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Dorset Minerals and Waste Local Plan

SG9 Avon Common

AGRICULTURAL LAND CLASSIFICATION REPORT OF SURVEY

Resource Planning Team
Taunton Statutory Unit

July 1993

ADAS

DORSET MINERALS AND WASTE LOCAL PLAN
SG9 AVON COMMON

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. SUMMARY

Ninety eight hectares of land at Avon Common, Avon, Dorset were surveyed using the Agricultural Land Classification (ALC) System in July 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Dorset Minerals and Waste Local Plan. Avon Common (SG9) is a preferred area for sand and gravel extraction.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000. The information is correct at this scale but any enlargement would be misleading. A total of 21 auger borings and 1 soil profile pit were examined.

The distribution of the ALC grades and categories identified in the survey area is detailed below and illustrated on the accompanying map.

Distribution of ALC grades: Avon Common

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	19.90	20.4	100% (19.9ha)
Urban	0.90	0.9	
Woodland	76.75	78.7	
TOTAL	97.55	100%	

The majority of the survey area was found to be under managed woodland. All the agricultural land is classified as Subgrade 3b. This is to the east and south . The main limitation on the slightly higher land is droughtiness and on the lower land it is wetness.

The southern part of the survey area falls within the Avon Valley Environmentally Sensitive Area.

2. INTRODUCTION

Ninety eight hectares of land at Avon Common, Avon, Dorset were surveyed using the Agricultural Land Classification (ALC) System in July 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Dorset Minerals and Waste Local Plan. Avon Common (SG9) is a preferred area for sand and gravel extraction.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at this scale but any enlargement would be misleading. A total of 21 auger borings and 1 soil profile pit were examined.

The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows the site to be predominantly in non agricultural use with areas of Grade 4 land to the north and south east of Pithouse Farm and south of Pithouse Cottage. The recent survey supersedes this map 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).

The ALC provides a framework for classifying land according to the extent to which its physical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120cm of the soil profile. A description of the grades used in the ALC System can be found in Appendix 2.

At the time of survey the majority of the site was wooded whilst all the agricultural land was under grass.

3. 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 lower grades despite other favourable conditions.

Estimates of climatic variables were obtained for the site by interpolation from the 5km grid Meteorolgical Office Database (Meteorological Office 1989) and are shown in Table 1.

The parameters used for assessing overall climatic limitation are accumulated temperature, (a measure of the relative warmth of a locality) and average annual rainfall, (a measure of overall wetness). The values shown in Table 1 reveal that there is no overall climatic limitation.

No locally limiting climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in Section 6.

Table 1 Climatic Interpolations: Avon Common

Grid Reference	SZ 138 981
Height (m)	6
Accumulated Temperature (day deg)	1563
Average Annual Rainfall (mm)	810
Overall Climatic Grade	1
Field Capacity (Days)	167
Moisture Deficit, Wheat (mm)	114
Potatoes (mm)	110

4. RELIEF

The survey area is virtually flat at 6m AOD. There is a slight drop in the land level to the east of the ditch running north south beside Pithouse Farm. There are no microrelief limitations in the survey area.

5. GEOLOGY AND SOILS

The published 1:50,000 drift geology map, sheet 329 (Geological Survey of England and Wales 1976) shows the majority of the site to have valley gravel deposits. The south east of the site has alluvial deposits.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaisance scale of 1:250,000. This map shows two soil associations within the survey area. The site comprises mainly of the Sollom 2 Association: deep often stoneless sandy soils. In the east is a small area of the Frome Association. These soils are described as shallow calcareous and non-calcareous loamy soils over flint gravel, affected by groundwater.

The soils found in the recent survey are well drained on the slightly higher land, but are more poorly drained on the lower level. The western soils are slightly stony but have light textures throughout the profile which makes them droughty.The eastern soils are heavier and organic.

6 AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 2 Distribution of ALC grades: Avon Common

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	19.90	20.4	100% (19.9ha)
Urban	0.90	0.9	
Woodland	76.75	78.7	
TOTAL	97.55	100%	

Subgrade 3b

All the agricultural land has been mapped as Subgrade 3b. The soils within this unit fall into two main types, although there is quite a bit of variety. The higher land has light textured soils which sometimes have stones. These soils are droughty and can on the whole be no better than Subgrade 3b. These soils are well drained. A soil profile pit was dug in these soils to assess substructural condition. The soils on the slightly lower land are not as well drained and show evidence of gleying. These soils are also droughty.

Woodland

The majority of the survey area has been mapped as woodland. This land is not in agricultural use as such and is managed by the Forestry Commission.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1976) Drift edition. Sheet 329 Bournemouth, 1:50,000 scale

MAFF (1973) Agricultural Land Classification Map sheet 179 Provisional 1:63,360 scale

MAFF (1988) Agricultural Land Classification of Enlgland and Wales (Revised guidelines and criteria for grading the quality of agricultural land) Alnwick

METEOROLOGICAL OFFICE (1989) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office

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

APPENDIX 2

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 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 land cover types, eg buildings in large grounds, and where map scale permits, the cover types 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
Avon Common	Pit 1	Flat	Permanent Grass	Av Rainfall: 810 mm ATO: 1563°C FC Days: 167 Climatic Grade: 1	Valley Gravel
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCE
31/93	14/7/93	SZ 140 984	G Shaw		RPT/GC/37

Horizon Number	Lowest Av Depth (cm)	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots: Abundance, Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and form
1	40	10YR3/1	MS	1% >2cm 5% <2cm 6% HR (Sieved)	None	Weak medium. Subangular blocky	Many	Moderate	Very friable	Abund fine		None	Clear smooth
2	53	10YR3/2	LMS	3% HR (Est)	None	Weak medium. Angular blocky	Many	Moderate	Very friable	Many fine		None	Abrupt smooth
3	70	7.5YR5/2	LMS	3% HR (Est)	None	Weak coarse. Angular blocky	Many	Moderate	Very friable	Few fine		None	Abrupt smooth
4	110	7.5YR4/2	LMS	20% >2cm 26% <2cm 46% HR (Sieved)	None	Single grain	Many	Moderate	Loose	Few fine		None	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 1

Available Water	Wheat:	76 mm
	Potatoes:	66 mm
Moisture Deficit	Wheat:	114 mm
	Potatoes:	110 mm
Moisture Balance	Wheat:	-38 mm
	Potatoes:	-44 mm
Droughtiness Grade:		3b (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Droughtiness

Remarks: