43/95

South Somerset Local Plan
Henstridge

Agricultural Land Classification

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SOUTH SOMERSET LOCAL PLAN
HENSTRIDGE
AGRICULTURAL LAND CLASSIFICATION

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SOUTH SOMERSET LOCAL PLAN

HENSTRIDGE

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The survey was carried out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the South Somerset Local Plan. The fieldwork at Henstridge was completed in July 1995 at a scale of 1:10,000. Data on climate, soils, geology and from previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report. The distribution of grades is shown on the accompanying ALC map and summarised below. Information is correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: Henstridge

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (46.8 ha)
3b	31.0	34.7	64.3
4	15.8	18.2	33.8
Urban	33.0	38.1	0.0
Non Agricultural	4.5	5.2	0.0
Agricultural Buildings	2.4	2.8	0.0
TOTAL	86.7	100.0	100.0

The clayey soils which are shallow and over limestone for most of the site are of moderate quality. The relatively high rainfall and clay topsoils impose a moderately severe workability limitation. The poorly drained soils on the east of the site are Grade 4.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in July 1995 at Henstridge on behalf of MAFF as part of its statutory role in the preparation of the South Somerset Local Plan. The fieldwork covering 86.7 ha of land was conducted by ADAS at a scale of 1:10,000 with approximately one boring per hectare of agricultural land. A total of 45 auger borings were examined and 2 soil profile pits used to assess subsoil conditions.

The published provisional one inch to the mile ALC maps of this area (MAFF 1972, 1974) shows the grades of the site at a reconnaissance scale. All the agricultural land is grade 3 and the village marked as urban. The area was also surveyed in 1983 at 1:10,000.

The recent survey supersedes these maps having been carried out at a more detailed level and using the 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 agricultural use. The grading takes account of the top 120 cm of the soil profile. A description of the grades used in the ALC system can be found in Appendix 2.

2. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to a lower grade despite other favourable conditions.

Estimates of climatic variables were interpolated from the published agricultural climate data set (Meteorological Office 1989). The parameters used for assessing overall climate are accumulated temperature, a measure of the relative warmth of a locality, and average annual rainfall, a measure of overall wetness. The results shown in Table 1 indicate there is no overall climatic limitation.

Table 1: Climatic Interpolations: Henstridge

Grid Reference		ST 725 196
Altitude (m)		78
Accumulated Temperature (day °)		1481
Average Annual Rainfall (mm)		860
Overall Climatic Grade		1
Field Capacity Days		183
Moisture deficit (mm):	Wheat	100
	Potatoes	92

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat and potatoes are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections.

3. RELIEF AND LANDCOVER

The site occupies a gentle east facing slope, the highest point on the western edge of the site being 97m AOD and the lowest being 65m AOD. Most of the agricultural land was used for grass leys and permanent grazing at the time of survey.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale drift geology map (Institute of Geological Sciences 1977). This map shows the site to be underlain by cornbrash with a narrow band of Oxford clay with Kellaway beds on the low lying land on the east of the site. A small area of Forest marble is mapped on the north western part of the site.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

This map shows three soil types across the site with the boundaries coincident with the geological boundaries described above. Most of the site is mapped as soils of the Elmton 1 Association. These are described as shallow well drained brashy calcareous fine loamy soils over limestone, with some similar deeper soils. The forest marble geology gives rise to the Evesham 1 Association, described as slowly permeable calcareous clayey soils associated with shallow well drained brashy calcareous soils over limestone. The low lying eastern part of the site is mapped as Denchworth Association, these are also slowly permeable seasonally water logged clayey soils with similar fine loamy over clayey soils.

The soils found during the recent survey were very similar to the mapped associations. Much of the site comprises shallow brashy clayey soils over limestone rock at approximately 45 - 60 cm. Deeper less stoney clayey soils were found on the eastern part of the site.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades is shown in Table 2 and on the accompanying ALC map. This information could be misleading if shown at a larger scale.

Table 2: **Distribution of ALC grades: Henstridge**

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (46.8 ha)	
3b	31.0	34.7	64.3	
4	15.8	18.2	33.8	
Urban	33.0	38.1	0.0	
Non Agricultural	4.5	5.2	0.0	
Agricultural Buildings	2.4	2.8	0.0	
TOTAL	86.7	100.0	100.0	(46.8) ha

Subgrade 3b

Most of the agricultural land is of moderate quality. The clay topsoil textures imposed a severe workability limitation under the prevailing climatic conditions despite being assessed as Wetness Class I (See Appendix 3). These soils are shallow in places and also experience a drought limitation which in places is equal to the workability limitation.

