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Land at Pitt Manor,
Romsey Road, Winchester,
Hampshire
ALC Map and Report
November, 1993

AGRICULTURAL LAND CLASSIFICATION REPORT

LAND AT PITT MANOR, ROMSEY ROAD, WINCHESTER, HAMPSHIRE

Introduction

1 1 In October 1993 a detailed Agricultural Land Classification (ALC) was made on 9 2 hectares of land adjacent to Pitt Manor Romsey Road on the south western edge of Winchester in Hampshire

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 an ad hoc planning application

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 eight borings three topsoil stone measurements and one soil pit was examined

1 5 All of the agricultural land (7 5 ha) is classified as Subgrade 3a The key limitation is soil droughtiness related to a shallow soil resource over Chalk Roots are able to penetrate the soft Chalk in search of additional available moisture down to approximately 70 cm Despite this depth a moderate droughtiness limitation exists which restricts the range of crops that can tolerate such conditions

1 6 The remainder of the site (1 7 ha) is classified as Non agricultural and comprises a narrow belt of trees around most of the perimeter of the site with some agricultural buildings and areas of mown grass for access

1 7 The ALC information is shown on the attached map at a scale of 1 5 000 It is accurate at this level but any enlargement may be misleading This map supercedes any previous ALC information for this site

1 8 At the time of survey the land use on the site was permanent grass

1 9 A general description of the grades and subgrades is provided in Appendix I 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

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 5 kilometre 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 1 Climatic Interpolations

Grid Reference	SU456286
Altitude (m)	120
Accumulated Temperature (days)	1412
Average Annual Rainfall (mm)	848
Field Capacity (days)	183
Moisture Deficit Wheat (mm)	96
Moisture Deficit, Potatoes (mm)	86
Overall Climatic Grade	1

Relief

3 1 The site occupies gentle south and south west facing slopes which range in altitude from 110 130 metres A minor dry valley feature runs through the western edge of the site

Geology and Soils

4 1 The relevant geological sheet for the site (British Geological Survey 1974) shows the whole of the area to be underlain by Upper Chalk (soft white chalk with many flint nodules)

4 2 The published soils information for the site (Soil Survey of England and Wales 1983) shows the general soils type to be of the Andover 1 series The more detailed ALC survey broadly confirmed the presence of this soil general type which is described as shallow well drained, calcareous silty soils over Chalk on slopes and crests with deep calcareous fine silty soils in valley bottoms

Agricultural Land Classification

5 1 The ALC information is provided on the attached ALC map and the location of the soil observation points is shown on the sample point map

Subgrade 3a

5 2 All of the agricultural land on the site has been placed in this grade with soil droughtiness as the single most limiting physical factor Pit 1 is typical of the soil depths that occur on the site with a total soil resource of approximately 33 cm above Chalk A medium silty clay loam topsoil overlies a thin subsoil of similar texture The total topsoil stone content at Pit 1 is approximately 20% flint with just over 15% greater than 2cm in diameter This creates a topsoil stoniness limitation equivalent to Subgrade 3b but additional adjacent topsoil stone assessments show that the variation in topsoil stone content is generally in the range 10 15% (Subgrade 3a) Stone contents rise to approximately 50% Chalk in the subsoil

5 3 The soil resource sits over soft Chalk which is easily rootable Common roots were observed to approximately 70 cm with none below this depth As a result, the calculation of available water in the profile has been made down to 70 cm Within this depth there is sufficient water for extraction by plant roots to allow the land to be classified as Subgrade 3a, but no higher

5 4 This moderate droughtiness limitation acts to restrict the range of crops that can tolerate such conditions particularly the more demanding agricultural and horticultural crops

5 5 The areas mapped as Non agricultural include a young belt of trees around most of the perimeter of the site some small scale agricultural buildings and areas of mown grass that are used for access into and around the site

ADAS Reference 1513/235/93
MAFF Reference EL 15/588

Resource Planning Team
Guildford Statutory Group

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 religous buildings cemetries 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 oopen 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

REFERENCES

British Geological Survey Sheet Number 299 Winchester 1 50 000 1974

MAFF Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land, 1988

Meteorological Office Climatological Data for Agricultural Land Classification 1989

Soil Survey of England and Wales Sheet Number 6 Soils of South East England 1 250 000 1983

Soil Survey of England and Wales Soils and their Use in South East England Bulletin Number 15 1984

