ACRE NOOK EAST QUARRY, CHELFORD, CHESHIRE

Statement of Site Physical Characteristics
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STATEMENT OF SITE PHYSICAL CHARACTERISTICS
ACRE NOOK EAST QUARRY, CHELFORD, CHESHIRE

INTRODUCTION

1. This report presents a Statement of Physical Characteristics, including a detailed Agricultural Land Classification (ALC) survey, on 26.1 hectares of land. The results of this survey supersede any previous ALC information for this land. The land is located near Siddington to the south of Chelford, Cheshire. The survey was in connection with a proposed extension to an existing quarry to the west of the site.

2. The survey was undertaken on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF) in December 1995 and January 1996 by the Resource Planning Team of the Farming and Rural Conservation Agency (FRCA)- Northern region of FRCA. The survey included land to the north west of the current application area described in this report.

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 permanent grass.

SUMMARY OF ALC GRADES

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
1	-	-	-
2	23.7	100	90
3a	-	-	-
3b	-	-	-
4	-	-	-
5	-	-	-
Agricultural land not surveyed	-	N/A	-
Other land	2.4	N/A	10
Total surveyed area	23.7	100	
Total site area	26.1		100

7. The agricultural land on this site has been classified as Grade 2 (very good quality). The key limitation to the agricultural use of this land is soil droughtiness.

8. The majority of the area is classified as very good quality agricultural land. The soils commonly comprise a sandy loam or loamy sand topsoil texture overlying loamy sand and sand to depth, with few or no stones within the profile.

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 standard interpolation procedures (Meteorological Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SJ 832 715
Altitude	m, AOD	82
Accumulated Temperature	day°C (Jan-June)	1364
Average Annual Rainfall	mm	800
Field Capacity Days	days	197
Moisture Deficit, Wheat	mm	82
Moisture Deficit, Potatoes	mm	71
Overall climatic grade	N/A	1

11. The climatic criteria are considered first when classifying land because 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 (ATO, January to June), as a measure of the relative warmth of a locality.

13. The combination of rainfall and temperature at this site means that the site is climatically Grade 1.

Site

14. The site lies at an altitude of 81 to 85 metres AOD and is predominantly level with some gentle slopes.

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

16. Gradient, microrelief and flooding do not impose any limitations on the agricultural use of this land.

Geology and Soils

17. The solid geology of the area is comprised of Triassic Lower Keuper Saliferous Beds. This is overlain by deposits of fluvio-glacial sand and gravel - British Geological Survey (1968).

18. The underlying geology influences the soils which have a predominantly sandy loam texture.

Agricultural Land Classification

19. 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.

Grade 2

20. Land of very good quality occupies 23.7 hectares (90 %) of the site area and covers the majority of the site.

21. These soils typically have a sandy loam or loamy sand topsoil texture overlying loamy sand and sand to depth, with few or no stones within the profile. The moisture balance places these soils in Grade 2.

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

Other Land

23. Other land on the site comprises part of an existing sand and gravel quarry which occupies 2.4 hectares (10 %) of the site area.

SOIL RESOURCES

24. From the auger boring and pit information obtained by the ALC survey, one soil unit can be identified. The location of the soil unit is shown on the accompanying soil resource map. The unit is not necessarily intended to be used for soil stripping but is 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. The existing quarry is shown as not surveyed on the soil resource map.

Soil Unit 1

25. Soil Unit 1 occupies 23.7 hectares (90 %) of the site area and covers the entire agricultural land area.

26. The soil has a predominantly medium sandy loam topsoil texture to a depth of between 29 and 52 cm depth, overlying loamy sand to between 48 and 70 cm, onto medium sand to greater than 120 cm, with few or no stones within the profile. Occasional, isolated borings with loamy sand or sandy clay loam topsoils occur within this area.

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

Table 3: Profile for Soil Unit 1

Horizon	Depth	Description
Topsoil	0 - 35	Medium sandy loam, very dark greyish brown (10YR32), very slightly stony.
Upper Subsoil	35 - 50	Loamy medium sand, yellowish brown (10YR56 58), moderately developed medium angular blocky structure, very friable, porous, very slightly stony.
Lower Subsoil	50 -120	Medium sand, brownish yellow (10YR66), weakly developed fine to medium angular blocky structure, very friable, porous, very slightly stony.

Available Soil Resources

28. Table 4 summarises the available soil resource. 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 4: Available Soil Resource for Unit 1

Horizon	Texture	Depth (cm)	Area (ha)	Volume (cu m)
Topsoil	MSL	0 - 35	23.7	82,950
Upper Subsoil	LMS	35 - 50	23.7	35,550
Lower Subsoil	MS	50 - 120	23.7	165,900

SOURCES OF REFERENCE

British Geological Survey (1968) Sheet 110, Macclesfield, Solid and Drift Editions. 1:63 360 Scale.
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.
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Hodgson, J M (Ed) (1976) Soil Survey Field Handbook. Soil Survey Technical Monograph No. 5.