

Camborne and Redruth Local Plan: Camborne Survey Area
Agricultural Land Classification

Report of Survey

1. Introduction

In May 1991 a detailed Agricultural Land Classification (ALC) was carried out around the South West of Camborne in Cornwall, as part of MAFF's statutory input to the revision of the Camborne and Redruth Local Plan.

The fieldwork was conducted by members of the Resource Planning Group at a scale of 1:10,000, with an approximate soil observation density of one auger boring per hectare. A total of 250 borings and 5 soil pits was examined. The ALC information is accurate at the scale of mapping but any enlargement would be misleading.

2. Agricultural Land Classification

2.1 The ALC provides 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. The distribution of grades is detailed below and illustrated on the accompanying map. This map supersedes any previous detailed information for this area.

Table 1: Distribution of ALC Grades

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Survey Area</u>	<u>% of Agricultural Land</u>
2	168.7	61.2	77.7
3a	<u>38.1</u>	<u>13.8</u>	<u>17.6</u>
	<u>206.8**</u>	<u>75.0</u>	<u>95.3</u>
3b	10.2	3.7	<u>4.7</u>
Urban	41.8	15.2	100%
Non Agric	14.5	5.3	(217.0 ha)
Farm Bdgs	<u>2.2</u>	<u>0.8</u>	
	275.5 ha	100%	

** Grades 2 and 3a are considered 'best and most versatile' in Cornwall

The northern section of the survey area was surveyed in detail in 1987 using MAFF's original ALC system. The grading was confirmed under the Revised Guidelines* by locating several test borings and a soil pit in this area.

A general indication of the amount of high quality land in Cornwall compared to the South West region and the national situation is attached, together with a general description of the five main ALC grades.

* Revised Guidelines and criteria for grading the Quality of Agricultural Land, MAFF, 1989.

2.2 Climate

Estimates of important climatic variables were obtained for the survey area by interpolation from a 5 km grid Met Office/MAFF database* in order to assess any overall climatic limitation affecting the area. The indicative parameters for assessing such a limitation 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 2 reveal that over the majority of the site there is no climatic limitation. However above 115 m the survey area is limited to Grade 2 on climate.

Above 117 m there is an important workability variation related to field capacity days (FCD). FCD is a meteorological parameter which estimates the duration of the period when the soil moisture deficit is zero, that is when rainfall exceeds evapotranspiration. The FCD level and topsoil texture affect the soil workability. Thus, below 117 m at Camborne where the FCD are below 225 a medium clay loam topsoil in wetness class I may qualify for grade 2 but, above 117 m, and hence 225 FCD, it may be no better than grade 3a.

Slight exposure was observed over part of the site but this imposed no greater limitation than other factors.

Table 2: Climatic Interpolations

Grid Reference	SW 649390	SW 628400	SW 632386	SW 655392	SW 640394	SW 650389
Height	115	80	60	150	95	120
Accumulated Temperature (° days)	1521	1562	1585	1482	1544	1517
Average Annual Rainfall (mm)	1125	1083	1066	1228	1104	1196
Field Capacity (Days)	219	212	210	238	216	233
Moisture Deficit, Wheat (mm)	85	91	94	76	88	82
Potatoes (mm)	72	80	84	60	76	67
Overall Climatic Grade	1/2	1	1	2	1	2

Grade 2

The majority of the survey area has been classified as Grade 2. In this area there is no evidence of poor drainage in the form of either gleying (grey or pale matrix colours and ochreous mottles) or slowly permeable layers. The soil horizons do have low percentages of stones present but these do not impose a droughtiness limitation because of the low moisture deficits for the area. The limitation in this area is topsoil workability. Three soil pits across this area confirm the grading.

* Climatological Data for Agricultural Land Classification, Met Office/MAFF/SSLRC 1989

Typical profiles have medium clay loam topsoils with a heavy clay loam upper subsoil lying above clay horizons containing soft shale fragments.

Sub-Grade 3A

There are three areas of sub-grade 3A. In the East of the survey area where the land rises above 117 m the free draining soils are limited to sub-grade 3A on workability of the medium clay loam topsoils at the FCD range of over 225. Below 117 m these same soils have greater versatility, ie fewer days when the soil is at field capacity and cannot be cultivated without causing damage to the soil structure, and are Grade 2.

In the South West part of the survey area there are two blocks of sub-grade 3A land. These soils are gleyed but do not have slowly permeable layers. The gleying occurred at variable depths in the profile but with medium clay loam topsoils, whether the soils were placed in Wetness Class II (gleyed 40-70 cm) or Wetness Class III (gleyed <40 cm) the soil profiles are graded as 3A.

The absence of an SPL was confirmed by a soil pit.

Although stoney the profiles do not experience a droughtiness limitation.

Sub-Grade 3B

There are a few small areas of Sub-Grade 3B slope. The largest area of this grade is in the west of the survey area. Here the soils experience a greater wetness limitation than elsewhere in the survey area. They are situated on the flood plain and have heavy clay loam topsoils. They are heavily gleyed from the surface and are thus placed into Wetness Class III. The clay subsoils are stoney and do not exhibit slowly permeable layers. The combination of wetness class, topsoil texture and prevailing FCD places these soils into Sub-Grade 3B.