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Land West of South Lane
Ash, Surrey
Agricultural Land Classification
ALC Map and Report
June 1995

AGRICULTURAL LAND CLASSIFICATION REPORT

LAND WEST OF SOUTH LANE, ASH, SURREY

1 Summary

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on 6 hectares of land in respect of an adhoc planning application for a proposed residential development to the west of South Lane at Ash in Surrey An Agricultural Land Classification (ALC) survey of this site was carried out in June 1995

1 2 The Agricultural Land Classification (ALC) survey was undertaken at a detailed level of approximately one boring per hectare A total of 7 auger 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 all of the agricultural land on this site was under permanent pasture with woodland and scrub around the western boundary The non-agricultural land in the east of the site comprises a Saw Mill a number of derelict buildings and an area of scrub land

1 5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in Table 1 below 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 survey information for this site

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site
3b	3 9	60 9
Woodland	0 3	4 7
Non-Agricultural	2 2	34 4
Total area of site	6 4	100%

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 All of the agricultural land on this site has been classified as moderate quality Subgrade 3b on the basis of a significant soil wetness limitation The soils are derived from the London Clay and as such comprise poorly drained heavily poached medium or heavy clay loams over slowly permeable clay subsoils

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 an overall climatic limitation are average annual rainfall as a measure of overall wetness and accumulated temperature (day degrees Celsius Jan June) 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 However climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations

2 4 No local climatic factors such as exposure or frost risk are believed to affect the site

Table 2 Climatic Interpolation

Grid Reference	SU 895 500
Altitude (m AOD)	75
Accumulated Temperature (day degrees Jan-June)	1443
Average Annual Rainfall (mm)	695
Field Capacity (days)	147
Moisture Deficit Wheat (mm)	109
Moisture Deficit Potatoes (mm)	102
Overall Climatic Grade	1

3 Relief

3 1 The land on this site is relatively flat lying at approximately 75m AOD Nowhere on the site does altitude or relief impose limitations to agricultural land quality

4 Geology and Soil

4 1 The relevant geological sheet (BGS 1976) maps the entire site as London Clay

4 2 The published soil information (SSEW 1983) shows the Wickham 3 soil association across the site These soils are described as Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging Some deep coarse loamy soils affected by groundwater Landslips with irregular terrain locally (SSEW 1983)

4 3 Detailed field survey broadly confirms the existence of soils similar to those described in paragraph 4 2

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 are shown on the attached sample point map

5 3 Subgrade 3b

All of the agricultural land on this site has been classified as Subgrade 3b (moderate quality) Pit 1 is representative of these soil profiles which comprise stoneless to very slightly flinty (0 2% total stone) medium and heavy clay loam topsoils over heavy clay loam and clay subsoils some of which were slightly sandy Common ochreous mottles are visible throughout the profile due to a moderate drainage impedance resulting from the poorly structured slowly permeable clay lower subsoils which occur at 25-38cm depth This land is therefore limited by a severe soil wetness limitation consistent with Wetness Class IV Subgrade 3b

ADAS Ref 4003/123/95
MAFF Ref 40/1211

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1976) Sheet No 285 Aldershot 1 50 000 Scale (solid & 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) Climatological Data for Agricultural Land Classification

Soil Survey of England and Wales (1983) Sheet 6 Soils of South East England and accompanying legend

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

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

[2] 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 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 **GLEY/SPL** 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 **GLEY** 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 appropiate 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 W OF SOUTH LANE ASH Pit Number 1P

Grid Reference SU89405000

Average Annual Rainfall	695 mm
Accumulated Temperature	1443 degree days
Field Capacity Level	147 days
Land Use	Permanent Grass
Slope and Aspect	degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MCL	10YR42 00	0	2	HR	C				
27- 33	HCL	10YR41 51	0	2	HR	C	MDCSAB	FR	M	
33- 50	C	05Y 53 71	0	0		M	WKCSAB	FM	P	
50- 70	C	10YR61 62	0	0		M	MDVCAB	FM	P	

Wetness Grade 3B

Wetness Class	IV
Gleying	0 cm
SPL	033 cm

Drought Grade

APW	mm	MBW	0 mm
APP	mm	MBP	0 mm

FINAL ALC GRADE 3B

MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	WETNESS CLASS	-WHEAT GRADE	AP	MB	POTS- AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT		ALC	COMMENTS
1	SU89425018	PGR	0	025	4		3B		0		0					WE	3B		
1P	SU89405000	PGR	0	033	4		3B		0		0					WE	3B		
2	SU89255002	PGR	0	038	4		3B		0		0					WE	3B		
3	SU89305010	PGR	0	050	3		3A		0		0					WE	3A		
4	SU89405010	PGR	0	040	4		3B		0		0					WE	3B		
5	SU89485005	PGR	0	038	4		3B		0		0					WE	3B		
6	SU89405000	PGR	0	035	4		3B		0		0					WE	3B		
8	SU89464987	PGR	0	035	4		3B		0		0					WE	3B		

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-25	hcl	10YR32 00	10YR46 00	C			Y	0	0		0							
	25-40	c	10YR31 00	10YR46 00	C		00MN00 00	Y	0	0		0		P	Y		Y		Slightly sandy
	40-90	c	25Y 52 00	75YR58 00	M		00MN00 00	Y	0	0		0		P	Y		Y		
1P	0-27	mcl	10YR42 00	75YR58 00	C			Y	0	0	HR	2							
	27-33	hcl	10YR41 51	75YR58 46	C			Y	0	0	HR	2	MDCSAB FR	M					
	33-50	c	05Y 53 71	75YR68 00	M		05Y 52 00	Y	0	0		0	WKCSAB FM	P	Y		Y		slightly sandy
	50-70	c	10YR61 62	75YR68 00	M		75YR61 00	Y	0	0		0	MDVCAB FM	P	Y		Y		
2	0-23	mcl	10YR32 00	10YR46 00	C			Y	0	0		0							
	23-38	hcl	10YR51 00	10YR68 00	M			Y	0	0		0		M					
	38-90	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P	Y		Y		
3	0-30	mcl	25Y 31 00	10YR46 00	C			Y	0	0		0							
	30-50	scl	25Y 62 00	10YR68 00	M			Y	0	0	HR	5		M					
	50-90	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P	Y		Y		
4	0-30	hcl	10YR31 41	10YR56 58	C			Y	0	0		0							
	30-40	hcl	10YR32 00	10YR46 00	M			Y	0	0		0		M					
	40-90	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P	Y		Y		
5	0-30	mcl	10YR32 00	10YR46 00	C			Y	0	0		0							
	30-38	hcl	10YR62 00	10YR68 00	C			Y	0	0	HR	5		M					
	38-70	c	25Y 51 00	10YR85 00	M			Y	0	0		0		P	Y		Y		
6	0-28	mcl	10YR61 62	75YR58 00	C			Y	0	0	HR	1							
	28-35	hcl	10YR52 00	75YR58 00	C			Y	0	0	HR	1		M					
	35-55	c	25Y 63 62	10YR58 00	M			Y	0	0	HR	2		P	Y		Y		slightly sandy
	55-70	c	25Y 62 00	10YR68 00	M			Y	0	0	HR	2		P	Y		Y		
8	0-28	mcl	10YR61 62	75YR58 00	C			Y	0	0	HR	1							
	28-35	hcl	10YR52 00	75YR58 00	C			Y	0	0	HR	1		M					
	35-70	c	25Y 62 00	10YR68 00	M			Y	0	0	HR	2		P	Y		Y		