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TEST VALLEY BOROUGH LOCAL PLAN
SITE 157 HOOKWOOD LANE BROADGATE
AGRICULTURAL LAND CLASSIFICATION
ALC MAP AND REPORT
SEPTEMBER 1993

TEST VALLEY BOROUGH LOCAL PLAN
SITE 157 HOOKWOOD LANE BROADGATE HAMPSHIRE

AGRICULTURAL LAND CLASSIFICATION REPORT

1 SUMMARY

1 1 In June 1993 a detailed Agricultural Land Classification (ALC) survey was made on approximately 3 hectares of land at Broadgate near Chandlers Ford 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 proposals for development in the Test Valley Borough 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 3 borings and 1 soil pit 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 of moderate (Subgrade 3B) quality The key limitation is wetness

Table 1 Distribution of Grades and Sub grades

Grade	Area (ha)	% of Site
3a	0 41	13 8
3b	2 56	86 2
Total area of site	2 97	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

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 5 km gridpoint dataset 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	SU418227
Altitude (m)	45
Accumulated Temperature (days)	1501
Average Annual Rainfall (mm)	823
Field Capacity (days)	177
Moisture Deficit Wheat (mm)	106
Moisture Deficit Potatoes (mm)	99
Overall Climatic Grade	1

3 RELIEF

3 1 The site slopes gently from north west to south east the slope increasing towards the boundary At no point does gradient altitude or microrelief affect the grading

4 GEOLOGY AND SOIL

4 1 The relevant geological sheet (BGS Sheet 315 Southampton) shows the majority of the site to be underlain by London clay The remaining area to the north and east is underlain by Whitecliff Sand

4 2 According to the Soil Survey of England and Wales published sheet for this area (SSEW Sheet 6 Soils of South East England) the area is entirely underlain by soils of the Wickham 3 Association It describes them as slowly permeable fine loamy over clayey and coarse loamy over clayey and similar more permeable soils with slight waterlogging 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 Subgrade 3a

Good quality land was found in a small portion of the site towards the south and is by limited by wetness This is evidenced by a gleyed and slowly permeable (from pit observation) stoneless clay lower subsoil beneath a stoneless sandy clay loam topsoil and medium sandy loam and medium clay loam upper subsoils The depth of the slowly permeable layer and the evidence of shallow gleying places the soil in subgrade 3a Wetness Class III This degree of wetness together with the topsoil texture limits the workability of the land and reduces the range of crops that can tolerate such conditions

5 4 Subgrade 3b

Moderate quality land covers the majority of the site and is wetness limited This is evidenced by a shallow slowly permeable clay horizon beneath a very slightly stony (approx 2% total flints by volume) medium clay loam topsoil The depth of the slowly permeable layer is such that given the local climate the soils are placed in Wetness Class IV

Wetness limits agricultural land quality because it adversely affects seed germination and survival partly by a reduction in soil temperature and partly by anaerobism It also inhibits the development of a good root system Wetness increases the sensitivity of the soil to structural damage and leads to a reduction in the number of days when cultivation by machinery or grazing by livestock is possible

ADAS Reference 1512/109/93
MAFF Reference EL 6105

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

* British Geological Survey (1987) Sheet No 315 Southampton 1 50000

* 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 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 ger boring information collected during ALC fieldwork is held on database This has commonly used otations and bbre iation set out below

Boring Header Information

1 GRID REF tion 1 grid square and 8 figure grid reference

2 USE Land se at the time of survey The following bbre iations are used

ARA Arable WHT Wheat BAR Barley CER Cereals OAT Oats MZE Maize OSR Oilseed rape
BEN Field Beans BRA Brassica POT Potatoe SBT Sugar Beet FCD Fodder Crop LIN Linseed
FRT Soft and Top Fruit HRT Horticultural Crop PGR Permanent Pasture LEY Ley Grass RGR Rough Grazing
SCR Scrub CFW Coniferou Woodland DCW Deciduous Woodland HTH Heathland BOG Bog or Marsh
FLW Fallow PLO Ploughed SAS Set side OTH Other

3 GRDNT Gradient measured by hand-held optical clinometer

4 GLEY/SPL Depth in cm to gleying or lowly 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 ignificant 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 bbre iation 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 Wetn WK Workability
DR Drought ER Soil Erosion Risk WD Combined Soil Wetness/Droughtiness ST Topsoil Stonin ss

Soil Pits and Auger Borings

1 TEXTURE soil texture lasse re denoted by the following bbre iations

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 Marin 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 prefix s

