

**PROPOSED SERVICE AREA,  
A14 SWINFORD, LEICS**

**Agricultural Land Classification  
ALC Map and Report**

**March 1998**

**Resource Planning Team  
Eastern Region  
FRCA Cambridge**

**RPT Job Number: 15/98  
MAFF Reference: EL/22/02688  
FRCA Job Number: ME2JWA8**

**AGRICULTURAL LAND CLASSIFICATION REPORT**  
**PROPOSED SERVICE AREA, A14 SWINFORD, LEICS**

**INTRODUCTION**

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 12.4 ha of land at Swinford in Leicestershire. The survey was carried out during March 1998.
2. The survey was carried out by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with an application by Texaco Ltd to construct a service station, restaurant and lodge, with associated car parks, on the site. This survey supersedes previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the whole site area was under permanent grassland, much of which was 'ridge and furrow'.

**SUMMARY**

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000; it is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

**Table 1: Area of grades and other land**

Grade/Other land	Area (hectares)	% site area
3b	12.4	100
Total site area	12.4	100

7. The fieldwork was conducted at an average density of 1 auger boring per hectare. A total of 11 borings and 2 soil pits was described.
8. The whole site has been graded 3b (moderate quality agricultural land) and is restricted to this subgrade by significant wetness and workability constraints.

## FACTORS INFLUENCING ALC GRADE

### Climate

9. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

10. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

**Table 2: Climatic and altitude data**

Factor	Units	Values
Grid reference	N/A	SP 564 789
Altitude	m, AOD	105
Accumulated Temperature	day°C (Jan-June)	1360
Average Annual Rainfall	mm	688
Field Capacity Days	days	157
Moisture Deficit, Wheat	mm	98
Moisture Deficit, Potatoes	mm	87
Overall climatic grade	N/A	Grade 1

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

12. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

13. The combination of rainfall and temperature at this site mean that it is relatively warm and dry during the critical growing season. The site is therefore of climatic grade 1.

### Site

14. The site is situated east of A14/M1/M6 junction. The site abuts the A14 to the south-west, the unclassified road to Swinford to the north and open fields to the south and east. Altitude falls gently from approximately 110 m AOD in the west to 105m AOD in the south-east. Gradient and altitude do not therefore impose any limitation to the land quality.

## **Geology and soils**

15. The published 1:63 360 scale solid and drift edition geology map, sheet 170 (Geological Survey of Great Britain [England and Wales], 1969) maps about half the site, corresponding to the lower lying ground between the streams in the north-east of the site, as alluvium. To the north and south-west of the alluvium, bands of 2nd terrace river deposits (of Pleistocene and recent origin) are mapped, whilst in a small area in the extreme north, and in a larger area in the west, Jurassic Lower Lias Clays are shown. The latter two deposits occur in approximately equal proportions.

16. At a reconnaissance scale of 1:250 000 the Soil Survey of England and Wales, (Sheet 3, Soils of Midland and Western England, 1983) maps the whole site as the Wickham 2 Association. This association is briefly described as: Slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils. Small areas of slowly permeable calcareous soils on steeper slopes.

17. The current survey confirmed the presence of a single soil type. The clay topsoils are non-calcareous, stoneless and typically 25 cm deep (ranging from 10 to 30 cm). Shallow upper subsoils also comprise stoneless clays and typically extend to 35 cm depth (occasionally to 50/60 cm). The lower subsoils comprise gleyed, slowly permeable clays, occasionally becoming very slightly to slightly stony below about 50 cm. These profiles are poorly drained.

## **AGRICULTURAL LAND CLASSIFICATION**

18. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

19. The location of the auger borings and pits is shown on the attached sample location map.

### *Subgrade 3b*

20. The whole site has been graded 3b due to significant wetness and workability constraints associated with the soils described in paragraph 17. The clayey topsoils overlie shallow clayey upper subsoils which merge into a slowly permeable clay lower subsoil typically at 35 cm depth (occasionally at 50/60 cm depth). Profiles have been assessed as Wetness Class IV (or occasionally III). This factor, in combination with the clayey topsoil textures, imposes the significant wetness and workability constraints which restrict the land to subgrade 3b.

Adrian Rochford  
Resource Planning Team  
Eastern Region  
FRCA Cambridge

## SOURCES OF REFERENCE

Geological Survey of Great Britain [England and Wales] (1969) *Sheet No. 170, Market Harborough*. BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*. MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*. Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 3, Soils of Midland and Western England*. SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Midland and Western England*  
SSEW: Harpenden

## APPENDIX I

### DESCRIPTIONS 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 includes 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 or horticultural crops can usually be grown but on some land of this 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 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.