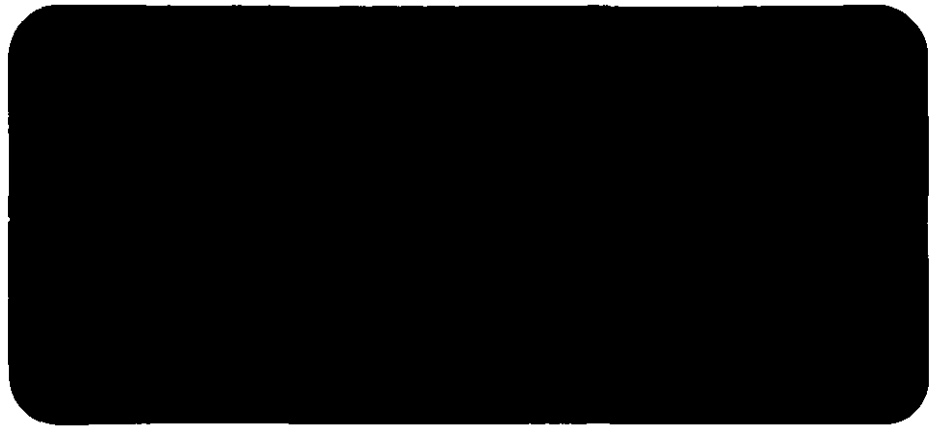


FRCA



FARMING AND RURAL CONSERVATION AGENCY
An Executive Agency of the Ministry of Agriculture, Fisheries and Food and the Welsh Office

**PROPOSED CLAY WORKINGS
IBSTOCK, LEICS.**

**SEMI-DETAILED VALIDATION
SURVEY**

**Agricultural Land Classification &
Statement of Site Physical
Characteristics**

July 1998

**Resource Planning Team
Eastern Region
FRCA Cambridge**

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**AGRICULTURAL LAND CLASSIFICATION &
STATEMENT OF SITE PHYSICAL CHARACTERISTICS**

PROPOSED CLAY WORKINGS, IBSTOCK, LEICS.

SEMI-DETAILED VALIDATION SURVEY

INTRODUCTION

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) validation survey and assessment of site physical characteristics of 47.2 ha of land at Ibstock in Leicestershire. The survey was carried out during June 1998.
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 an application to extract clay from the site. This survey supersedes previous ALC information for this land and is a validation survey of ALC information provided by R E Leverton on behalf of the applicant.
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 land use on the site was mainly growing wheat, with an area of grassland in the southwest. The areas mapped as 'Other land' include a disused railway line, tracks around the site and part of a sports ground.

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
3a	23.3	51	49
3b	22.6	49	48
Other land	1.3	N/A	3
Total surveyed area	45.9	100	97
Total site area	47.2	-	100

7. The fieldwork was conducted at an average density of one boring per two hectares. A total of 22 borings was described.

8. Just over half of the land at the site has been graded 3a (good quality agricultural land) and is limited by moderate wetness and workability imperfections. The remainder of the land has been graded 3b (moderate quality agricultural land) due to significant wetness and workability imperfections.

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	SK 422110
Altitude	m, AOD	150
Accumulated Temperature	day°C (Jan-June)	1298
Average Annual Rainfall	mm	702
Field Capacity Days	days	163
Moisture Deficit, Wheat	mm	90
Moisture Deficit, Potatoes	mm	76
Overall climatic grade	N/A	Grade 2

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 mean it imposes a slight limitation to land quality and therefore has a climate grade of 2.

Site

14. The site is located to the northeast of Ibstock and is bounded in the north by Leicester Road. The remaining boundaries of the site abut open farmland, except in the southwest where there is a clay pit. The site is dissected by a stream which runs east to west across the centre of the site. The land slopes gently towards the stream (145 m AOD) from higher

ground in the north and south (both 154 m AOD). Therefore, neither gradient nor altitude constitute a limitation to the ALC grade.

Geology and soils

15. The published 1:50 000 scale geology map, sheet 155, Coalville, (Geological Survey of Great Britain, 1982) maps the site as being underlain by Mercia Mudstone which outcrops in the south and east. This is shown to be covered by boulder clay drift in the north and west and alluvium is mapped adjacent to the stream.

16. On the 1:250 000 reconnaissance scale published soils map, sheet 3, Soils of Midland and Western England (Soil Survey of England and Wales, 1983) the site is shown as comprising to the north of the stream the Flint Association, which is briefly described as reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar fine loamy soils and some slowly permeable seasonally waterlogged fine loamy over clayey soils. South of the stream the Whimple 3 Association is shown and this is briefly described as reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes.

