

AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

STANLEY GRANGE OCCS, ILKESTON, DERBYSHIRE

1. BACKGROUND

- 1.1 The site covers an area of 9.5 ha to the south of West Hallam near Ilkeston, Derbyshire and is the subject of a planning application for the extraction of coal by open cast methods.
- 1.2 ADAS Statutory Resource Planning Team undertook a detailed Agricultural Land Classification (ALC) and soil physical characteristics survey of the site during April 1995. Information was collected from auger borings, spaced at 100 m intervals, to a depth of 120 cm wherever possible. Subsoil conditions were assessed from an inspection pit dug at a representative location within the site.
- 1.3 On the published 1:63 360 scale ALC map, sheet 112 (MAFF, 1970) the site is mapped as ALC grade 4.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 *Climatic data for the site was extrapolated from data published in the Climatological Data for Agricultural Land Classification (Meteorological Office, 1989). This indicated that for an average site altitude of 70 m AOD the average annual rainfall is 682 mm, while the accumulated temperature (ATO) is 1376 days °C. The field capacity days are 158 and moisture deficits for wheat and potatoes are 100 mm and 89 mm respectively. These climatic*

characteristics do not impose any climatic limitation on the ALC grading of the site.

Altitude and Relief

- 2.2 The site consists of level or gently sloping land at an altitude of approximately 63 m AOD in the south east corner of the site rising to approximately 72 m AOD in the north of the site. Gradient and altitude do not constitute limitations to the ALC grading of the site.

Geology and Soils

- 2.3 The published 1:50 000 scale solid and drift edition geology map, sheet 125 (Geological Survey, 1972) shows the site to be underlain entirely by Lower Coal Measures (Blackshale) with sandstone outcrops.
- 2.4 No detailed soil map exists for the area but the reconnaissance 1:250 000 scale map "Soils of Midland and Western England (Soil Survey of England and Wales, 1983) shows the whole area to comprise the Dale Association*. The detailed fieldwork confirmed the presence of a single soil type (Appendix 1).
- 2.5 The soils within the site were found to consist predominantly of a non-calcareous, stonefree heavy clay loam/clay or occasionally silty clay topsoil. The topsoil overlay a prominently mottled stonefree clay subsoil. Occasionally, particularly in the north and north east of the site, a thin upper subsoil of prominently mottled, stonefree, heavy clay loam was encountered. The soils were assessed as wetness class IV with a single exception which was assessed as wetness class III.

* Dale Association - slowly permeable seasonally waterlogged clayey, fine, loamy over clayey and fine silty soils on soft rock, often stoneless.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The breakdown of Agricultural Land Classification grades in hectares and percentage terms is shown below.

AGRICULTURAL LAND CLASSIFICATION		
Grade	Area	%
3b	9.5	100

The definitions of the ALC grades is shown in Appendix II.

Subgrade 3b

3.2 All the land within the site was assessed as subgrade 3b. The combination of heavy topsoil textures the presence of a slowly permeable layer high in the soil profile (wetness class III or IV) imposes a significant limitation in the flexibility of the land for cropping. As a result significant wetness and workability imperfections restrict the land to subgrade 3b (moderate quality agricultural land).

Resource Planning Team
ADAS Cambridge
May 1995

REFERENCES

- GEOLOGICAL SURVEY OF GREAT BRITAIN, (England and Wales) 1972. Solid and Drift Edition, Sheet 125. 1:50 000.
- MAFF, 1970. *Agricultural Land Classification map Sheet 112. Provisional 1:63 360 scale.*
- MAFF, 1988. *Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land).* MAFF, London.
- METEOROLOGICAL OFFICE 1989. *Climatological data for Agricultural Land Classification.* Met Office, Bracknell.
- SOIL SURVEY OF ENGLAND AND WALES 1983. *Sheet 3, Midland and Western England 1:250 000 scale.* SSEW, Harpenden.

Appendix I

STATEMENT OF PHYSICAL CHARACTERISTICS

SOIL TYPE 1:

Topsoil	Texture	:	heavy clay loam/clay (occasionally silty clay)
	Colour	:	2.5Y5/2, 2.5Y5/3
	Stone	:	stonefree
	Boundary	:	smooth, abrupt
	Roots	:	many fine and very fine
	Depth	:	25-30 cm
Upper Subsoil (where present)	Texture	:	heavy clay loam
	Matrix colour	:	2.5Y6/4
	Stone	:	stonefree
	Structure	:	moderately developed coarse subangular blocky.
	Consistence	:	very firm
	Porosity	:	<0.5% biopores
	Boundary	:	smooth, abrupt
	Roots	:	many fine and very fine
	Depth	:	45 cm
Lower Subsoil	Texture	:	clay
	Matrix colour	:	2.5Y6/3, 2.5Y6/4
	Stone	:	stonefree
	Structure	:	weakly developed, adherent, coarse prismatic breaking to medium and coarse angular blocky.
	Consistence	:	firm
	Porosity	:	<0.5% biopores
	Roots	:	many fine and very fine
Depth	:	120 cm+	

Appendix II

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 include 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 and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 levels of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yield of which are variable. In most 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.