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 bundance expressed s percentage of th 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 f nt ndistinct mottles ident only on lose inspection D distinct mottles are readily seen
P prominent mottling is conspicuous and on f the outstanding features of th horizon

5 **PED COL** Ped f ce colour

6 **STONE LITH** One of the f llowing is sed

HR ll hard rock and to s MSST soft med um or coarse grained sandstone
SI soft weathered igneous or metamorphic SLST soft oolitic or dolomitic limeston
FSST soft fine grained sandstone ZR soft gillaceou o silty rocks CH ch lk
GH gra el with on porous (hard) stones GS grav l with porous (soft) stones

Stone contents (>2cm >6cm and total) are g ven in percentages (by olume)

7 **STRUCT** th degree f de elopment ize and sh pe f soil peds are described ing the f llowing notation

degree of de elopment WK weakly de loped MD moderat ly de loped ST strongly de eloped

ped size F fin M medium C coarse VC ery coarse

ped shape S single grain M ma s e GR gra lar AB ang lar blocky SAB sub-angular blocky PR prismatic PL platy

8 **CONSIST** So l cons stence is described ing the f llowing otation

L loose VF ery friabl FR friable FM firm VM ery firm EM extrem ly firm EH xtrem ly hard

9 **SUBS STR** Subsoil structural c d t on recorded f the p rpose f calculating profil droughtiness

G good M moderate P poo

10 **POR** Soil poro ity If soil horizo h le s than 0 5% biopores >0 5 mm Y will ppear in this column

11 **IMP** If th profile is impenetr ble Y will ppear in th column t th ppropiate horizon

12 **SPL** Slowly permeable layer If th soil horizo is lowly permeable Y will ppear in th s column

13 **CALC** If the soil horizon is calcareo s Y will ppear in this column

14 Other notations

APW a ilable w ter capacity (in mm) dj sted for whe t
APP ailable water cap city (in mm) dj sted for potatoes
MBW mo sture balance wheat
MBP mo sture balance potatoe

SOIL PIT DESCRIPTION

Site Name HOOKWOOD LN TEST VAL LP Pit N mber 1P

G id Reference SU41852268 Ave age Annual R i fall 823 mm
Accumul ted Tempe ture 1501 degree days
Field Capacity Level 177 days
L nd Use Permane t Grass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0 25	MCL	10YR41 00	0	2	F	
25- 40	C	10YR64 00	0	2	C	MDCSAB
40 75	C	05Y 72 00	0	2	M	MDCAB

Wetnes G ade 3B Wetness Class IV
Gleying 025 cm
SPL 040 cm

Drought G ade 3A APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetne s

SAMPLE NO	GRID REF	ASPECT USE	GRDNT	WETNESS GLEY	SPL	CLASS	WHEAT GRADE	POTS- AP	MB	M REL AP	MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU41802270	PGR N	01	025	025	4	3B		0		0					WE	3B	SPL 25
1P	SU41852268	PGR		025	040	4	3B		0		0					WE	3B	SPL 40
2	SU41902270	PGR		025	040	4	3B		0		0					WE	3B	SPL 40
3	SU41802260	PGR N	01	045	045	3	3A		0		0					WE	3A	SPL 45

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 25	mcl	10YR42 00						0	0	HR	2						
	25-70	c	10YR53 00	75YR58 00	M		25Y 52 00	Y	0	0		0		P	Y		Y	
	70 120	c	25Y 52 00	75YR58 00	M			Y	0	0		0		P	Y		Y	
1P	0 25	mcl	10YR41 00	10YR46 00	F				0	0	HR	2						
	25 40	c	10YR64 00	10YR56 00	C			Y	0	0	HR	2	MDCSAB	FR	M		Y	
	40 75	c	05Y 72 00	10YR56 00	M		00MN00 00	Y	0	0	HR	2	MDCAB	FM	P		Y	Y
2	0 25	mcl	10YR43 00	10YR52 00	F				0	0		0						
	25-40	mcl	10YR42 00	10YR58 62	C			Y	0	0		0		M				
	40 90	c	10YR53 00	10YR68 61	C			Y	0	0		0		P	Y		Y	
	90 100	fs	10YR68 00					Y	0	0	HR	5		M			Y	
3	0 25	scl	10YR42 00						0	0		0						
	25 37	msl	10YR44 00						0	0		0		M				
	37 45	mcl	10YR54 00						0	0		0		M				
	45 120	c	75YR58 00	75YR68 00	C		25Y 52 00	Y	0	0		0		P	Y		Y	