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90/93

North Devon District Local Plan,  
Sites at South Molton

**AGRICULTURAL LAND CLASSIFICATION  
REPORT OF SURVEY**

Resource Planning Team  
Taunton Statutory Unit

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**ADAS** 

# AGRICULTURAL LAND CLASSIFICATION

## NORTH DEVON DISTRICT LOCAL PLAN, LAND AT SOUTH MOLTON REPORT OF SURVEY

1. The 4 blocks of land, one to the north of South Molton and 3 to the east of the town, cover a total area of 39.9 ha. The land was graded using the Agricultural Land Classification (ALC) system in September 1993. The survey was carried out on behalf of MAFF as part of its statutory role in consultation with North Devon District Council regarding the North Devon District Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000, at detailed level of one boring per hectare. The information is correct at this scale but any enlargement would be misleading. A total of 41 auger borings and 2 soil profile pits were examined.

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

### Distribution of ALC grades: South Molton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3a	16.5	41.3	44.0
3b	11.2	28.0	30.0
4	9.3	23.3	24.8
5	0.5	1.3	1.2
Non Agric	1.0	2.5	
Farm building	0.5	1.3	—
Urban	<u>0.9</u>	<u>2.3</u>	—
TOTAL	39.9	100%	100% (37.5 ha)

All the land in the survey area experiences a Grade 2 climatic limitation. The northern block of land and over half of the site at Ford Down Farm experiences 3b and 4 wetness limitations. The steeper slopes have been graded 4 and 5. However there is a total of 16.5 ha of Best and Most Versatile land west of South Molton. This land experiences a moderate workability limitation.

## 2. INTRODUCTION

An area of 39.9 hectares of land around South Molton was surveyed on behalf of MAFF, as part of its statutory role in the consultation with North Devon District Council regarding the North Devon District Local Plan. The survey was carried out in October 1993 by ADAS (Resource Planning Team, Taunton Statutory Unit) at a detailed level using the Agricultural Land Classification (ALC) system and conducted at a scale of 1:10,000 (approximately one sample point for every hectare of agricultural land). The 42 borings were supplemented by 2 soil inspection pits used to assess subsoil conditions. The information is correct at the scale shown but any enlargement would be misleading.

The published Provisional 1" to the mile ALC map of this area (MAFF 1974) shows all the land to be Grade 3 except a small area of Grade 4 around Gunsdown Villas. Previous survey work was undertaken in 1984 and found Grades 3a, 3b and 4 in the north and Grades 2 and 3a adjacent to Parklands west of South molton. Land at Ford Down Farm was graded 3b and 4. The current survey supersedes any previous surveys and was undertaken to provide a more detailed representation of the agricultural land quality using the Revised Guidelines and Criteria (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.

## 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.

Climatic data for the site was interpolated from the published Agricultural Climate Dataset (Meteorological Office 1989). The parameters used for assessing 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 that there is a grade 2 climatic limitation on land in the survey area.

Table 1 Climatic interpolations: South Molton

Grid Reference	SS714 265	SS701 251	SS706 257
Height (m)	147	112	117
Accumulated Temperature (day deg)	1422	1463	1457
Average Annual Rainfall (mm)	1228	1157	1170
Overall Climatic Grade	2	2	2
Field Capacity (Days)	247	236	238
Moisture Deficit, Wheat (mm)	68	75	74
Potatoes (mm)	50	59	58

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. This data is used in assessing the soil wetness and droughtiness limitations referred to in Section 6. A description of the Wetness Classes referred to can be found in Appendix 3.

#### **4. RELIEF AND LAND COVER**

The northern site occupies an undulating area of grassland, the highest point being 145 m AOD in the north western corner and the lowest point being 110 m AOD in the south eastern corner of the site. A valley feature with steep sloping sides bisects the site and drains into a wet area of rough grassland. These areas are shown as Grades 4 and 5 where slope is the limiting factor.

#### **5. GEOLOGY AND SOILS**

The published 1:50,000 scale solid and drift geology map, sheet 293 Geological Survey of England and Wales 1982) shows the sites to be Devonian slates with a band of Sandstone crossing both the northern and southern sites.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250,000. This map shows soils over the entire site to comprise the Denbigh 2 Association. These soils are described as well drained fine loamy soils over slate or slate rubble with some similar soils which are variably affected by groundwater.

The recent survey indicates two soil types, the first being well drained clay loam profiles with very stony subsoils, (approximately 35% silty rocks at 40 cm and 50 % at 80 cm). The second soil type found in the northern site and land east of Ford Down Farm comprises heavy and medium clay loam topsoil textures overlying poorly drained clay subsoils.

## 6. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed in Table 2 and shown on the accompanying ALC map.

### Distribution of ALC grades: South Molton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3a	16.5	41.3	44.0
3b	11.2	28.0	30.0
4	9.3	23.3	24.8
5	0.5	1.3	1.2
Non Agric	1.0	2.5	
Farm building	0.5	1.3	
Urban	<u>0.9</u>	<u>2.3</u>	
TOTAL	39.9	100%	100% (37.5 ha)

#### Subgrade 3a

All the agricultural land in the two blocks immediately west of Parklands and the land to the west of Ford Down Farm have been graded 3a with a workability limitation. These soils are well drained (wetness class I) but the high FC Days and the medium clay loam topsoil restricts the land to this Subgrade 3a (good quality agricultural land).

