

**FENWICK, COMMON LANE
ASKERN, SOUTH YORKSHIRE**

**Agricultural Land Classification (ALC)
and Statement of Physical
Characteristics Report**

APRIL 1998

**Resource Planning Team
Northern Region
FRCA, Leeds**

**RPT Job Number: 18/98
MAFF Reference: EL 11396
LURET Job Number: ME3WX1L**

AGRICULTURAL LAND CLASSIFICATION REPORT AND STATEMENT OF PHYSICAL CHARACTERISTICS REPORT

COMMON LANE, FENWICK

INTRODUCTION

1. This report presents the findings of a detailed Statement of Physical Characteristics and Agricultural Land Classification (ALC) survey of 1.4 ha of land at Common Lane, Fenwick South Yorkshire.
2. The survey was carried out in April 1998 by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with a proposal to use the land for a gas drilling/extraction rig.
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 land on the site was in oilseed rape.

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)	% surveyed area	% site area
1			
2			
3a			
3b	1.4	100	100
4			
5			
Agricultural land not surveyed		N/A	
Other land		N/A	
Total surveyed area	1.4	100	-
Total site area	1.4	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 3 borings and one soil pit were examined.

8. All the land on the site is classified as Subgrade 3b, moderate quality agricultural land. Topsoils are heavy silty clay loam over a clayey, slowly permeable subsoil. Profiles are Wetness Class III and have a significant soil wetness and workability limitation.

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 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 601 153
Altitude	m, AOD	6
Accumulated Temperature	day°C (Jan-June)	1413
Average Annual Rainfall	mm	579
Field Capacity Days	days	117
Moisture Deficit, Wheat	mm	111
Moisture Deficit, Potatoes	mm	104
Overall climatic grade	N/A	Grade 1

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 (AT0, 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 overall climatic limitation on ALC grade.

Site

14. The site is level at an altitude of about 6 m AOD.

Geology and soils

15. The site is underlain by Bunter Sandstone over which lie thick deposits of silt and clay drift (BGS 1979).

16. Topsoils are heavy clay loam over clayey, gleyed, slowly permeable subsoils. Profiles are Wetness Class III.

17. Soils on the site correspond to those of the Foggathorpe Association as mapped by the Soil Survey and Land Research Centre (1984).

AGRICULTURAL LAND CLASSIFICATION

18. 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 3b

19. The whole site is classified as Subgrade 3b. Topsoils are heavy textured. Subsoils are clayey, gleyed, and slowly permeable. Profiles are Wetness Class III and limited to this Subgrade by soil wetness and workability problems.

RPT File: 20,325
Resource Planning Team
Northern Region
FRCA, Leeds

STATEMENT OF PHYSICAL CHARACTERISTICS

One main soil type T1/S1 was identified on the site, a description of which is given below. Topsoil and subsoil resources are shown on the accompanying maps along with soil thickness and volume information. A representative pit description is given in Appendix III.

a. Soil Type 1 (T1/S1)

This soil type occurs across the whole site. It is heavy textured throughout.

Topsoil T1

This is typically a heavy silty clay loam. It is stoneless with a moderately developed structure. It has a mean thickness of 25 cm.

Subsoil S1

The subsoil is a silty clay. It is gleyed, stoneless and has a weakly developed coarse structure. It is 95 cm thick.

SOURCES OF REFERENCE

British Geological Survey (1979) *Sheet No. 79, Goole, Solid and drift geology*.
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.

[ALC Map]

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, there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 90-210 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.

APPENDIX III

SOIL PROFILE DESCRIPTION

Location: SE 6015 1537
Land Use: Oilseed rape
Slope and aspect: 0° level
Recent weather: Wet and cool

Depth cm Horizon description

0-27 Dark greyish brown (10YR4/2); unmottled; heavy silty clay loam; stoneless; wet; moderately developed medium subangular blocky; firm; >0.5% pores >0.5 mm; common fine fibrous roots; abrupt smooth boundary.

27-120 Dark grey (2.5Y4/1) with many distinct brownish yellow (10YR6/8) mottles; silty clay; stoneless; moist; weakly developed coarse prismatic; extremely firm; <0.5% pores >0.5 mm, few fine fibrous roots.