HOUSING PROPOSAL AT BOTTESFORD SOUTH OF SCUNTHORPE NORTH LINCOLNSHIRE

Agricultural Land Classification (ALC) Report and Map

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AGRICULTURAL LAND CLASSIFICATION REPORT

HOUSING PROPOSAL AT BOTTESFORD, SOUTH OF SCUNTHORPE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 71 ha of land lying approximately 4 km south of Scunthorpe town centre, on the north side of the M180.

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 the proposal to build houses on this land. The field work was carried out in January 1999. This ALC report supersedes any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Northern 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 agricultural land on the site was in a variety of uses, principally arable use (winter cereals or stubble) and permanent grass. Non-agricultural land on this site consists of an industrial compound in the west, scrub and woodland in the north, and playing fields and farm buildings in the east.

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
1			
2	2.3	3.6	3.2
3a	18.7	29.1	26.2
3b	42.8	66.5	60.0
4	0.5	0.8	0.7
5			
Agricultural land not surveyed		N/A	
Other land	7.1	N/A	9.9
Total surveyed area	64.3	100	-
Total site area	71.4	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 74 borings and 4 soil pits were described.

8. Grade 2, very good quality agricultural land, occurs in the far east of the site. The soils are well or moderately well drained and consist of very light or light-textured topsoils and subsoils in most cases. Very slight soil droughtiness is the factor limiting this area to Grade 2.

9. Subgrade 3a, good quality agricultural land, occurs in three separate areas in the north and west. The soils are well or moderately well drained, with very light or light-textured topsoils and upper subsoils overlying very light-textured lower subsoils. Although similar to the Grade 2 profiles, these soils have a slightly lower water-holding capacity and so soil droughtiness limits the land to Subgrade 3a.

10. Subgrade 3b, moderate quality agricultural land covers most of the site. The soils are generally either well drained or shallow and consist of light or very light-textured topsoils overlying very light-textured subsoils. These soils have a low water-holding capacity and soil droughtiness limits the land to Subgrade 3b.

11. Grade 4, poor quality agricultural land, occurs in a small area in the south-east where moderate to strong slopes and significant changes in slope direction over short distances will severely limit the use of larger agricultural machinery.

12. Other land on this site consists of an industrial compound, scrub, woodland, playing fields and farm buildings.

FACTORS INFLUENCING ALC GRADE

Climate

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

14. 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	SE 803 065
Altitude	m, AOD	12
Accumulated Temperature	day°C (Jan-June)	1405
Average Annual Rainfall	mm	596
Field Capacity Days	days	124
Moisture Deficit, Wheat	mm	111
Moisture Deficit, Potatoes	mm	104
Overall climatic grade	N/A	Grade 1

15. 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.

16. 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.

17. The combination of rainfall and temperature at this site means that there is no overall climatic limitation.

Site

18. The centre and west of the site are level (0-1°) whilst the east is gently to strongly sloping (3-9°) with a southerly or westerly aspect. However, only in a small area south and west of Becks Farm are gradients sufficient (8-9°) to limit the land to Subgrade 3b. Although flood risk is not significant on this site, complex microrelief limits a small area to Grade 4 in the west where moderate to strong slopes (5-9°) and changes in aspect over short distances would severely restrict the use of larger agricultural machinery.

Geology and soils

19. The site is underlain by Scunthorpe Mudstones (which include bands of limestone) and, in the far west, Penarth Mudstones. Overlying these solid deposits are drift deposits of blown sand (aeolian drift) and Vale of York sand and gravel (BGS, Sheet 89).

20. The soils on this site have been mapped as belonging to the Crannymoor association (very acid, well drained sandy podzols) or, in the south-eastern corner, Aberford association (soils derived from weathering limestone), Soils of England and Wales, Sheet 1. Much of the north and parts of the east of the site have not been in intensive agricultural use for a number of years, although most of this land continues to be grazed by horses. Although well managed agricultural land with the types of soils found on this site would typically be well drained (Wetness Class I), these areas are often only moderately well drained (Wetness Class II). This appears to be principally the result of failure to maintain the drainage ditches in these areas, which have become filled with soil and vegetation, and are therefore no longer functioning effectively. However, the higher water table which occurs as a result of this has no effect on the grading of the land as varying degrees of soil droughtiness are the principle restriction on ALC grade.

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.

Grade 2

22. A small area of Grade 2 (very good quality agricultural land) has been mapped in the far east of the site. The profiles are stoneless and well or moderately well drained, falling in Wetness Classes I and II. Medium sandy loam, fine sandy loam or loamy fine sand topsoils overlie medium sandy loam, fine sandy loam, loamy medium sand or loamy fine sand upper

subsoils and loamy fine sand, fine sandy loamy, loamy medium sand, medium sand or clay lower subsoils. The ALC grade of this land is limited by very slight soil droughtiness.

Subgrade 3a

23. Three separate areas of Subgrade 3a (good quality agricultural land) occur in the north and west of the site. The soils are well or moderately well drained, falling in Wetness Classes I and II. Profiles consist of loamy fine sand, loamy medium sand, fine sandy loam or medium sandy loam topsoils (which are organic in places) and thin upper subsoils in places, overlying medium sand. The profiles are generally stoneless and the ALC grade of the land is limited by slight soil droughtiness.

Subgrade 3b

24. Most of the land on the site falls in Subgrade 3b, moderate quality agricultural land. The soils are generally well drained (Wetness Class I) and in most cases consist of medium sandy loam or, more often, loamy medium sand topsoils overlying loamy medium sand or medium sand subsoils. In parts of the east of the site light to medium-textured topsoils and thin subsoils overlie weathering limestone at between 25cm and 35cm depth. In both bases soil droughtiness is a significant limitation and it is this factor which restricts these areas to Subgrade 3b. In a small area south and west of Becks Farm the ALC grade is limited to Subgrade 3b by slopes of 8-9°.

Grade 4

25. A small area of Grade 4 (poor quality agricultural land) occurs in the east of the site. Moderate to strong slopes (5-9°) occur in this area which are combined with changes in slope direction over very short distances. This pattern of microrelief would severely limit the use of larger agricultural machinery such as combine harvesters and for this reason the land is restricted to Grade 4.

Other land

26. Other, non-agricultural, land on this site consists of an industrial compound in the west, scrub and woodland in the north, and playing fields and farm buildings in the east.

RPT File: 20,468
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SOURCES OF REFERENCE

British Geological Survey *Sheet No. 89, Brigg. Drift (1982) and Solid (1981), 1:50,000 scale* 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 1, Soils of Northern England, 1:250,000 scale.* SSEW: Harpenden.

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