PROPOSED GOLF COURSE
ADDLETHORPE
SKEGNESS, LINCOLNSHIRE
Agricultural Land Classification
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Resource Planning Team
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ADAS Cambridge

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AGRICULTURAL LAND CLASSIFICATION REPORT

ADDLETHORPE, SKEGNESS, LINCOLNSHIRE

Introduction

1. This report presents the findings of a detailed, Agricultural Land Classification (ALC) survey of 30.1 ha of land at Addlethorpe. The survey was carried out during June 1996.

2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Cambridge in connection with an application for a proposed extension to a golf course.

3. The work was conducted by members of the Resource Planning Team in the Huntingdon Statutory Group in ADAS. 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 majority of the site was under winter wheat. A small area in the north east was under grass and there was an area that had been used for dumping soil and rubble. A new pond had recently been dug in the south central part of the site.

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: Areas of grades and other land

Grade/Other land	Area (hectares)	% surveyed
3a	5.9	19.6
3b	22.7	75.4
Other land	1.5	5.0
Total agricultural land	28.6	95.0
Total survey area	30.1	100.0

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 29 borings and 3 soil pits were described.

8. The majority of the land is of moderate agricultural quality (subgrade 3b), the remainder being of good agricultural quality (subgrade 3a). Wetness and workability are the main limiting factors being more severe in the case of the land graded subgrade 3b.

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

Parameter	Value
Grid reference	*TF545686*
Altitude (m, AOD)	2
Accumulated Temperature (day °C, Jan.–June)	1415
Average Annual Rainfall (mm)	636
Field Capacity Days	129
Moisture Deficit, Wheat (mm)	114
Moisture Deficit, Potatoes (mm)	108
Overall Climatic 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 (ATO, January to June), as a measure of the relative warmth of a locality.

13. The combination of rainfall and temperature at this site mean there are no overriding climatic limitations to the grading of the land, and therefore the climatic grade 1 is assigned.

Site

14. The site is bounded in the east by Chapel Lane, in the north by caravan parks, and by drainage ditches for the remaining boundaries. The site is level, at approximately 2m AOD, with a few very minor undulations. There is a main drainage ditch in the east/central part running in a northerly direction turning eastwards near the northern end of the site.

Geology and soils

15. The 1:50 000 scale geology map (BGS, 1971) shows the site to comprise Post Glacial Alluvium, Peat, and Fen Silts.

16. The 1:250 000 reconnaissance soil survey map for the area (SSEW, 1983) shows the site to comprise soils of the Wallasea 2 Association. The soils are briefly described as being derived from marine alluvium and comprise deep stoneless clayey soils, calcareous in places, with occasional deep calcareous silty soils. The land is flat and groundwater is controlled by ditches and pumps.

17. During the current detailed survey two soil types were encountered and are shown on the soil resources map as Type I and Type II.

Soil Type I

18. Soil type I comprises stoneless, non-calcareous heavy clay loam (occasionally heavy silty clay loam) topsoil over stoneless, non-calcareous slowly permeable clay subsoil. The clay subsoils are variable in colour suggesting different origins. In the majority of profiles gleying occurs at 35/40 cms and soils are assessed as Wetness Class III.

Soil Type II

19. Soil Type II is similar to Soil Type I but the profiles are calcareous throughout.

Agricultural Land Classification

20. 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.

21. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix III.

Subgrade 3a

22. Land bounded by Chapel Lane and the internal drainage ditch has been graded subgrade 3a. This land is associated with Soil Type II described in paragraph 19. The fine loamy over clay profiles are imperfectly drained, (Wetness Class III) and are subject to wetness and workability limitations. Being calcareous throughout the profile improves the soil structure and to some extent the drainage, thus allowing an increase in the number of days when the soil is in a suitable condition for cultivation.

Subgrade 3b

23. The remainder of the land is graded subgrade 3b. This land is associated with the soils of Soil Type I described in paragraph 18. The non-calcareous fine loamy over clay profiles are imperfectly drained (wetness class III) and are subject to wetness and workability limitations which limit the number of days when the soil is in a suitable condition for cultivation.

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SOURCES OF REFERENCE

British Geological Survey (1971) *Sheet No.* 12 , Scale 1: 253440. 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.* 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.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.[2]
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 only wet within 40 cm depth for 30 days in most years.
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 present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

[1] The number of days is not necessarily a continuous period.

[2] 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE I

Topsoil	Texture	:	heavy clay loam (occ. heavy silty clay loam)
	Colour	:	10YR4/3, and 10YR4/2
	Mottles	:	none
	Concretions	:	none
	Stone	:	none
	Roots	:	many, fine and very fine
	cacao	:	non calcareous
	Depth	:	35/40 cm
	Boundary	:	clear, smooth
Upper subsoil	Texture	:	clay
	Colour	:	10YR5/3, 10YR5/2, 7.5YR4/2, 10YR4/2
	Mottles	:	many, 10YR5/8. common 10YR6/1
	Concretions	:	few
	Stone	:	none
	Structure	:	well developed, very coarse prismatic
	Consistence	:	very firm
	Structural condition	:	poor
	Pores	:	<0.5%
	Roots	:	common fine and very fine
	$CaCO^3$	:	non calcareous
	Depth	:	70/85 cm
	Boundary	:	abrupt, smooth
Lower subsoil	Texture	:	clay
	Colour	:	10YR5/1, 7.5YR5/0, 10YR5/3, 7.5YR5/2
	Mottles	:	many, 10YR5/6
	Concretions	:	few
	Stone	:	none
	Structure	:	moderately developed, coarse prismatic
	Consistence	:	very firm
	Structural condition	:	poor
	Pores	:	<0.5%
	Roots	:	few, fine and very fine
	$CaCO^3$	:	non calcareous
	Depth	:	110 cm
Wetness Class:			III

*Soil Type II is as above except that the profiles are calcareous throughout.