

**AGRICULTURAL LAND CLASSIFICATION
FALMOUTH TO A30 LINK - A393 CORRIDOR: PONSANOOTH
REPORT OF SURVEY**

1. INTRODUCTION

- 1.1 The sites, an area of 163 hectares of land along the A393 and A394, near Ponsanooth were graded using the Agricultural Land Classification (ALC) system in July 1992 and January 1993. The survey was carried out for MAFF as part of its statutory role in response to a feasibility study for the proposed Falmouth to A30 link being carried out by Cornwall County Council.
- 1.2 The fieldwork was carried out by ADAS's Resource Planning Team (Wessex Region) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at the scale shown but any enlargement would be misleading. This survey supercedes the 1" to the mile ALC map of this area being at a more detailed level and carried out under the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). A total of 77 borings and 5 soil pits were examined.
- 1.3 The Agricultural Land Classification provides 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 the appendix.
- 1.4 The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying map.

Table 1 Distribution of ALC Grades: A393 Corridor

Grade	Area (ha)	% of Survey Area	% Of Agricultural Land
2	21.3	13.0	19.1
3a	66.25	40.6	59.5
3b	18.95	11.6	17.0
4	4.2	2.6	3.8
5	0.7	0.4	0.6
Non Agri	20.05	12.3	100% (111.4 ha)
Urban	<u>31.85</u>	<u>19.5</u>	
Total	163.30	100%	

2. CLIMATE

- 2.1 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.

- 2.2 To assess any overall climatic limitation, estimates of important climatic variables for the site were interpolated from the Meteorological Office Database (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 2 include that there is a climatic limitation across some of the survey area. Land above a height of 65 m can be classified no better than grade 2. However, land below this contour can be classified as grade 1.
- 2.3 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 5. There is a FCD range boundary across the site. Land above a height of 60 m is placed in the >225 FCD category. Whereas land below this contour is placed in the 176-225 FCD category. This boundary has an important affect on the Wetness Grade of the soils. No local climatic factors such as exposure were noted in the survey area.

Table 2 Climatic Interpolations: A393 Corridor

Grid Reference	SW766354	SW763377	SW758384	SW759384	SW760379
Height (m)	130	15	60	70	55
Accumulated Temperature ($^{\circ}$ days)	1503	1634	1582	1571	1588
Average Annual Rainfall (mm)	1203	1076	1156	1167	1135
Overall Climatic Grade	2	1	1	2	1
Field Capacity (Days)	234	214	226	227	223
Moisture Deficit, Wheat (mm)	77	99	89	87	91
Potatoes (mm)	62	89	78	76	79

3. RELIEF

- 3.1 The survey area has a maximum height of 130 m AOD and a minimum of 15 m AOD. The proposed route crosses the Kennel River Valley and two smaller tributaries. These are steep sided valleys (particularly around Ponsanooth) with gentler slopes on the higher land.

4. GEOLOGY AND SOILS

- 4.1 The published 1:50,000 scale solid and drift geology map, sheet 352 (Geological survey of England and Wales 1974) shows approximately half of the survey area is underlain by mylor slates and sandstone with a small area of alluvium in the valley of the River Kennall. The southern part of the area is underlain by granite.

- 4.2 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 the site to comprise 3 associations. Soil to the North of Ponsanooth and to the east of the present A393 route comprise Denbigh 2 association*. However this is dissected by a band of Manod Association** soils on the lower slopes of the Kennall River Valley. The southern half of the site is mapped as Mortonhampstead Association***.
- 4.3 During the recent field survey a single basic soil type was identified. Soils across the whole site consist of deep well drained slightly stony, medium clay loams. However textures vary slightly, particularly to the west of Burnthouses where soils comprise deep sandy silt loams. There is also an area to the north of Ponsanooth where lower subsoils comprise very stony (approximately 50% shale) heavy clay loams below 70 cm.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed in Section 1 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

5.1 GRADE 2

Grade 2 land found in the northern part of the site occurs below the 60 m climatic boundary described in paragraph 2.3. These soils are free draining and have been assessed as wetness Class 1, which combine with a local field capacity days of 223 and a medium clay loam topsoil thus restricting the land to grade 2 with a workability limitation. A second area of grade 2 is found on the gentler slopes to the west of Burnthouses. The lighter textured sandy silty loam topsoils allow good workability of the soils despite the high FC Days (234).

5.2 SUBGRADE 3a

Nearly two thirds of the site are placed in this subgrade. These soils experience a greater workability limitation than the grade 2 soils. The high FCD range above 60 m combined with medium clay loam topsoils, which reduces the versatility of the land. It is on this basis that the soils have been down graded to subgrade 3a.

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- * Denbigh 2 Association Well drained fine loamy soils over slate or slate rubble. Some fine loam soils variable affected by groundwater.
- ** Manod Association Well drained fine loamy soils or fine silty soils over rock. Shallow soils in places. Bare rock locally. Steep slopes common.
- *** Mortonhampstead Association Well drained gritty loamy soils with a lumose surface horizon in places. Some steep slopes. Boulders and rock locally.

5.3 SUBGRADE 3B, GRADES 4 AND 5

The areas covered by this subgrade and grades have been downgraded on the basis of a slope limitation. The range of gradients found were of 8-11°, 12-18° and >18° respectively. The risk of soil erosion if cultivated is increased and the slopes exclude the safe use of a greater range of machinery. The risks involved increase as the gradient of the land increases.

REFERENCES

- GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974). Solid and Drift edition. Sheet 352 Provisional 1:50,000 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.