

**A1**  
**Test Valley Local Plan**  
**Site 191 Penton Corner Andover**  
**Agricultural Land Classification**  
**ALC Map and Report**  
**October 1993**

**TEST VALLEY LOCAL PLAN  
SITE 191 PENTON CORNER ANDOVER**

**AGRICULTURAL LAND CLASSIFICATION REPORT**

**1 0 Summary**

- 1 1 In June 1993 a detailed Agricultural Land Classification (ALC) survey was made on approximately 12 hectares of land at Penton Corner near Andover 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 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 grading found across the site The majority of the land is classified as good quality (Subgrade 3a) with a smaller area of good quality (Grade 2) to the south The key limitation is droughtiness caused both by pure chalk and weathered chalk within the soil profiles occurring at depths shallow enough to restrict water availability to crop during all or part of the growing season

Table 1 Distribution of Grades and Subgrades

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Site</u>	<u>% of Agricultural Area</u>
2	1.2	10.3	12.4
3a	8.5	72.6	<u>87.6</u>
			100% (9.7 ha)
Urban	1.9	16.2	
Agricultural Buildings	<u>0.1</u>	<u>0.9</u>	
Total	11.7 ha	100%	

- 1 6 The distribution of the ALC grades is shown on the attached map The information is presented at a scale of 1:5 000 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 on the site was under permanent pasture being grazed by horses

1 8 A general description of the grades and subgrades 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	SU 333462	SU 334463
Altitude (m)	85	90
Accumulated Temperature (days)	1447	1441
Average Annual Rainfall (mm)	785	787
Field Capacity (days)	170	171
Moisture Deficit Wheat (mm)	100	100
Moisture Deficit Potatoes (mm)	91	90
Overall Climatic Grade	1	1

## 3 0 Relief

3 1 The land at this site lies between approximately 85 and 90 m AOD sloping gently from the north of the site towards the south. At no point within the site does gradient or microrelief affect the agricultural land quality.

## 4 0 Geology and Soil

4 1 The relevant published geological sheet for the area (BGS Andover 1987) shows the site to be underlain by Cretaceous Upper Chalk describing it as a soft white limestone with flints.

4 2 The Soil Survey of England and Wales published map (SSEW 1983 Sheet 6 1 250 000) Soils of South East England shows the site to be underlain by soils from the Andover Association. It describes these as a shallow well drained calcareous silty soils over chalk on slopes and crests. Soils of this nature were found on 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 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 quality covers a small part of the agricultural land towards the south of the site. Soils in this area are slightly limited by droughtiness due to chalk in the profiles. Soils typically consist of a very slightly stony (c 5% flints by volume) calcareous medium silty clay loam topsoils over a similarly textured subsoil containing up to 75% weathered chalk fragments over pure chalk at approximately 75 cm. Land of this quality is capable of growing a wide range of agricultural crops at high yields.

### 5 4 Subgrade 3a

Land of this quality covers the majority of the agricultural land at this site. Soils are primarily limited by droughtiness due to the presence of chalk in the profile restricting water availability either at some point during or throughout the growing season. Soils in this area are similar to those described above (para 5 3) being a very slightly stony (c 5% flints by volume) calcareous medium silty clay loam topsoil over a similarly textured upper subsoil containing c 20% chalk fragments by volume.

This proportion increases with depth until the pure chalk was encountered at around 50 cm depth. Roots were found to penetrate into the chalk a further 30 cm. Subgrade 3a land is capable of producing high yields of certain crops such as cereals or moderate yields of a wide range of crops including oilseed rape, potatoes or sugar beet.

5 5 The land marked as urban on the site is towards the west domestic dwellings and associated gardens and to the east an area of hard standing surrounding agricultural barns currently used for storage.

ADAS REFERENCE 1512/113/93

MAFF REFERENCE EL 6105

Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## **SOURCES OF REFERENCE**

- \* British Geological Survey (1987) Sheet No 283 Andover 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 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 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/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

<b>Contents</b>	* Soil Abbreviations	Explanatory Note
	* Soil Pit Descriptions	
	* Database Printout	Boring Level Information
	* Database Printout	Horizon Level Information

## SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a database. This has commonly used notation and abbreviation set out below.

### Boring Header Information

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

2 USE Land use at 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 Bean    BRA Bracken    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 Coniferous Woodland    DCW Deciduous Woodland    HTH Heathland    BOG Bog or Marsh  
FLW Fallow    PLO Ploughed    SAS Set aside    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-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 Soil Erosion Risk    WD Combined Soil Wetness/Droughtiness    ST Topsoil Stomess

### 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 P t    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 size prefix

F Fine (more than 66% of the sand is 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 subdivided 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 percentage of the matrix or surface described

F f w <2% C common 2-20% M many 20-40 VM very many 40%+

4 MOTTLE CONT Mottle contrast

F faint indistinct mottles visible 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 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 gillaceous silty rocks CH chalk

GH gravel with iron porous (hard) stones GS gravel with porous (soft) stones

Stone contents (>2cm >6cm diameter total) are given in percentage (by volume)

7 STRUCT the degree of development and shape of soil peds are described using the following ratios

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 consistency is described using the following ratios

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 soil horizon has less than 0.5% biopore >0.5 mm Y will appear in this column

11 IMP If the profile is impenetrable Y will appear in this column at the appropriate 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 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

Site Name PENTON CORNER TEST VALLP Pit Number 1P

Grid Reference SU33404631 Average Annual Rainfall 787 mm  
 Accumulated Temperature 1441 degree days  
 Field Capacity Level 1 171 days  
 Land Use Permanent Grass  
 Slope and Aspect 01 degrees N

