

**BAYSTON FARM EXTENSION  
CONDOVER  
Agricultural Land Classification  
Statement of Site Physical Characteristics  
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# AGRICULTURAL LAND CLASSIFICATION REPORT BAYSTON FARM EXTENSION, CONDOVER

## INTRODUCTION

1. This report presents the findings of a detailed, semi-detailed Agricultural Land Classification (ALC) survey on 11.5 hectares of land. The results of this survey supersede any previous ALC information for this land. The land is located east of Bayston Farm, south east of Bayston Hill, Shropshire. The survey was in connection with the proposed extension of existing mineral workings to the south east of the site.
2. The survey was undertaken on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF) in November, 1997 by the Resource Planning Team of the Farming and Rural Conservation Agency (FRCA)- Northern region of FRCA.
3. The land has been graded in accordance with the publication "Agricultural Land Classification of England and Wales - Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1988) .
4. At the time of survey the agricultural land on this site was under fodder beet, winter cereals, and fallow following lifting of maincrop potatoes.

## SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10000 with an average auger boring density of 1 per hectare. The ALC map is only accurate at this base map scale and 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	6.7	60	58
3b	3.6	32	31
4	0.9	8	8
Other land	0.3	N/A	3
Total surveyed area	11.2	100	-
Total site area	11.5	-	100

7. The agricultural land on this site has been classified as Subgrade 3a (good quality), Subgrade 3b (moderate quality) and Grade 4 (poor quality). The key limitations to the agricultural use of this land are soil wetness, soil droughtiness and gradient.

8. The area of good quality land is located on the land to the north and west of the site. There are two distinct soil types (i) soils that commonly comprise loamy medium sand topsoils overlying loamy sand or sand upper subsoils passing to sand lower subsoils to depth (ii) soils that commonly comprise a sandy clay loam or medium clay loam topsoil overlying a medium clay loam upper subsoil and a heavy clay loam lower subsoil.

9. The area of moderate quality land is mapped in several parts of the site. The soils in this area comprise a medium clay loam topsoil overlying a heavy clay loam or clay subsoil. In the north east of the site moderate quality land has also been mapped where gradients of between 7° and 11° are found.

10. The area of poor quality land is mapped in the north east of the site where gradients of between 11° and 18° are found.

## FACTORS INFLUENCING ALC GRADE

### Climate

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

12. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using standard interpolation procedures (Meteorological Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SJ 496 079
Altitude	m, AOD	88
Accumulated Temperature	day°C (Jan-June)	1395
Average Annual Rainfall	mm	696
Field Capacity Days	days	153
Moisture Deficit, Wheat	mm	99
Moisture Deficit, Potatoes	mm	88
Overall climatic grade	N/A	Grade 1

13. 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.

14. 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.

15. The combination of rainfall and temperature at this site means that there is no overall climatic limitation. The site is climatically Grade 1.

## Site

16. The site lies at an altitude of 75 to 91 metres AOD. From the east the land rises steeply from Bomere Pool, then falls to a valley containing a pond. West of the pond the land undulates gently, with the highest land found in the north west of the site.

17. The three site factors of gradient, microrelief and flooding are considered when classifying the land.

18. East of the pond gradient restricts some land to Subgrade 3b and Grade 4.

## Geology and Soils

19. The solid geology of the area is comprised of Keele Beds- British Geological Survey (1952). This is overlain with deposits of boulder clay - British Geological Survey (1974).

20. The soils that have developed on this geology are generally of a clay loam texture over clay at depth.

## Agricultural Land Classification

21. The details of the classification of the site are shown on the enclosed ALC map and the area statistics of each grade are given in Table 1, page 1.

### *Subgrade 3a*

22. Land of good quality occupies 6.7 hectares (58 %) of the site area and is found in two distinct units.

23. In the north west of the site the soil has a loamy sand texture over loamy sand and sand to depth with few stones within the profile. The moisture balance places these soils in Subgrade 3a.

24. The main limitation to the agricultural use of this land is soil droughtiness.

25. In the south west of the site, and east of the pond, the soil has either a sandy clay loam texture or clay loam texture overlying clay loam, passing to slowly permeable heavy clay loam or clay at depth. The depths to gleying and the slowly permeable layer place these soils in Wetness Class III.

26. The main limitation to the agricultural use of this land is soil wetness.

### *Subgrade 3b*

27. Land of moderate quality occupies 3.6 hectares (31 %) of the site area and is found in the south east of the site.

28. The soil has a medium clay loam texture which lies directly over heavy clay loam or clay. The depths to gleying and the slowly permeable layer place these soils in Wetness Class IV.

29. The main limitation to the agricultural use of this land is soil wetness.

30. Subgrade 3b is also mapped east of the pond where gradients were measured between 7° and 11°.

31. The main limitation to the agricultural use of this land is gradient.

#### *Grade 4*

32. Land of poor quality occupies 0.9 hectares (8 %) of the site area and is found in the north east of the site where gradients in excess of 11° were measured.