#### Subgrade 3b

Land to the north of the town and to the east of Ford Down Farm has been graded 3b with a wetness limitation. These areas relate to the clayey soils with medium clay loam topsoils described in section 5. Subsoils are gleyed and slowly permeable from a depth of between 30 and 45 cm depth (Wetness Class III and IV). This imposes a moderately severe wetness limitation. There is an area of land in the survey area north of the town where slopes of between 8 and 11° also limit the land to this grade.

#### Grades 4

Land of this Grade comprises poorly drained soils (Wetness Class III and IV) with heavy clay loam and occasionally silty clay topsoils. Under the prevailing FC Days this land experiences a severe wetness limitation. Slopes of between 11° and 18° have been assessed as Grade 4 due to the severe restrictions on the types of agricultural machinery which can be safely used.

## **Grade 5**

The narrow steep sided valley south of Gunsdown Villas has been assessed as Grade 5 due to the severely restrictive nature of slopes greater than 18°.

### **Urban and Non Agricultural Land**

Ford Down lane is shown as Urban . The non agricultural land includes a barn and an area of woodland surrounding a pond .

### **Farm Buildings**

The farm buildings associated with Ford Down Farm are included in this category.

## **APPENDIX 1**

### **REFERENCES**

**GEOLOGICAL SURVEY OF ENGLAND AND WALES (1982) Solid and Drift edition. Sheets 293, 1:50,000 scale**

**MAFF (1974) Agricultural Land Classification Map Sheet 163 provisional 1:63,360 scale**

**MAFF (1988) Agricultural Land Classification of England and Wales (revised guidelines and criteria for grading the quality of 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 scale**

## **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**

## 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).

## **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 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.

SITE NAME		PROFILE NO.		SLOPE AND ASPECT		LAND USE		Av Rainfall: 1145		PARENT MATERIAL			
South Molton		Pit 1		Fallow, flat		Derelict grassland		ATO: 1474		Sandstone			
JOB NO.		DATE		GRID REFERENCE		DESCRIBED BY		FC Days: 233					
90/93		26/10/93		ASP27		Nigel Done		Climatic Grade: 2					

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	25	10YR43	MCL	2% ZR total	-	-	Many pores and fissures	-	-	Many fine and few medium	None	None	Clear/ smooth
2	40	10YR54	FSZL	35% ZR total	-	WDCSAB	>0.5% biopores	G	Friable	Many fine	None	None	Clear/ smooth
3	80+	10YR54 53	HCL	50% ZR total sieved	Few fine weathering mottles	WDMSAB	>0.5% biopores and fissures	G	Friable	Few fine	None	None	

Profile Gleyed From: -  
Depth to Slowly Permeable Horizon: -  
Wetness Class: I  
Wetness Grade: 3a

Available Water Wheat: 151  
Potatoes: 114  
Moisture Deficit Wheat: 76  
Potatoes: 61  
Moisture Balance Wheat: 75  
Potatoes: 53  
Droughtiness Grade: 1

Final ALC Grade: 3a  
Main Limiting Factor(s): Workability

Remarks:  
Pit dug to 80 cm.

SITE NAME		PROFILE NO.		SLOPE AND ASPECT		LAND USE		Av Rainfall: 1122			PARENT MATERIAL		
South Molton		Pit 2		2° NE		Potatoes		ATO: 1488			Shales		
JOB NO.		DATE		GRID REFERENCE		DESCRIBED BY		FC Days: 230					
90/93		26/10/93		ASP 23-24		N Done and M Mills		Climatic Grade: 2					
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	20	75YR43	HCL	2% total ZR (est)	-	-	-	-	-	Many fine	-	-	Gradual/ smooth
2	30	75YR34	MCL	30% total ZR (est)	-	WDMSAB	>0.5% pores + fissures	G	Friable	Many fine	-	-	Clear/ smooth
3	40	10YR53	HCL	30% total ZR (est)	FFOM	WDMSAB	>0.5% pores	M	Friable	Many fine	-	-	
4	100+	25Y61	C	10% total ZR	MDOM 10YR58	WD adherent C + VC SAB	± 0.2% pores	P	Firm	Few fine	-	-	Clear/ smooth

Profile Gleyed From: 40  
Depth to Slowly Permeable Horizon: 40  
Wetness Class: III  
Wetness Grade: 3b

Available Water Wheat: 126  
Potatoes: 104  
Moisture Deficit Wheat: 79  
Potatoes: 65  
Moisture Balance Wheat: 50  
Potatoes: 43  
Droughtiness Grade: 1

Final ALC Grade: 3b  
Main Limiting Factor(s): Wetness

Remarks: