BROOKFIELDS FARM
HANKELOW
Agricultural Land Classification
ALC Map and Report
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AGRICULTURAL LAND CLASSIFICATION REPORT
BROOKFIELDS FARM, HANKELOW

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on 55.1 hectares of land. The results of this survey supersede any previous ALC information for this land. The land is located to the east of Hankelow, south Cheshire. The survey was in connection with a proposal to develop the site as a golf course.

2. The survey was undertaken on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF) in August and September 1998 by the Resource Planning Team of the Farming and Rural Conservation Agency (FRCA)- Northern region of FRCA.

3. The land has been graded in accordance with the publication "Agricultural Land Classification of England and Wales - Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1988) .

4. At the time of survey the agricultural land on this site was under grass, the majority being grazed by the dairy herd and the remainder (in the west) being grown for silage.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10000 with an average auger boring density of 1 per hectare. The ALC map is only accurate at this base map scale and 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	6.1	11	11
3a	30.4	58	55
3b	15.9	30	29
4	0.3	1	1
5	-	-	-
Agricultural land not surveyed	0.7	N/A	1
Other land	1.7	N/A	3
Total surveyed area	52.7	100	-
Total site area	55.1	-	100

7. The agricultural land on this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality), Subgrade 3b (moderate quality) and Grade 4 (poor quality). The key limitations to the agricultural use of this land include gradient, microrelief, soil wetness and soil droughtiness.

8. The area of very good quality land is located on the higher ground in the south of the site. The soils have a sandy loam topsoil texture overlying sandy loam, sandy clay loam, loamy sand, sand and clay at depth.

9. The area of good quality land is mapped across a large proportion of the site. The soils have a sandy loam topsoil texture over a subsoil of either loamy sand and sand or sandy loam, sandy clay loam and clay.

10. The area of moderate quality land is mapped mainly in the centre and east of the site. The soils have a sandy loam topsoil texture over sandy clay loam and clay. Occasionally subsoils contain loamy sand and sand. Often these soils are found on strongly sloping land. To the south west of Brookfields House the soils are peaty in texture.

11. The area of poor quality land is mapped towards the north east of the site. The soils are found on moderately steeply sloping land.

FACTORS INFLUENCING ALC GRADE

Climate

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

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

Table 2: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SJ 681 453	SJ 676 455
Altitude	m, AOD	70	60
Accumulated Temperature	day°C (Jan-June)	1391	1403
Average Annual Rainfall	mm	776	762
Field Capacity Days	days	178	176
Moisture Deficit, Wheat	mm	92	94
Moisture Deficit, Potatoes	mm	79	81
Overall climatic grade	N/A	Grade 1	Grade 1

14. 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.

15. 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.

16. The combination of rainfall and temperature at this site means that there is no overall climatic limitation. The site is climatically Grade 1.

Site

17. The site lies at an altitude of 55 to 71 metres AOD. The land rises southwards towards Longhill Lane from the Birchall Brook in the north of the site. To the south west of Brookfields House there is a linear basin, orientated north south, which contains peat.

18. The three site factors of gradient, microrelief and flooding are considered when classifying the land.

19. In the immediate valley of the Birchall Brook the land is strongly sloping to moderately steeply sloping (7° to 15°). Strongly sloping land (7° to 11°) is also found in the centre of the site and to the south of Brookfields Farm. These gradients limit the agricultural use of the land and the land is classified as Subgrade 3b and Grade 4.

20. To the south east of Brookfields Farm and in the west of the site there are a number of hollows. These depressions contain complex changes in slope angle and direction over short distances, limiting the use of agricultural machinery. In these areas microrelief limits the agricultural use of the land and the land is classified as Subgrade 3b.

21. Flooding does not impose any limitation on the agricultural use of this land.

Geology and Soils

22. The solid geology of the area is comprised of Red Marl. This is overlain with deposits of boulder clay and glacial sands - British Geological Survey (1902 and 1967).

23. The soils that have developed on this geology are generally of a sandy loam topsoil texture over sands and/or clay.

Agricultural Land Classification

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

Grade 2

25. Land of very good quality occupies 6.1 hectares (11%) of the site area and is found on the higher ground in the south of the site.

26. The soil has a sandy loam topsoil texture over sandy loam, sandy clay loam, loamy sand, clay and / or sand at depth, with few to common stones within the profile. The moisture balance places these soils in Grade 2. In the west of this unit the soils are in Wetness Class I. In the east of this unit where clay is found in the lower subsoil the depth to gleying and the slowly permeable layer place these soils in Wetness Class II.

27. The main limitations to the agricultural use of this land are soil wetness and soil droughtiness.

Subgrade 3a

28. Land of good quality occupies 30.4 hectares (55%) of the site area and is found across a large proportion of the site.

29. The soils within this grade are of two main types. On the higher ground to the east of Brookfields Farm and in the south west of the site near Hankelow the soils have a sandy loam topsoil texture over loamy sand and sand to depth, with few stones within the profile. These soils are placed in Wetness Class I and the moisture balance places these soils in Subgrade 3a.

30. In the centre of the site the soils have a sandy loam topsoil texture overlying sandy loam, sandy clay loam and clay, with few stones within the profile. Occasionally loamy sand and sand is found in the subsoil. The depth to gleying and the slowly permeable layer place these soils in Wetness Class III.

31. Within this grade there are isolated borings of Grade 2 quality land. However, at this scale of mapping these borings cannot be shown separately.

32. The main limitations to the agricultural use of this land are soil wetness and soil droughtiness.

Subgrade 3b

33. Land of moderate quality occupies 15.9 hectares (29%) of the site area and is found mainly in the centre and east of the site, with a few isolated patches in the west of the site.

34. In the centre of the site and along the immediate valley of the Birchall Brook the soils have a sandy loam topsoil texture over sandy clay loam and clay to depth, with few stones within the soil profile. Occasionally sandier lenses are found in the subsoil. The depth to gleying and the slowly permeable layer place these soils in Wetness Class IV. Frequently, these soils are found on strongly sloping land (7° to 11°).

35. In the east of the site the soils have a sandy loam topsoil texture over loamy sand and sand to depth. These soils are found on strongly sloping land (7° to 11°).

36. To the south east of Brookfields Farm and in the west of the site there are a number of hollows. These depressions contain complex changes in slope angle and direction over short

distances, limiting the use of agricultural machinery. In these areas microrelief limits the agricultural use of the land and the land is classified as Subgrade 3b.

37. To the south west of Brookfields House the soil has a sandy loam topsoil texture over sandy clay loam and peaty textures. These soils were, at the time of the survey, saturated and were assessed as being in Wetness Class IV.

38. The main limitations to the agricultural use of this land include gradient, microrelief, soil wetness and soil droughtiness.

Grade 4

39. Land of poor quality occupies 0.3 hectares (1%) of the site area and is found in the north east of the site.

40. The soils are similar to those described for Subgrade 3b, but are found on moderately steeply sloping land (11° to 15°).

41. The main limitation to the agricultural use of this land is gradient.

Agricultural Land Not Surveyed

42. Agricultural land not surveyed occupies 0.7 hectares (1%) of the site area. The land consists of Brookfields House and an associated paddock.

Other Land

43. Other land occupies 1.7 hectares (3%) of the site area and includes Brookfields Farm, ponds, woodland and a trackway.

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SOURCES OF REFERENCE

British Geological Survey (1902) Sheet 123, Stoke upon Trent Solid and Drift Edition. 1:63 360 Scale.
BGS: London.

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