Grade 4

The deep clay soils derived from the Oxford clays are gleyed and slowly permeable from the upper subsoil. The shallow depth to a slowly permeable layer imposes a severe wetness limitation on the agricultural use of this land. The combination of poor drainage (Wetness Class IV) and clay topsoil textures restricts the land to Grade 4.

Other Land

The village of Henstridge, roads and land presently being built on is shown as urban. Recreational grounds, woods and allotments are shown as non agricultural on the accompanying map. Two areas of agricultural buildings are also marked.

Resource Planning Team
Taunton Statutory Unit
September 1995

APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1977) Drift Edition, Sheet 313, Shaftsbury

MAFF (1972, 1974) Agricultural Land Classification Map, Sheets 166 and 178, Provisional 1:63,360 scale.

MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the quality of agricultural land), Alnwick.

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification.

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5, Soils of South West England, 1:250,000 scale.

APPENDIX 2

DESCRIPTION OF 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 include 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 and horticultural crops can usually be grown but on some land in 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. Where 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 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 most 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.

Descriptions of other land categories used on ALC maps

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 park land, 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.

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 landcover types, eg buildings in large grounds, and where may be shown separately. Otherwise, the most extensive cover type will usually be shown.

Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land), Alnwick.

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

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 90 days, but not wet within 40 cm depth for more than 30 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 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 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer 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.

Notes: The number of days specified is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.

Source: Hodgson, J M (in preparation), Soil Survey Field Handbook (revised edition).

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Henstridge	Pit 1	0°	PGR	Av Rainfall: 860 mm ATO: 1481 day °C FC Days: 183 Climatic Grade: 1 Exposure Grade: 1	Cornbrash
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
43/95	12/7/95	GT719199	GMS		GMS/507

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	18	C	10YR42	1% >2cm SLST 4%>2mm 5% SLST TOTAL (S&D)	None	None	-	-	-	-	MVF	Yes	Clear Smooth
2	30	C	10YR44	5% > 2cm 25%>2mm 30%SLST TOTAL (S+D)	None	None	MFSAB	Friable	Good	Good	MVF	Yes	Clear Smooth
3	45 +	C	10YR44	>70% SLST(Visual) fractured	None	None					CVF between stones	Yes	

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3b

Available Water Wheat: 63 mm

Potatoes: 65 mm

Moisture Deficit Wheat: 100 mm

Potatoes: 92 mm

Moisture Balance Wheat: -37 mm

Potatoes: -27 mm

Droughtiness Grade: 2 (Calculated to 70 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Workability

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Henstridge	Pit 2 (ASP 65)	2° North	PGR	Av Rainfall: 860 mm ATO: 1481 day °C	Cornbrash
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 183 Climatic Grade: 1	SOIL SAMPLE REFERENCES
43/95	13/7/95	ST 726 194	HLJ	Exposure Grade: 1	HLJ 169

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	25	C	10YR43	1%SLST>2cm (S) 1%SLST<2cm (S+D) 2%SLST TOTAL	-	-	-	-	-	Good	CF + VF	-	Clear Smooth
2	40	C	10YR44	10%SLST>2cm (S) 15%SLST<2cm (S+D) 25%SLST TOTAL	-	-	WDMSAB	Friable	M	Good	FF + VF	-	Gradual Smooth
3	60	C	25Y56	18%SLST>2cm (S) 25%SLST<2cm (S+D) 43% SLST TOTAL	-	-	WDMSAB	Firm	M	Good (well fissured)	FVF	-	Clear Smooth
4	120			>70% SLST (VIS)					M		FVF	-	-

Profile Gleyed From: not gleyed

Depth to Slowly Permeable Horizon: no SPL

Wetness Class: I

Wetness Grade: 3b

Available Water Wheat: 109 mm

Potatoes: 98 mm

Moisture Deficit Wheat: 100 mm

Potatoes: 92 mm

Moisture Balance Wheat: 9 mm

Potatoes: 6 mm

Droughtiness Grade: 2 (Calculated to 100 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Workability

Remarks: Clayey lenses in H2 and H3
Pit dug to 65cm