

**PROPOSED MSA
ROUGHAM AND HOLLINS FARMS**

**Agricultural Land Classification
March 1997**

**Resource Planning Team
Leeds Statutory Group
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**ADAS Reference: 6/97
MAFF Reference: EL11191
LUPU Commission: N3105**

AGRICULTURAL LAND CLASSIFICATION REPORT

PROPOSED MSA, ROUGHAM AND HOLLINS FARMS

Introduction

1. This report presents the findings of an Agricultural Land Classification (ALC) survey of 38.5 ha of land at Rougham and Hollins Farms, adjacent to the A1(M) 5 km south of Boroughbridge. The survey was carried out during February 1997.

2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Northallerton in connection with a proposed motorway service area. This survey supersedes previous ALC surveys on this land carried out by ADAS in 1990 for upgrading of the A1 (ADAS Ref: 90/90). All land surveyed during the 1990 survey has now been built on by construction of the A1 motorway.

3. The work was conducted by members of the Resource Planning Team in the Leeds 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 land on the site was mostly in arable use east of the motorway and grass west of the motorway.

Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:5,000. 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)	% Total site area	% Surveyed Area
2	9.6	24.9	32.8
3a	4.1	10.7	14.0
3b	15.6	40.5	53.2
Other land (as req)	9.2	23.9	-
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Total surveyed area	29.3	-	100
Total site area	38.5	100	-

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 28 borings and 2 soil pits were described.

8. Grade 2 land was found mostly in the east but a small area in the west containing very similar soils was also graded 2. In both cases topsoils and upper subsoils were a sandy loam over either a loamy sand or clayey lower subsoil. Either a slight soil wetness or droughtiness problem limited the ALC grade of this land. Subgrade 3a land was found in the north east. Topsoils were generally sandy loam or medium clay loam over similar textured, occasionally gleyed upper subsoils. Lower subsoils were clayey and occurred at a shallower depth than on the Grade 2 land. A more significant soil wetness problem than on the Grade 2 land limited the ALC grade of this land to Subgrade 3a. Remaining agricultural land is all Subgrade 3b. Some 3b land in the west is limited by slopes over 7°. Elsewhere topsoils are sandy clay loam or medium clay loam over clayey, slowly permeable subsoils. This land has a significant soil wetness and workability problem and meets the criteria for Subgrade 3b. Most non-agricultural land is occupied by the A1(M) motorway, the old A1 and farm access/service roads.

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 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SE 402 619
Altitude	m, AOD	60
Accumulated Temperature	day°C (Jan-June)	1335
Average Annual Rainfall	mm	664
Field Capacity Days	days	155
Moisture Deficit, Wheat	mm	100
Moisture Deficit, Potatoes	mm	89

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 means there is no climatic limitation on ALC grade.

Site

14. Relief is gentle east of the motorway. In the west a ridge runs east west through the site and slopes over 7° occur in places. Aspect is variable.

Geology and soils

15. Sherwood Sandstone is overlain by till in most places. Sand and gravel also occurs west of the motorway. BGS Sheet 62, Harrogate (Solid and drift) 1:50,000, 1987.

16. Soils are generally light or medium textured with sandy loam, sandy clay loam or medium clay loam topsoils common. Subsoils are more variable. East and west of the motorway adjacent to Hollins Farm subsoils tend to be clayey and slowly permeable. These profiles are Soil Wetness Class IV. Elsewhere soils are generally better drained. The steep ridge in the west contains freely drained (Wetness Class I) soils with sandy subsoils. Remaining land on the site is typically Soil Wetness Class II or III with slowly permeable lower subsoils occurring at between 45 and 70 cm depth. Soils on the site are shown as Bishampton I association on the Soil Survey 1:250,000 map of Northern England. This association conforms with those soils found on the site.

Agricultural Land Classification

17. 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

18. Grade 2 land is mostly found in the east of the site although very similar soils occur in the Grade 2 land in the west. Topsoils and upper subsoils are typically a sandy loam over a clayey, slowly permeable lower subsoil (Wetness Class II), lower subsoils are occasionally sandy. Either a slight soil wetness and workability problem or minor soil droughtiness limit the ALC grade of this land.

Subgrade 3a

19. This land occurs in the north east of the site. Soils are similar to those in the Grade 2 area. Topsoils are generally sandy loam or medium clay loam over a similar upper subsoil which is occasionally gleyed. Lower subsoils are clayey and slowly permeable placing these soils in Wetness Class III. Soil wetness and workability limit the ALC grade of this land.

Subgrade 3b

20. Remaining agricultural land is all Subgrade 3b. In the west a sandy ridge contains slopes over 7° which limit ALC to 3b. Remaining 3b land has medium textured topsoils over clayey, slowly permeable subsoils which meet the criteria for Soil Wetness Class IV. This land has a significant soil wetness and workability limitation and this restricts it to Subgrade 3b.

Other land

21. This comprises the new A1(M) motorway and the old A1 road plus service roads, buildings and woodland.

File Ref: RPT 20150
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SOURCES OF REFERENCE

British Geological Survey (1987) *Sheet No. 72, Harrogate*.
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 (1986) *Sheet 1, Soils of England and Wales, Northern England*.
SSEW: Harpenden.

Soil Survey of England and Wales (1986) *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.

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.