Devon Structure Plan: South Hams
Land at Ivybridge
Agricultural Land Classification

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DEVON STRUCTURE PLAN: SOUTH HAMS
LAND AT IVYBRIDGE

AGRICULTURAL LAND CLASSIFICATION

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DEVON STRUCTURE PLAN: SOUTH HAMS

LAND AT IVYBRIDGE

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 Devon Structure Plan. The fieldwork at Ivybridge was completed in November 1994 at a scale of 1:10,000. Data on climate, soils, geology and previous ALC Surveys was used and is presented in the report. The distribution of grades is detailed below and illustrated on the accompanying ALC map. Information is correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: Ivybridge

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	4.7	4.3	35.6	
3b	8.5	7.8	64.4	
Urban	89.5	82.1	0.0	
Non Agricultural	6.3	5.8	0.0	
TOTAL	109.0	100.0	100.0	(13.2 ha)

Most of the agricultural land is well drained with workability limitations although there are localised areas which have wetness limitations. The Subgrade 3a land, which accounts for over a third of the agricultural land, has lighter topsoil texture than the Subgrade 3b area.

Over 80% of the site has been, or is in the process of being developed.

1. INTRODUCTION

A semi-detailed Agricultural Land Classification (ALC) Survey was carried out in November 1994 at Ivybridge on behalf of MAFF as part of its statutory role in the preparation of the Devon Structure Plan. The fieldwork covering 109 ha of land was conducted by ADAS at a scale of 1:10,000 (approximately one boring per two hectares of agricultural land). A total of 8 auger borings were examined.

The published provisional one inch to the mile ALC map of this area (MAFF 1993) shows the grades of the site at a reconnaissance scale. All of the agricultural land has been mapped as Grade 3 with parts of Ivybridge shown as being predominantly urban.

The area was also surveyed in 1975 at a scale of 1:50,000.

This showed areas of Subgrades 3a, 3b and 3c to the north of the A38 and south of the railway. Subgrade 3a land is shown around Godwell with Subgrade 3b land alongside the B3213.

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). 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 dataset (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 an overall climatic limitation which restricts the land to Grade 2 to the south of the Butterpark and Parkside and Subgrade 3a to the north.

Table 1: Climatic Interpolations: Ivybridge

Grid Reference		SX 640 558	SX 642 564
Altitude (m)		55	90
Accumulated Temperature (day °)		1560	1520
Average Annual Rainfall (mm)		1330	1376
Overall Climatic Grade		2	3a
Field Capacity Days		260	268
Moisture deficit (mm):	Wheat	81	75
	Potatoes	69	61

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 survey area is on the southern edge of Dartmoor and rises gently from 55-120 m AOD. At the time of survey all of the agricultural land was under pasture.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 349, Institute of Geological Sciences 1974.

The majority of the site is underlain by Mid-Devonian slate and metamorphic rocks. There are areas of river gravel and head deposits to the south of the Rutt House and around Yeolland Park.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000 and in 1976 at a scale of 1:25,000.

The majority of the site is mapped as the Highweek Series (normal phase), which are described as having clay loam textures with brown subsoils and slate at a variable depth below 30 cm. The northern part of the site contains soils from the Dartington Series which are described as being similar to the Highweek soils only with brightly coloured subsoils. An area of Yeolland Park Series is shown to the west of Yeolland Park which are described as being mottled throughout, with clay loam textures and a fine blockly subsoil structure.

Only areas shown as Dartington and Highweek Series were involved in the recent field work. The soils that were found were of two types. The northern area had medium clay loams over deep well drained heavy clay loams with weathered slate in the subsoils. The southern area had heavy clay loams over clay with localised poorly drained subsoils.

5. AGRICULTURAL LAND CLASSIFICATION

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

Table 2: Distribution of ALC grades: Ivybridge

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	4.7	4.3	35.6	
3b	8.5	7.8	64.4	
Urban	89.5	82.1	0.0	
Non Agricultural	6.3	5.8	0.0	
TOTAL	109.0	100.0	100.0	(13.2 ha)

Subgrade 3a

The area of Subgrade 3a consists of deep well drained clay loams which are assessed as Wetness Class I (see Appendix 3). The topsoil textures were medium clay loams which, with the local FCD values, impose a moderate workability limitation.

Subgrade 3b

The profiles in the area of Subgrade 3b land have heavy clay loam topsoils over clay, with weathered slate in the subsoils. In places the soils are poorly drained with mottling in the subsoils and are assessed as Wetness Class II. These profiles have a moderate wetness limitation. Where the soils are well drained and assessed as Wetness Class I they have a moderate workability limitation.

Other Land

The survey site included the eastern half of Ivybridge where areas have already been developed and some areas in the south have the first stages of development put in. The small areas of non-agricultural land are school playing fields.

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APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1974) Drift Edition, Sheet 349, Ivybridge 1:50,000

MAFF (1973) Agricultural Land Classification Map, Sheet 187, 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.

SOIL SURVEY OF ENGLAND AND WALES (1976) Sheet SX65, Soils in Devon II, 1:25,000.

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).