aspect EX Exposure FR Frost Risk GR Gradient MR Microreli f
FL Flood Risk TX Topsoil Texture DP Soil Depth CH Chemical WE Wetn WK Work bility
DR Drought ER Soil Erosion Risk WD Combined Soil Wetness/Droughtiness ST Topsoil Stoniness

Soil Pits and Auger Borings

1 TEXTURE soil texture classes re den ted by the following abbreviatio

S Sand LS Loamy Sand SL Sandy Loam SZL Sandy Silt Loam CL Clay Loam ZCL Silty Clay Loam
SCL Sandy Clay Loam C Clay SC Sandy Clay ZC Silty Clay OL Organ Loam P Peat SP Sandy Pe t
LP Loamy Peat PL Peaty Loam PS Peaty Sand MZ Marin Light Silts

For the sand loamy sand sandy loam d sandy silt loam cla se the predominant size of sand fraction will be indicated by the use of prefixes

F Fin (more than 66% of the sa d less th 0 2mm)
M Medium (less than 66% fine sand and less than 33% coarse sand)
C Coarse (more than 33% of the sand larger th 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

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 ery many 40%+

4 MOTTLE CONT Mottle contrast

F faint mdistinct mottles e xident only on close inspection D distinct mottles are readily seen
P prominent mottling is conspicuous and one of th outstanding features of the horizon

5 PED. COL Ped face colour

6 STONE LITH One of the following is used

HR all hard rocks and 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 poro s (hard) ston s GS gra el with porous (soft) stones

Stone contents (>2cm >6cm nd total) are g ven in percentages (by volume)

7 STRUCT the degree of de lopment size and sh pe of soil peds are described using the following notation

degree of de elopment WK weakly de eloped MD moderately de eloped ST strongly de eloped

ped size F fine M medium C oarse VC very coarse

ped shape S single grain M mass ve GR granular AB angular blocky SAB sub-angular blocky PR prismatic PL platy

8 CONSIST Soil consistence is described using the following otation

L loose VF ery 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 soil horizon has less than 0 5% biopore >0 5 mm Y will appear in this column

11 IMP If th profile is impenetrable a Y will appear in this column at the ppropiate horizon

12 SPL Slowly permeable layer If the soil horizon is slowly permeable Y will appear in this column

13 CALC If the soil horizon is calcareous a Y will appear in this column

14 Other otations

APW av ilable water cap city (in mm) adj sted for wheat
APP ailable w ter capa ity (in mm) dj sted for potatoes
MBW moisture balance wheat
MBP moisture balance potatoes

SOIL PIT DESCRIPTION

Site Name S OXON LP THAME Pit N mber 1P

Grid Reference SP71600482 A e age Ann al Rainfall 648 mm
Accumulated Temperat re 1424 degree days
Field Capacity Le el 136 days
Land Use Bare Soil
Slope and Aspect deg ees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	MOTTLES	STRUCTURE
0 20	HCL	10YR42 43	0		0	C	
20 50	C	10YR61 00	0		0	M	MDCAB
50 60	C	25Y 41 00	0		0	M	MDCAB

Wetness G ade 3B Wetness Class IV
Gleying 0 cm
SPL 020 cm

Drought Grade APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wet ess

SAMPLE NO	GRID REF	USE	ASPECT	WETNESS GRDNT	GLEY	SPL	CLASS	WHEAT GRADE	POTS AP	POTS MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
1	SP71500490	PLO		0	020	4		3B	0	0					WE	3B	SPL 20
1P	SP71600482	PLO		0	020	4		3B	0	0					WE	3B	SPL 20 PIT 60
2	SP71400480	PLO		0	030	4		3B	0	0					WE	3B	SPL 30
3	SP71500480	PLO		0	022	4		3B	0	0					WE	3B	SPL 22
4	SP71600480	PLO		022	022	4		3B	0	0					WE	3B	SPL 22
5	SP71700480	PLO		020	020	4		3B	0	0					WE	3B	SPL 20
6	SP71670475	PLO		020	020	4		3B	0	0					WE	3B	SPL 20

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 20	hcl	10YR43 00	10YR58 00	C			Y	0	0	HR	2						
	20 70	c	10YR52 00	10YR58 61	M			Y	0	0		0		P			Y	
1P	0 20	hcl	10YR42 43	10YR58 00	C			Y	0	0		0						
	20 50	c	10YR61 00	75YR68 00	M			Y	0	0		0	MDCAB	FM P		Y		Y
	50 60	c	25Y 41 00	10YR56 00	M			Y	0	0		0	MDCAB	FM P		Y		Y
2	0 30	hcl	10YR42 00	10YR58 61	C			Y	0	0	HR	2						
	30 45	c	10YR41 00	10YR58 61	C			Y	0	0		0		P			Y	
	45 90	c	25Y 53 00	10YR58 61	C			Y	0	0		0		P			Y	
3	0 22	hcl	10YR43 00	10YR68 00	C			Y	0	0		0						
	22 80	c	10YR51 00	10YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y	
4	0 22	hcl	10YR43 00						0	0	HR	1						
	22 70	c	25Y 51 00	10YR58 00	M			Y	0	0		0		P			Y	
5	0 20	c	10YR42 00						0	0		0						
	20 40	c	10YR53 00	10YR58 52	M		00MN00 00	Y	0	0		0		P			Y	
	40 80	c	10YR53 00	10YR68 00	M		00MN00 00	Y	0	0		0		P			Y	
6	0 20	c	10YR32 00						0	0		0						
	20 35	c	25Y 53 00	25Y 56 00	M			Y	0	0		0		P			Y	
	35 65	c	25Y 53 00	10YR56 00	M		00MN00 00	Y	0	0	SLST	2		M			Y	