

**Land South of Hunstanton,
Norfolk.**

**Agricultural Land Classification
and Soil Physical Characteristics
Report**

January 1999

**Resource Planning Team
Eastern Region
FRCA Cambridge**

**RPT Job Number: 88/98
MAFF Ref: EL28/2894
LURET Job No.: ME27D28**

AGRICULTURAL LAND CLASSIFICATION and SOIL PHYSICAL CHARACTERISTICS REPORT

Land South of Hunstanton, Norfolk.

INTRODUCTION

1. This report presents the findings of a detailed, Agricultural Land Classification (ALC) survey of 26.7 ha of land south of Hunstanton, Norfolk. The survey was carried out during January 1999.
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 a planning application for a proposed golf course. 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 was under grass. The small area mapped as 'Other land' constitutes a reedbed.

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)	% surveyed area	% site area
3a	7.9	30	29
3b	18.3	70	69
Other land	0.5	N/A	2
Total surveyed area	26.2	100	98
Total site area	26.7	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 24 borings and 2 soil pits was described.

8. Land mapped as subgrade 3a (good quality agricultural land) occurs in the southwest part of the site and is restricted to this subgrade by a moderate wetness and workability limitation.

9. Land mapped as subgrade 3b (moderate quality agricultural land) occurs over the remainder of the site and is restricted to this subgrade by a more severe wetness and workability limitation.

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	TF 669 388
Altitude	m, AOD	5
Accumulated Temperature	day°C (Jan-June)	1425
Average Annual Rainfall	mm	597
Field Capacity Days	days	123
Moisture Deficit, Wheat	mm	118
Moisture Deficit, Potatoes	mm	113
Overall climatic grade	N/A	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 is level, at approximately 5 m AOD, and is bounded in the north by a caravan park. Remaining boundaries comprise drains or dykes with a small part in the southwest being bounded by the Heacham River. Water from the drains and dykes flows into the Heacham

River, levels of which are maintained by pumping water out to sea. Flood risk is therefore very small, and would probably only occur by incursion of the sea through the defensive wall. This occurred last in 1953.

Geology and soils

16. The published 1:50 000 scale geology map (BGS, 1996) shows the area to be covered with marine alluvium (Terrington Beds).

17. The published 1:250 000 scale reconnaissance soil map (SSEW, 1983) shows the area to comprise soils of the Wallasea 2 Association. These are briefly described as deep stoneless clayey soils, calcareous in places, with some deep calcareous silty soils.

18. During the current survey one main soil type (Soil Type I) was encountered with a calcareous variant (Soil Type Ia) in the south western part of the site.

Soil Type I

19. Soil Type I occurs over the majority of the site. Profiles typically comprise stoneless, non-calcareous clay topsoils over stoneless, non-calcareous slowly permeable clay upper subsoils. Lower subsoils comprise very slightly stony non-calcareous medium sandy loam (occasionally sandy clay loam) merging to loamy medium sand and then medium sand at depth.

Soil Type Ia

20. Description as for Soil Type I except that the topsoils and upper subsoils are calcareous.

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 the south western part of the site and corresponds to the soils described in paragraph 20. The calcareous clayey soils have been assessed as Wetness Class III and the combination of these three factors restricts the land to this subgrade due to a moderate wetness and workability limitation.

Subgrade 3b

24. Land mapped as subgrade 3b occurs over the majority of the site and corresponds to the soils described in paragraph 19. The non-calcareous clayey soils have been assessed as

Wetness Class III and the combination of these three factors restricts the land to this subgrade due to a more severe wetness and workability limitation.

**Mike Wood
Resource Planning Team
Eastern Region
FRCA Cambridge**

SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No. 145(part129), Kings Lynn and The Wash. S & D.*
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

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE I

Topsoil	Texture	:	clay	
	Colour	:	10YR4/2	
	Stone	:	<1%	
	Roots	:	common, fine and very fine	
	CaCO ₃	:	non-calcareous	
	Depth	:	35 cm	
	Boundary	:	smooth, sharp	
Upper subsoil	Texture	:	clay	
	Colour	:	10YR5/3 + 5/2 + 5/1	
	Mottles	:	common distinct ochreous mottles 10YR5/8 +6/6, 5YR5/8, 7.5YR5/8	
	Concretions	:	none	
	Stone	:	stoneless	
	Structure	:	moderate development, coarse prismatic	
	Consistence	:	firm	
	Structural condition	:	poor	
	Pores	:	<0.5%	
	Roots	:	common, fine and very fine	
	CaCO ₃	:	non-calcareous	
	Depth	:	60/80 cm	
	Boundary	:	smooth, abrupt	
	Lower subsoil	Texture	:	a variable mix of medium sandy loam, loamy medium sand, medium sand, (occasionally sandy clay loam).
Colour		:	10YR6/4, 6/6, 5/1, 5/8 + bleached	
Mottles		:	none	
Concretions		:	none	
Stone		:	< 1%	
Structure		:	msl -- moderate development, coarse subangular blocky lms, ms - apedal, single grain	
Consistence		:	msl-friable. lms, ms-loose	
Structural condition		:	moderate, in all cases	
Pores		:		
Roots		:	very few	
CaCO ₃		:	variably calcareous	
Depth		:	110 ⁺ cm	
Wetness Class:			III	
Soil Type Ia	:	as above, except that the profiles are calcareous throughout.		