17. During this semi-detailed validation survey an inspection of the soils was carried out and two main soil types were identified. The accompanying soil resources map which details *this information is not necessarily a soil stripping map but illustrative of the soil resources available for restoration at the site.*

Soil Type I (25.6 hectares)

18. The majority of the site comprises Soil Type I. These soils typically comprise medium clay loam or occasionally heavy clay loam topsoils which overlie medium or sandy clay loam upper subsoils. Lower subsoils comprise slowly permeable clay which is encountered at depths of 40/80 cm. Profiles are typically imperfectly or poorly drained, non-calcareous and very slightly stony throughout. In the northwest of the site subsoils may be slightly stony.

Soil Type II (20.3 hectares)

19. Soil Type II occurs in an area in the north and a smaller area in the southeast of the site. Profiles typically comprise medium or very occasionally heavy clay loam topsoils which directly overlie slowly permeable clay subsoils. These profiles are poorly drained, non-calcareous and very slightly to 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 1.

21. The location of the auger borings is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Subgrade 3a

22. Just over half of the site has been graded 3a and this land corresponds with the better drained medium clay loam topsoil textured variants of the soils described in paragraph 18. These soils have typically been assessed as Wetness Class III and this factor in combination with the topsoil texture restricts the land to subgrade 3a due to moderate wetness and workability imperfections.

Subgrade 3b

23. The remainder of the site has been graded 3b and mainly corresponds with the soils described in paragraph 19 and the poor drained soils described in paragraph 18 which occur in the south of the site. These soils have been assessed as Wetness Class IV. This factor in combination with the medium clay loam topsoils limits land quality to subgrade 3b due to significant wetness and workability constraints.

24. In addition a small area of subgrade 3b land occurs in association with heavy clay loam topsoil textured soils described in paragraph 18. These soils have been assessed as Wetness Class III and this factor in combination with the heavy topsoil texture also restricts the land to subgrade 3b due to moderate wetness and workability limitations.

Soil resources

25. Two Soil Types have been identified within the site and their distribution is shown on the accompanying soil resources map which is illustrative of the soil resources within the site for restoration purposes but is not a soil stripping map for the site. A statement of the physical characteristics of these two Soil Types is given in Appendix II. The thickness and the volume of the Soil Types is given below.

Table 3: Soil Resources

		Area (ha)	Thickness (cm)	Volume (m ³)
Soil Type I	Topsoil	25.6	30	76 800
	Upper Subsoil	25.6	30	76 800
	Lower Subsoil	25.6	60	153 600
Soil Type II	Topsoil	20.3	30	60 900
	Subsoil	20.3	90	182 700

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SOURCES OF REFERENCE

Geological Survey of Great Britain (England and Wales)(1982) *Sheet No. 155, Coalville, solid and drift edition*. BGS: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*. Met. Office: Bracknell.

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.

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

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

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE I (25.6 hectares)

Topsoil	Texture	: Medium clay loam, occasionally heavy clay loam
	Colour	: Dark greyish brown (10 YR 4/2) or very dark greyish brown (10 YR 3/2)
	Depth	: Typically 30 cm, range 30 to 35 cm
	Stoniness	: Very slightly to slightly stony (2-6% flint)
	Calcium carbonate	: Non-calcareous
Upper subsoil	Texture	: Medium or sandy clay loam
	Colour	: Brown (10 YR 5/3, 7.5 YR 5/3 and 7.5 YR 5/4) and yellowish brown (10 YR 5/4)
	Depth	: Typically to 60 cm, range 40 to 80 cm
	Stoniness	: Very slightly to slightly stony (0-10%)
	Calcium carbonate	: Non-calcareous
Lower subsoil	Texture	: Clay
	Colour	: Reddish brown (5 YR 4/4 and 5 YR 4/3) or occasionally brown (7.5 YR 5/3) or yellowish brown (10 YR 5/4)
	Depth	: 120 cm +
	Stoniness	: Very slightly to slightly stony (0-15%)
	Calcium carbonate	: Non-calcareous

Wetness Class: III or occasionally IV

Common distinct ochreous and grey mottles present throughout the upper and lower subsoil. Few and common manganese concretions in the upper and lower subsoil respectively. Lower subsoil assumed to be slowly permeable.

SOIL TYPE II (20.3 hectares)

Topsoil	Texture	: Medium clay loam or very occasionally heavy clay loam
	Colour	: Dark greyish brown (10 YR 4/2) or very dark greyish brown (10 YR 3/2)
	Depth	: 30 cm
	Stoniness	: Very slightly to slightly stony (3-5% flint)
	Calcium carbonate	: Non-calcareous
Subsoil	Texture	: Clay
	Colour	: Brown (10 YR 5/3 and 7.5 YR 5/3) and occasionally reddish brown (5 YR 4/4)
	Depth	: 120 cm +
	Stoniness	: Very slightly to slightly stony (0-5%)
	Calcium carbonate	: Non-calcareous

Wetness Class: IV

Common distinct ochreous and grey mottles and common manganese concretions present throughout the subsoil. Subsoil assumed to be slowly permeable.