33. The main limitation to the agricultural use of this land is gradient.

#### *Other Land*

34. Other land occupies 0.3 hectares (3 %) of the site area and is found as a pond in the centre of the site.

## SOIL RESOURCES

35. From the auger boring and pit information obtained by the ALC survey, three soil units can be identified. Their locations are shown on the accompanying soil resource map. These units are not necessarily intended to be used for soil stripping but are illustrative of the soil resources available for restoration. The depths and volumes quoted should be treated with caution due to the natural variability of the soils at the site.

### *Soil Unit 1*

36. Soil Unit 1 occupies 1.3 hectares (11 %) of the site area and occurs in the east of the site.

37. These soils have a medium clay loam topsoil texture to a depth of between 25 and 35 cm, overlying clay to 120 cm, with few stones within the profile.

38. Table 3 describes a typical profile for Soil Unit 1.

Table 3: Profile for Soil Unit 1

<i>Horizon</i>	<i>Depth</i>	<i>Description</i>
Topsoil	0 - 26	Medium clay loam, dark reddish brown (05YR34), very slightly stony.
Subsoil	26 - 120	Clay, reddish brown (05YR53), gleyed ped faces (05YR52) moderately developed coarse prismatic structure, firm, slowly permeable, very slightly stony.

### *Soil Unit 2*

39. Soil Unit 2 occupies 5.2 hectares (45 %) of the site area and covers the central part of the agricultural land area.

40. These soils have a predominantly medium clay loam topsoil texture to a depth of between 30 and 40 cm depth, overlying medium clay loam or heavy clay loam to between 50 and 60 cm, onto clay to greater than 120 cm, generally with few stones within the profile.

41. Within this area soil profiles exhibit considerable variation, with some passing to lighter material at depth. In the west of the unit, the soils are moderately stony to depth.

42. Table 4 describes a typical profile for Soil Unit 2.

Table 4: Profile for Soil Unit 2

Horizon	Depth	Description
Topsoil	0-35	Medium clay loam, brown (75YR43), very slightly stony.
Upper Subsoil	35-70	Heavy clay loam, reddish brown (05YR43), common ochreous mottles (75YR56), moderately developed coarse subangular blocky structure, friable, porous, very slightly stony.
Lower Subsoil	70-120	Clay, reddish brown (05YR43), many ochreous mottles (05YR46), weakly developed coarse prismatic structure, firm, slowly permeable, very slightly stony.

### *Soil Unit 3*

43. Soil Unit 3 occupies 4.7 hectares (41 %) of the site area and covers the west of the agricultural land area.

44. These soils have a predominantly loamy medium sand topsoil texture to a depth of between 30 and 40 cm depth, overlying loamy medium sand or medium sand to between 50 and 60 cm, onto medium sand to greater than 120 cm, with few stones within the profile.

45. Table 5 describes a typical profile for Soil Unit 3.

Table 5: Profile for Soil Unit 3

Horizon	Depth	Description
Topsoil	0-35	Loamy medium sand, dark reddish brown (05YR33), stoneless.
Subsoil	35-120	Medium sand, yellowish red (05YR56), weakly developed medium subangular blocky structure, very friable, porous, stoneless.

*Other land*

46. The soil resources for the remaining 0.3 ha (3 %) of the site area have not been mapped.

*Available Soil Resources*

47. Tables 6 - 8 summarise the available soil resources for each unit. As stated above, the depths and volumes quoted should be treated with caution due to the natural variability of the soils at the site.

Table 6: Available Soil Resource for Unit 1

Horizon	Texture	Depth (cm)	Area (ha)	Volume (cu m)
Topsoil	MCL	0 - 30	1.3	3,900
Subsoil	C	30 - 120	1.3	11,700

Table 7: Available Soil Resource for Unit 2

Horizon	Texture	Depth (cm)	Area (ha)	Volume (cu m)
Topsoil	MCL	0 - 35	5.2	18,200
Upper Subsoil	HCL	35 - 55	5.2	10,400
Lower Subsoil	C	55 - 120	5.2	33,800

Table 8: Available Soil Resource for Unit 3

Horizon	Texture	Depth (cm)	Area (ha)	Volume (cu m)
Topsoil	LMS	0 - 35	4.7	16,450
Subsoil	MS	35 - 120	4.7	39,950

The topsoils of units 1 and 2 have similar characteristics and could therefore be stripped and stored as one unit. Similarly the clay subsoil of unit 1 and lower subsoil of unit 2 could be treated as one soil unit. The soils of unit 3 have markedly different textures and should be kept separate from units 1 and 2.

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## **SOURCES OF REFERENCE**

British Geological Survey (1952) Sheet 152, Shrewsbury Solid Edition.  
1:63 360 Scale.  
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