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	MOTTLES	STRUCTURE
0-23	MZCL	10YR43 00	0		5		
23-35	MZCL	10YR44 64	0		20		
35-53	MZCL	10YR64 81	0		40		
53-70	CH	00ZZ00 00	0		0		

Wetness Grade 1 Wetness Class I  
 Gleying cm  
 SPL No SPL

Drought Grade 3A APW 96 mm MBW 4 mm  
 APP 103mm MBP 13 mm

FINAL ALC GRADE 3A  
 MAIN LIMITATION Drought1

SOIL PIT DESCRIPTION

Site Name S 191 PENTON CORNER TVL Pit Number 2P

Grid Reference SU33304621 Average Annual Rainfall 787 mm  
 Accumulated Temperature 1441 degree days  
 Field Capacity Level 1 171 days  
 Land Use Permanent Grass  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	MOTTLES	STRUCTURE
0-25	MZCL	10YR43 00	0		5		
25-70	MZCL	10YR64 81	0		75		

Wetness Grade 1 Wetness Class I  
 Gleying cm  
 SPL No SPL

Drought Grade 3A APW 90 mm MBW 10 mm  
 APP 98 mm MBP 8 mm

FINAL ALC GRADE 3A  
 MAIN LIMITATION Droughtiness

SAMPLE NO	GRID REF	ASPECT USE	WETNESS		WHEAT		POTS		M REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
1P	SU33404631	PGR N	01		1	1	96	4	103	13	3A			DR 3A	ROOTS 70 MIN
2	SU33204640	PGR			1	2	86	14	90	0	3A			DR 3A	IMP 70
2P	SU33304621	PGR			1	1	90	10	98	8	3A			DR 3A	PIT 80 RTS 70
2Q	SU33304621	PGR			1	1	115	15	98	8	2			DR 2	RTS TO 105
3	SU33304640	PGR			1	2	88	12	94	4	3A			DR 3A	IMP 75
4	SU33404640	PGR			1	2	95	5	99	9	3A			DR 3A	CH 25 RTS +30
5	SU33504640	PGR			1	2	95	5	100	10	3A			DR 3A	CH 25 RTS +30
6	SU33204630	PGR N	01		1	1	87	13	92	2	3A			DR 3A	CH 36 RTS 30
7	SU33304630	PGR SW	01		1	1	88	12	93	3	3A			DR 3A	CH 37 RTS 30
8	SU33404630	PGR			1	1	86	14	91	1	3A			DR 3A	CH 35 RTS 30
10	SU33204620	PGR N	01		1	1	116	16	112	22	2			DR 2	CH 57 RTS 30
11	SU33304620	PGR N	01		1	1	114	14	109	19	2			DR 2	CH 60 RTS 30

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES			PED		STONES			STRUCT/	SUBS					
				COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1P	0 23	mzc1	10YR43 00						0	0	HR	5						Y
	23 35	mzc1	10YR44 64						0	0	CH	20		M				Y
	35 53	mzc1	10YR64 81						0	0	CH	40		M				Y
	53 70	ch	00ZZ00 00						0	0		0		P				Y
2	0 25	mzc1	10YR43 00						0	0		0						
	25 30	mzc1	10YR54 81						0	0	CH	55		M				
	30 60	mzc1	10YR81 00						0	0	CH	70		M				
2P	0 25	mzc1	10YR43 00						0	0	HR	5						Y
	25 70	mzc1	10YR64 81						0	0	CH	75		M				Y
2Q	0 25	mzc1	10YR43 00						0	0	HR	5						Y
	25 75	mzc1	10YR64 00						0	0	CH	75		M				Y
	75 105	ch	00ZZ00 00						0	0		0		P				Y
3	0 20	mzc1	10YR43 00						0	0		0						
	20 35	mzc1	10YR54 00						0	0	CH	55		M				
	35 65	mzc1	10YR81 00						0	0	CH	70		M				
4	0 20	mzc1	10YR43 00						0	0		0						
	20 25	mzc1	10YR43 81						0	0	CH	50		M				
	25 75	mzc1	10YR81 00						0	0	CH	70		M				
5	0 20	mzc1	10YR43 00						0	0		0						
	20 30	mzc1	10YR54 81						0	0	CH	55		M				
	30 75	mzc1	10YR81 00						0	0	CH	70		M				Y
6	0 27	mzc1	10YR43 00						0	0	CH	2						
	27 36	mzc1	10YR63 81						0	0	CH	50		M				Y
	36 66	ch	00ZZ00 00						0	0	HR	5		P				Y
7	0 25	mzc1	10YR43 00						0	0		0						Y
	25 37	mzc1	10YR44 81						0	0	CH	50		M				Y
	37 67	ch	00ZZ00 00						0	0	HR	2		P				Y
8	0 23	mzc1	10YR43 00						0	0	HR	1						
	23 30	mzc1	10YR53 00						0	0	CH	5		M				
	30 35	mzc1	10YR53 00						0	0	CH	70		M				
	35 65	ch	00CH00 00						0	0	HR	1		P				
10	0 35	mzc1	10YR43 00						0	0		0						Y
	35 45	mzc1	10YR53 00						0	0	CH	10		M				
	45 57	mzc1	10YR63 81						0	0	CH	40		M				Y
	57 87	ch	00ZZ00 00						0	0	HR	5		P				Y
11	0 32	mzc1	10YR43 00						0	0	CH	5						Y
	32 60	mzc1	10YR64 81						0	0	CH	40		M				Y
	60 90	ch	00ZZ00 00						0	0	HR	5		P				Y