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Dorset Minerals and Waste Local Plan  
BC12 Squirrel Cottage

**AGRICULTURAL LAND CLASSIFICATION  
REPORT OF SURVEY**

Resource Planning Team  
Taunton Statutory Unit

June 1993

**ADAS** 

**DORSET MINERALS AND WASTE LOCAL PLAN  
BC12 LAND AT SQUIRREL COTTAGE, EAST HOLME**

**AGRICULTURAL LAND CLASSIFICATION**

**Report of Survey**

**1. SUMMARY**

Seventy nine hectares of land at Squirrel cottage, south of Wareham, Dorset, were graded using the Agricultural Land Classification (ALC) System in June 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Dorset Minerals and Waste Local plan. Squirrel Cottage (BC12) is a preferred area for ball clay extraction.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at this scale but any enlargement would be misleading.

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

**Distribution of ALC grades: Squirrel Cottage, Wareham**

Grade	Area (ha)	% of Survey Area	% of Agricultural land
2	8.3	10.5	13.7
3A	28.9	36.6	47.7
3B	23.3	29.5	38.5
Non Agric	18.5	23.4	-----
	----	-----	100 % (60.5ha)
TOTAL	79.0	100 %	

There are no climatic or site limitations for the survey area. The main limitation is a droughtiness limitation caused by light textures and a moderate stone content. Gleying occurs at variable depths with no discernible pattern across the site, leading to a wetness limitation at some locations. The majority of the agricultural land is graded as 3a, with small areas of grade 2. 61% of the agricultural land is best and most versatile, with the remainder graded as 3b.

## 2. INTRODUCTION

Seventy nine hectares of land at Squirrel cottage, south of Wareham, Dorset, were graded using the Agricultural Land Classification (ALC) System in June 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Dorset Minerals plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at this scale but any enlargement would be misleading. A total of 65 auger borings and 3 soil profile pits were examined.

The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows the site as grade 3, with some areas of grades 4 and 5 and non-agricultural land in the centre and south west of the site. 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).

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 120cm of the soil profile. A description of the grades used in the ALC System can be found in appendix 1.

At the time of the survey the land to the west was under cereals and potatoes, and the rest of the agricultural land on the site was under grass.

## 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 lower grades despite other favourable conditions.

Estimates of climatic variables were obtained for the site by interpolation from the 5km grid Database (Meteorological Office 1989) and are shown in Table 1.

The parameters used for assessing overall climatic limitation are accumulated temperature, (a measure of the relative warmth of a locality) and average annual rainfall, (a measure of overall wetness). The values shown in Table 2 reveal that there is no overall climatic limitation.

No locally limiting climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and

potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in Section 5.

**Table 1 Climatic Interpolations: Squirrel Cottage, Wareham**

Grid Reference	ST 908 850
Height (m)	20
Accumulated Temperature (day deg)	1558
Average Annual Rainfall (mm)	932
Overall Climatic Grade	1
Field Capacity (Days)	188
Moisture Deficit, Wheat (mm)	108
Potatoes (mm)	102

### **3. RELIEF**

The site is gently undulating, rising from an altitude of 5m aod in the east to 35 m in the centre. None of the fields have microrelief limitations.

### **4. GEOLOGY AND SOILS**

The published one inch scale geology map sheet 328 (Geological Survey 1981) shows the site to be predominantly underlain by Bagshot Beds with an area of valley gravel north of Dorey farm, adjacent to the railway line.

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 soils of the site to be of the Wickham 3 association. The soils in this association are either slowly permeable, seasonally waterlogged, fine or coarse loamy over clayey, or similar more permeable soils with slight waterlogging. Some deep coarse loamy soils affected by groundwater can occur in the association.

The soils found in the recent survey were fine loamy over coarse loamy or clayey, variably affected by groundwater gleying. To the north west of the site the Soil Survey map shows an area of Sollom 2 association. The soils found here, however, were on disturbed land that had been restored following mineral extraction about 7 years ago.

### **6. AGRICULTURAL LAND CLASSIFICATION**

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

**Table 2 Distribution of ALC grades: Squirrel Cottage,  
Wareham**

Grade	Area (ha)	% of Survey Area	% of Agricultural land
2	8.3	10.5	13.7
3A	28.9	36.6	47.7
3B	23.3	29.5	38.5
Non Agric	18.5	23.4	-----
	----	-----	100 % (60.5ha)
<b>TOTAL</b>	<b>79.0</b>	<b>100 %</b>	

### Grade 2 Land

There are 3 areas of grade 2 land on the site. This land consists of deep slightly stoney sandy loam, over clay at about 90cm depth. The lower subsoil is gleyed, but this generally does not cause a wetness limitation. The stone content increases with depth generally from 5% in the topsoil to 15% at depth. Pit 1 is representative of the grade 2 sites, although at other sites the stone content is somewhat higher and the gleying occurs at a greater depth. The land is generally graded as 2 due to a droughtiness limitation caused by a combination of the light texture and stone content, although locally ground water gleying may cause a wetness limitation also leading to a grade of 2.

### Subgrade 3a

The 3a soils are similar to those described above, having either a droughtiness limitation or a wetness limitation leading to the 3a subgrade. Textures are sandy loam overlying a sandy loam or sandy clay loam upper subsoil, with a slowly permeable clay layer occurring at variable depth. Most of the 3a soils are downgraded due to a drought limitation, caused by the light textures in combination with stone contents rising to around 20% at depth.

### Subgrade 3b

The 3b soils are generally downgraded due to droughtiness. The stone contents are variable, and at some locations the subsoil texture becomes loamy coarse sand at depth. Pit 2 is typical of the 3b soils.

