

**Abberton Reservoir,  
Essex.**

**Agricultural Land Classification  
ALC Map and Report**

**July 1998**

**Resource Planning Team  
Eastern Region  
FRCA Cambridge**

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# AGRICULTURAL LAND CLASSIFICATION REPORT

## Abberton Reservoir, Essex.

### INTRODUCTION

1. This report presents the findings of a detailed, Agricultural Land Classification (ALC) survey of 228.7 ha of land at Abberton Reservoir, Essex. The survey was carried out during July 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 raising the water level in the present reservoir. 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 land use on the site was grass, cereals, oilseed rape and sugar beet. The areas mapped as 'Other land' include woodland and the Abberton Sanctuary, plus the concrete road around the reservoir. Some small areas were not surveyed due either to crop type, or lack of access permission.

### SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:15 000; 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)	% surveyed area	% site area
3a	5.5	4	2
3b	124.5	96	55
Agricultural land not surveyed	26.2	N/A	11
Other land	72.5	N/A	32
Total surveyed area	130.0	100	57
Total site area	228.7	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 134 borings and 2 soil pits was described.

8. A very small area on the western boundary has been mapped as subgrade 3a (good quality agricultural land) due to a moderate wetness and workability limitation.

9. The vast majority of the site has been mapped as subgrade 3b (moderate quality agricultural land) due to a severe wetness and workability limitation. A very small area to the southeast of Billets Farm has been mapped as subgrade 3b due to moderately stony topsoils.

## FACTORS INFLUENCING ALC GRADE

### Climate

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

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

Table 2: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	TL 977 185	TL 967 170
Altitude	m, AOD	20	20
Accumulated Temperature	day°C (Jan-June)	1451	1452
Average Annual Rainfall	mm	562	561
Field Capacity Days	days	96	96
Moisture Deficit, Wheat	mm	129	128
Moisture Deficit, Potatoes	mm	127	126
Overall climatic grade	N/A	1	1

12. 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.

13. 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.

14. The combination of rainfall and temperature impose no overall limitation to land quality and hence the site has a climatic grade of 1.

### Site

15. The site surrounds that part of the reservoir which is to the east of the Wigborough Road and ranges from approximately 100-250 m in width from the perimeter road. The

boundary approximately follows the 20 m contour and crosses the road northwest of, and re-crosses southwest of the Abberton Sanctuary. The land is level with heights AOD between 18 m and 20 m. There are many areas of newly planted woodland.

### **Geology and soils**

16. The published 1:253 440 scale geology map (BGS, 1907) shows the site to comprise London Clay.

17. The published 1:250 000 scale reconnaissance soil map (SSEW, 1983) shows the area to comprise soils of the Windsor Association. These are briefly described as slowly permeable seasonally waterlogged clayey soils, mostly with brown subsoils, and some fine loamy over clayey or fine siltyover clayey soils.

18. During the current survey one main soil type was encountered. Profiles comprise non-calcareous, very slightly stony heavy clay loam or clay topsoil over non-calcareous, very slightly stony, strongly mottled slowly permeable clay.

19. In very small areas on the western boundary profiles comprise non-calcareous medium clay loam topsoil over slowly permeable clay.

20. In a small area to the southeast of Billets Farm (site of an in-filled borrowpit) profiles comprise non-calcareous moderately stony medium clay loam over moderately stony non-calcareous medium/heavy clay loam with impenetrability to augering at approximately 45/50 cm depth.

### **AGRICULTURAL LAND CLASSIFICATION**

21. 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.

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

#### **Subgrade 3a**

23. Land mapped as subgrade 3a occurs in small areas on the western boundary and corresponds to the soils described in paragraph 19. The combination of light textured topsoils over poorly drained clay soils (Wetness Class III) results in a moderate wetness and workability limitation restricting the land to this subgrade.

#### **Subgrade 3b**

24. Land mapped as subgrade 3b occurs over the remainder of the site and corresponds to the soils described in paragraph 18. The combination of heavy textured topsoils over poorly drained clay soils (Wetness Class III) results in a more severe wetness and workability limitation restricting the land to this subgrade.

25. The small area of land to the southeast of Billets Farm has been mapped as subgrade 3b and corresponds to the soils described in paragraph 20. The topsoils are moderately stony (approximately 25%) causing an impediment to cultivation, harvesting and crop growth, resulting in increased production costs.

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## SOURCES OF REFERENCE

British Geological Survey (1907) *Sheet No. 16, Solid and Drift. Scale 1:253 440*  
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 4, Soils of Eastern England. Scale 1:250 000*  
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Eastern 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.