Lightwater Valley Extension
North Yorkshire

Agricultural Land Classification
ALC Map and Report

April 1999

Resource Planning Team
Northern Region
FRCA Leeds

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AGRICULTURAL LAND CLASSIFICATION REPORT

LIGHTWATER VALLEY EXTENSION

INTRODUCTION

1. This report presents the findings of a detailed, Agricultural Land Classification (ALC) survey of 27.2 ha of land at Lightwater Valley about 5 km north of Ripon. The survey was carried out during April 1999.

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 a proposal to extend the Lightwater Valley complex into adjoining agricultural 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 use on the site was in grass in the west and arable use, oilseed rape and cereals, in the east. The survey also included some land north of the Lightwater Stream currently in use at Lightwater Valley Complex. This land is mostly hard development, but does include grassed areas with an agricultural potential.

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			
3a	2.4	13.3	8.8
3b	15.6	86.7	57.4
4			
5			
Agricultural land not surveyed		N/A	
Other land	9.2	N/A	
Total surveyed area	18.0	100	33.8
Total site area	27.2	-	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 19 borings and two soil pits were described.

FACTORS INFLUENCING ALC GRADE

Climate

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

9. 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 289 757
Altitude	m, AOD	60
Accumulated Temperature	day°C (Jan-June)	1331
Average Annual Rainfall	mm	707
Field Capacity Days	days	173
Moisture Deficit, Wheat	mm	98
Moisture Deficit, Potatoes	mm	86
Overall climatic grade	N/A	Grade 2

10. 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.

11. 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.

12. The combination of rainfall and temperature at this site mean there is a Grade 2 overall climatic limitation on the site.

Site

13. The site is bisected by the Light Water stream. Land slopes down towards the stream with generally a northerly or southerly aspect. Slopes are steepest closest to the stream where they exceed 7° in places. Elsewhere slopes are more gentle.

Geology and soils

14. Solid deposits of Magnesian limestone outcrop in several places on the site. Mostly the limestone is covered with boulder clay drift, which is often stony.

15. Topsoils are mostly medium clay loam. Topsoil stoniness is variable, but generally stones over 2 cm are less than 15% volume. Subsoils are absent where the soils are shallow and limestone outcrops close to the surface. Elsewhere subsoils are either a heavy clay loam or a clay, which is often slowly permeable. Profiles with a clayey slowly permeable subsoil are typically Wetness Class III or IV. Remaining profiles are Wetness Class I.

AGRICULTURAL LAND CLASSIFICATION

16. 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.

Subgrade 3a

An area of Subgrade 3a was identified in the south west of the site. Profiles are Soil Wetness Class III and limited by soil wetness and workability problems.

Subgrade 3b

This Subgrade comprises land with a number of different limitations including slopes over 7°, land containing soils less than 30 cm deep, and land with soil wetness and droughtiness limitations. Within the 3b area there was some land of 3a quality, but it tended to occur sporadically and it was not possible to map the land off separately. Some land within the Lightwater Valley complex was graded as agricultural land, although it is not presently in agricultural use. The grading represents it agricultural potential, rather than its present use.

Other Land

This comprises land presently used by the Lightwater Valley Complex.

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SOURCES OF REFERENCE

British Geological Survey (1959) *Sheet No.* [52], *Thirsk, 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.

[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.