APPENDIX III

DEFINITION OF SOIL WETNESS CLASS

Wetness Class I

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

Wetness Class 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 180 days but only wet within 40 cm depth for 31 90 days in most years

Wetness Class 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

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth fro 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

Wetness Class V

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

Wetness Class VI

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

APPENDIX IV

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a database This has commonly used notations and abbreviations as set out below

Boring Header Information

1 **GRID REF** national 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 measured by a hand held optical clinometer

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

5 **AP (WHEAT/POTS)** Crop adjusted available water capacity

6 **MB (WHEAT/POTS)** Moisture Balance

7 **DRT** Best grade according to soil droughtiness

8 If any of the following factors are considered significant an entry of 'Y' will be entered in the relevant column

MREL Microrelief limitation	**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 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	**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 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

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

6 **STONE LITH** One of the following is used

HR all hard rocks and stones
CH chalk
ZR soft argillaceous or silty rocks
MSST soft medium grained sandstone
SI soft weathered igneous/metamorphic rock
SLST soft oolitic or dolimitic limestone
FSST soft fine grained sandstone
GH gravel with non porous (hard) stones
GH gravel with non porous (hard) 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 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

8 **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

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 appropiate 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

S te Name PITT MANOR WINCHESTER P t N mber 1P

G d Ref rence SU46602870 A e age Ann al Rai f ll 848 mm
Accumulated Tempe at re 1412 degree days
Field Capacity Level 183 days
Land Use Permane t G
Slope and A pect 02 degrees SW

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0 25	MZCL	10YR43 00	16	20		
25- 33	MZCL	10YR54 00	0	50		
33 70	CH	10YR81 00	0	0		

Wetne Gr de 2 Wetness Class I
Gleying 000 cm
SPL No SPL

Drought Grade 3A APW 080mm MBW 16 mm
APP 086mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Topso l Stoniness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	POTS AP	POTS MB	M REL AP	M REL MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1P	SU46602870	PGR	SW	02	000		1	2	080	16	086	0	3A				ST	3B	
1T	SU46752850	PGR			000		1	2	000	0	000	0					ST	3A	
2	SU46502860	PGR	S	02	000		1	2	088	8	091	5	3A				DR	3A	IMP
2T	SU46672847	PGR	S		000		1	2	000	0	000	0					ST	3A	
3	SU46602860	PGR	SW		000		1	2	072	24	072	14	3B				DR	3A	IMP
5	SU46502850	PGR	S		000		1	2	098	2	112	26	3A				DR	2	IMP
6	SU46602850	PGR			000		1	2	049	47	049	37	3B				DR	3B	
7	SU46702850	PGR			000		1	2	051	45	051	35	3B				DR	3B	
9	SU46602840	PGR	SW	02	000		1	2	059	37	059	27	3B				DR	3A	IMPX3
10	SU46702840	PGR	SW	02	000		1	2	051	45	051	35	3B				DR	3A	IMPX3

				-MOTTLES			PED		STONES				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1P	0 25	mzcl	10YR43 00						16	0	HR	20						
	25-33	mzcl	10YR54 00						0	0	CH	50				M		
	33 70	ch	10YR81 00						0	0		0				M		
1T	0 25	mzcl	10YR43 00						0	0	HR	19						
2	0 28	mzcl	10YR43 00						0	0	HR	5						
	28 40	hcl	10YR64 00						0	0	CH	25				M		
	40 50	hcl	10YR64 00						0	0	CH	50				M		
	50 60	ch	00ZZ00 00						0	0		0				M		
2T	0 25	mzcl	10YR43 00						0	0	HR	19						
3	0 28	mzcl	10YR43 00						0	0	HR	5						
	28 42	hcl	75YR43 00						0	0	HR	5				M		
5	0 28	mzcl	10YR43 00						0	0	HR	5						
	28 40	hcl	10YR54 00						0	0	CH	25				M		
	40 70	c	10YR64 00						0	0	CH	25				M		
6	0 25	mcl	10YR43 00						0	0	HR	5						
	25 30	hcl	10YR81 00						0	0	CH	50				M		
7	0 30	mcl	10YR43 00						0	0	HR	5						
9	0 28	mcl	10YR43 00						0	0	HR	5						
	28 35	hcl	10YR43 00						0	0	HR	5				M		
10	0 30	mcl	10YR43 00						0	0	HR	5						