ASHFIELD DISTRICT LOCAL PLAN
SITE Se 2,
PINXTON LANE, SUTTON IN ASHFIELD

Agricultural Land Classification
ALC Map and Report

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AGRICULTURAL LAND CLASSIFICATION REPORT

ASHFIELD DISTRICT LOCAL PLAN, SITE Se 2, PINXTON LANE, SUTTON IN ASHFIELD

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 44.2 ha of land at Pinxton Lane, Sutton in Ashfield, Nottinghamshire. The site is located approximately 2 km to the west of Sutton in Ashfield on the southern side of the A38 road. The survey was carried out during July 1997.

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 Ashfield District Local Plan. The current detailed survey was undertaken on the land to the west of the dismantled railway and the findings of this survey have been incorporated with information gathered by ADAS during 1995 (ADAS, 1995), when the eastern half of the site was surveyed in connection with a planning application for building development. The findings of these two surveys supersede any previous information for this site.

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 majority of the agricultural land on the site was under winter cereals, with permanent grass occupying the north west corner of the site and also the steep land immediately to the east of the dismantled railway. Strips of grass setaside also surrounded some of the arable fields.

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
2	11.6	28.2	26.3
3b	26.8	65.0	60.6
4	2.8	6.8	6.3
Other land	3.0	N/A	6.8
Total surveyed area	41.2	100	-
Total site area	44.2	-	100

7. The fieldwork over the whole site was conducted at an average density of 1 boring per hectare. A total of 45 borings and 4 soil pits was described.

8. The majority of the site has been mapped as Subgrade 3b, (moderate quality agricultural land) and comprises slowly permeable clayey soils. The major limitation associated with this land is due to wetness and workability restrictions. Two areas of Grade 2, (very good quality agricultural land) have been identified, which comprise free or moderately well drained fine loamy soils overlying fine grained sandstone at depth. This land is principally restricted to this grade due to climatic limitations, but in some profiles where the sandstone occurs at a moderate depth, then the land also has a minor droughtiness limitation. Furthermore in some other profiles heavy clay loam topsoil textures were noted giving rise to a minor workability limitation. A small area of Grade 4, (poor quality agricultural land) has been mapped on the eastern side of the dismantled railway where gradients in excess of 11° were measured. Also included within Grade 4 is a narrow strip where the old railway line has been infilled and restored to rough grass.

9. Other Land has been mapped on the site and corresponds with the dismantled railway line, old farm buildings, woodland and a small abandoned landfill area on the eastern side of the old railway.

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	SK 466 568	SK 472 573
Altitude	m, AOD	130	160
Accumulated Temperature	day°C (Jan-June)	1300	1265
Average Annual Rainfall	mm	736	744
Field Capacity Days	days	173	174
Moisture Deficit, Wheat	mm	91	87
Moisture Deficit, Potatoes	mm	76	72
Overall climatic grade	N/A	Grade 2	Grade 2

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 at this site results in a slight climatic limitation, which prevents the land being graded higher than grade 2. These climatic factors also interact with soil properties and on this site will enhance the wetness and workability limitations associated with the heavier textured soils.

Site

15. The site lies on land which slopes down towards a tributary of the River Erewash and ranges in height from 162 m AOD in the east adjacent to Grange Farm, to 120 m AOD in the bottom of the valley at the western side of the site. To the east of the old railway the aspect is generally westerly, whilst to the west of the railway the land generally falls to the north and south into a central valley. Typically slopes are relatively gentle, however immediately to the east of the old railway line gradients are in excess of 7° and occasionally in excess of 11°. These steep gradients restrict the type and range of machinery that can be effectively and safely used and therefore limit land quality to subgrade 3b and 4 respectively. Elsewhere, where slopes are less than 7° neither gradient nor altitude constitute limitations to agricultural land quality.

Geology and soils

16. The published 1:63,360 scale solid and drift edition geology map (Geol Surv, 1971) shows the site to comprise entirely Carboniferous Middle Coal Measures with bands of sandstone outcropping.

17. The 1:250,000 scale reconnaissance soil survey map for the area (SSEW, 1983) shows the whole of the site to comprise soils of the Bardsey Association. These soils are described as 'slowly permeable, seasonally waterlogged loamy over clayey and fine silty soils over rock, with some well drained coarse loamy soils over harder rock.' The current survey has identified two main soil types.

18. The majority of the site comprises heavy textured soils with slowly permeable subsoil horizons. These soils typically comprise heavy clay loam or silty clay loam or occasionally clay topsoils overlying similar upper subsoils which show distinct ochreous mottling. These in turn merge into clay at depth. Subsoil structures are typically coarse prismatic or very coarse angular blocky and are therefore slowly permeable immediately below the topsoil.

19. Two bands of lighter textured soils occur on the site, a small area in the north west corner and a band running north south on the eastern side of the site. These soils typically comprise medium clay loam or occasionally heavy clay loam topsoils over similar textured or occasionally sandy clay loam upper subsoils. Lower subsoils are typically medium sandy loam or medium clay loam occasionally showing signs of mottling due to drainage impedance. In some profiles, solid, fine grained sandstone bedrock was encountered at depth. These soils are very slightly stony 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 2.

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 II.

Grade 2

22. Land graded 2, very good quality agricultural land, has been mapped at the north western corner of the site and also in a band running north south on the eastern side and is associated with the lighter textured soils described above in paragraph 19. Although the majority of these soils are free draining (Wetness Class I, locally Wetness Class II) and moisture balance calculations indicate they are not droughty, the land is restricted to this grade due to a climatic limitation. Included within these areas are profiles with slight drainage impedance or heavy clay loam topsoils which gives rise to a minor wetness and/or workability limitation, restricting these profiles to this grade.

Subgrade 3b

23. The majority of the site has been mapped as Subgrade 3b and correlates with the heavy textured soils described in paragraph 18. These profiles are typically assessed as Wetness Class IV which in combination with the heavy topsoil textures imposes significant wetness and workability limitations. Timing of cultivations, trafficking and stocking on these soils

therefore needs to be carefully controlled to prevent structural damage occurring. This land is therefore graded 3b, moderate quality agricultural land.

24. In addition, immediately to the east of the old railway line, site gradients are occasionally in excess of 7° and these moderately steep gradients restrict the type and range of machinery that can be effectively and safely used and also limit land quality to subgrade 3b.

Grade 4

25. Land assigned to grade 4 occurs in a small area immediately to the east of the old railway line, where gradients in excess of 11° were measured. These steep gradients restrict the type and range of machinery that can be effectively and safely used and therefore the land is limited to Grade 4, poor quality agricultural land. A small part of the old railway line has also been included within this grade where the land has been infilled with sands and currently supports rough grass.

Other Land

26. Other Land has been mapped on the site and corresponds with the dismantled railway line, old farm buildings, woodland and a small abandoned landfill area on the eastern side of the old railway.

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SOURCES OF REFERENCE

British Geological Survey (1970) *Sheet No. 112, Chesterfield, (solid and drift edition) 1.63,360 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 3, Midland and Western England* SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Midland and Western England* SSEW Harpenden

APPENDIX I

DESCRIPTION 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 that 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 (eg 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 that restricts use to permanent pasture or rough grazing, except for occasional pioneer forage crops