In the north west of the site the area of 3b land has been restored following mineral extraction approximately 7 years previously. Pit 3 describes this unit, which consists of a medium clay loam topsoil over clay. The clay is gleyed and slowly permeable, leading to a wetness class IV and a grade of 3b.

## APPENDIX 1

### REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1981) Solid and drift edition. Sheet 328 Dorchester

MAFF (1974) Agricultural Land Classification Map sheet 178 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) 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

## 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**

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 land cover types, eg buildings in large grounds, and where map scale permits, the cover types 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).

SITE NAME		PROFILE NO.		SLOPE AND ASPECT		LAND USE		Av Rainfall: 921 mm			PARENT MATERIAL		
Squirrel Cottage		Pit 1		Flat		Permanent Grass		ATO: 1561°C			Bagshot Beds		
JOB NO.		DATE		GRID REFERENCE		DESCRIBED BY		FC Days: 188			SOIL SAMPLE REFERENCE		
34/93		8/6/93		SY 916 849 (ASP 60)		P R Woode		Climatic Grade: 1			RPT/GSI/87		
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	35	10YR3/3	MSL	<1% HR	None	Moderate medium. Subangular blocky	Many	-	Friable	Many fine	Nil	None	Abrupt smooth
2	50	2.5Y6/4	HSCL	<1% HR	Common 10YR6/6 gleyed	" " "	Common (<0.5% biopores)	Good	Friable	Common fine	Nil	None	Abrupt smooth
3	90	10YR5/4	MSL	12% HR Sieved	Common 10YR6/6 gleyed	-	Common	Moderate	Very friable	Few fine	Nil	None	Abrupt smooth
4	120	10YR6/1	C	5% HR Visual est	Many 10YR5/6	Moderate coarse. Angular blocky	Few <0.5% biopores (SPL)	Moderate	Friable	Few fine	Nil	None	-

Profile Gleyed From: 35

Depth to Slowly Permeable Horizon: -

Wetness Class: II

Wetness Grade: 2

Available Water Wheat: 150 mm

Potatoes: 115 mm

Moisture Deficit Wheat: 109 mm

Potatoes: 103 mm

Moisture Balance Wheat: 41 mm

Potatoes: 12 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME Squirrel Cottage		PROFILE NO. Pit 2		SLOPE AND ASPECT Flat		LAND USE Permanent Grass		Av Rainfall: 921 mm ATO: 1569°C FC Days: 188 Climatic Grade: 1			PARENT MATERIAL Valley Gravel		
JOB NO. 34/93		DATE 9/6/93		GRID REFERENCE SY 912 855 (ASP 13)		DESCRIBED BY P R Woode					SOIL SAMPLE REFERENCE RPT/GSI/86		
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	35	10YR3/1	MSL/LMS	5% HR>2cm <<1% <2cm 5% Total Sieved	None	Moderate medium. Subangular blocky	Many	Moderate	Friable	Many fine	Nil	None	Smooth abrupt
2	65	10YR5/2	MS	36% HR<2cm Sieved	None	Single grain	Many	Moderate	Very friable	Few fine	Nil	None	Smooth abrupt
3	95	10YR5/3	MS	15% HR>2cm 21% HR<2cm 36% Total	None	Single grain	Many	Moderate	Loose	None observed	Nil	None	Smooth abrupt
4	120	10YR4/3	MS	0% stone	Slight ochreous staining	Single grain	-	Moderate	Loose	None	Nil	None	-

Profile Gleyed From: No SPL  
Depth to Slowly Permeable Horizon: Not gleyed  
Wetness Class: I  
Wetness Grade: 1

Available Water Wheat: 85 mm  
Potatoes: 70 mm  
Moisture Deficit Wheat: 109 mm  
Potatoes: 103 mm  
Moisture Balance Wheat: -24 mm  
Potatoes: -33 mm  
Droughtiness Grade: 3b (Calculated to 120 cm)

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

Remarks:

SITE NAME		PROFILE NO.		SLOPE AND ASPECT		LAND USE		Av Rainfall: 928 mm			PARENT MATERIAL		
Squirrel Cottage		Pit 3		1° S		Permanent Grass (recently cut for silage)		ATO: 1569°C			Bagshot Beds		
JOB NO.		DATE		GRID REFERENCE		DESCRIBED BY		FC Days: 188			SOIL SAMPLE REFERENCE		
34/93		9/6/93		SY 898 854 (ASP 7)		GSI and P R Woode		Climatic Grade: 1			RPT/GSI/89		
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	29	10YR42	MCL	2% HR (Visual)	Few 7.5YR46 associated with rooting (feint)	MCSAB	Well fissured	-	Friable	Many fine and v fine	Non calcareous	None	Smooth abrupt
2	50	10YR7/2	C	10% HR (Visual)	Many 10YR5/8 gleyed	MCP	0.6% (borderline) SPL	Poor	Firm	Few fine	None	None	Smooth abrupt
3	85 Assumed to 120 cm	25Y7/0 10R4/8	C	0%	Common 10YR5/8 gleyed	MCP	<0.5% SPL	Poor	Firm	Few fine	None	None	-

Profile Gleyed From: 29-50

Depth to Slowly Permeable Horizon: 29-50 cm (borderline on porosity)

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 125 mm

Potatoes: 102 mm

Moisture Deficit Wheat: 109 mm

Potatoes: 103 mm

Moisture Balance Wheat: +16 mm

Potatoes: +1 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

Old gravel working filled with clay 7 years ago, therefore disturbed land. Good restoration with structure formation in subsoil.  
Borderline Grade 3a because of depth to SPL, which gives Wetness Class III/IV.

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