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PENWITH DISTRICT PLAN ST ERTH AND GOLDSITHNEY

Agricultural Land Classification, Report of Survey

1 Summary

As part of MAFF's statutory input to the preparation of the Penwith District Plan, detailed Agricultural Land Classification (ALC) surveys were carried out around St Erth and Goldsithney in Cornwall

A total of 74 hectares was surveyed around the three settlements to provide information on the type of land quality to be affected by future development. The areas surveyed were larger than those requested by Penwith District Council planners in order to help MAFF assess the knock-on effects of local development and to define areas of poorer land quality which MAFF might view as more suitable for development.

The tables attached provide the ALC statistics by grade for each individual area surveyed, and the distribution of the grades is shown on the enclosed ALC maps. Together, these indicate that each settlement is surrounded by areas of high agricultural quality (mostly Grade 2 with some Sub-grade 3A).

The fieldwork was carried out by the Resource Planning Group (South West Region) at a scale of 1:10,000 (ie approximately one soil observation per hectare). The information is also mapped at 1:10,000 and is accurate at this scale but any enlargement may be misleading. This survey information supercedes previous ALC information for this area.

Survey work has been carried out using MAFF's "Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1989). 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. A description of the general grades used in the ALC system is attached.

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Penwith District Plan Agricultural Land Classification

Distribution of Grades and Subgrades St Erth

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Survey Area</u>	<u>% of Agricultural Area</u>
2	20 8	78 5	95 0
3A	1 1	4 2	5 0
Non Agric	3 4	12 8	----
Urban	1 0	3 8	100% (21 9 ha)
Agric Bldgs	0 2	0 7	
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	26 5 ha	100%	

Distribution of Grades and Subgrades Goldsithney

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Survey Area</u>	<u>% of Agricultural Area</u>
2	29 5	62 4	67 8
3A	14 0	29 6	32 2
Non Agric	0 9	1 9	----
Urban	2 7	5 7	100% (43 5 ha)
Agric Bldgs	0 2	0 4	
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	47 3 ha	100%	

2 Climate

The climatic criteria are considered first when classifying land as they may be overriding in the sense that severe climatic limitations will restrict land to low grades irrespective of favourable soil or site conditions

A detailed estimate of the prevailing climate has been made for each survey area by interpolation from a 5 km grid dataset. The latter is held in LandIS, a computer-based land information system developed by the SSLRC and funded by MAFF

The parameters used in assessing the impact of overall climate are accumulated temperature (a measure of the relative warmth of a locality) and average annual rainfall (a measure of overall wetness)

St Erth Survey Area Two climatic interpolations were requested for this area, the details of which are attached as an appendix. Climatically, the survey area is placed in Grade 1. The area is moderately droughty (moisture deficits for wheat range between 98-104 mm) and experiences a high field capacity range (198-203 days) which restricts the flexibility of field operations. The local climatic factor of exposure is not a limiting factor.

Goldsithney Survey Area Three interpolations were requested (see appendix) and indicate a similar climatic regime to St Erth, but with a slightly lower field capacity range (184-187 days). Exposure is a significant local limitation, downgrading part of the site to Grade 2, with one minor hill crest area of 3A. Details are given in the ALC section.

3 Geology

The majority of the soils around all three settlements are developed over slate deposits except for minor areas of alluvium.

4 Agricultural Land Classification

4.1 St Erth Survey Area

Grade 2 is the predominant grade. The typical soils are deep, well-drained, stone-free medium clay loams overlying subsoils of heavy clay loam texture, which are downgraded to Grade 2 as a result of a workability limitation. Given the topsoil textures and the high field capacity level, the soils are sensitive to structural damage during the autumn to spring period which restricts the number of days when the soils are in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

Grade 3A A minor area to the east of the village shows signs of seasonal wetness and therefore experiences a more significant workability limitation than adjacent soils.

4 2 Goldsithney Survey Area

Grade 2 Pit 1 is typical of these soils (see Appendix) and describes a medium clay loam topsoil overlying subsoils of heavy clay loam. The soils show no evidence of wetness, but possess stone contents of approximately 30% below 50 cm. Soil workability and local exposure are the key limitations. The topsoil textures, in combination with the high field capacity levels, restrict the number of days when the soil can be trafficked or grazed without causing structural problems. Some of the higher land lies open to the effects of strong south westerly winds and is therefore unsuitable for top fruit and soft fruit.

Grade 3A The higher land on the south-eastern edge of the survey area is west facing and is very susceptible to strong, persistent winds from the south-west. Exposure is the main limitation, with the area considered unsuitable for Grade 2 crops such as strawberries, flowers and lettuce. Adjacent profiles are also shallow and stony and, therefore, more droughty than the Grade 2 soils.

A central band of 3A delineates those soils that occur in a receiving site which exhibit shallow gleying (but no slowly permeable layers). These gley soils are seasonally waterlogged, and this wetness problem restricts their flexibility in terms of field operations and grazing.

CLIMATIC INTERPOLATIONS

St Erth Survey Area

Grid Reference	SW553354	SW554349
Altitude (m)	10	45
Average Annual Rainfall (mm)	1015	1048
Accumulated Temperature (° days)	1645	1605
Field Capacity (days)	198	203
Moisture Deficit, Wheat (mm)	104	98
Moisture Deficit, Potatoes (mm)	98	90
Overall Climatic Grade	1	1

Goldsithney Survey Area

Grid Reference	SW543304	SW544312	SW548305
Altitude (m)	60	45	75
Average Annual Rainfall (mm)	922	920	940
Accumulated Temperature (° days)	1591	1607	1573
Field Capacity (days)	185	184	187
Moisture Deficit, Wheat (mm)	102	104	99
Moisture Deficit, Potatoes (mm)	93	96	90
Overall Climatic Grade	1	1	1

Crowlas/Ludgvan Survey Area

Grid Reference	SW510320	SW513334	SW519333
Altitude (m)	35	45	20
Average Annual Rainfall (mm)	1006	1038	1006
Accumulated Temperature (° days)	1619	1607	1635
Field Capacity (days)	199	205	200
Moisture Deficit, Wheat (mm)	97	94	99
Moisture Deficit, Potatoes (mm)	89	85	92
Overall Climatic Grade	1	1	1