

REPORT OF THE MAFF AGRICULTURAL LAND CLASSIFICATION SURVEY -  
BERKSWELL QUARRY, CORNETS END LAND, MERIDEN

1. Summary

The land has been classified following the Agricultural Land Classification of England and Wales - revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). Of the site 77% is classified by Sub-grade 3a and 20% in Sub-grades 3b.

2. Climatic Limitations

The main parameters used in the assessment of the climatic limitations are average annual rainfall (AAR), as a measure of overall wetness and accumulated temperature (ATO), as a measure of the relative warmth of the locality. The figures of AAR and ATO indicate that there is no climatic limitation on this site.

3. Site Limitations

The assessment of site factors is primarily concerned at the way in which topography influences the use of agricultural machinery and hence the cropping potential of the land. There is no site limitation affecting the use of the land.

4. Soil Limitations

The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. These may act as limitations separately, in combination or through interactions with climate or site factors. The physical limitations which result from interactions between climate, site and soil are soil wetness, droughtiness, and erosion.

To achieve full yield potential a crop requires an adequate supply of soil moisture through the season. Droughtiness is most likely to be a significant limitation to crop growth in the areas with relatively low rainfall or high evapotranspiration or where the soil holds only small reserves of moisture available to plant roots. The severity of the limitation in an area depends on the relationship between the soil properties and climatic factors and the moisture requirements of the crops grown. These relationships are complex and the degree of moisture stress varies from year to year according to the weather. In the ALC system the method used to assess the droughtiness provides an indication of the average droughtiness based on two reference crops, winter wheat and main crop potatoes. The method used to assess droughtiness takes account of crop rooting and foliar characteristics to obtain an estimate of the average soil moisture balance (MB) for the reference crops at a given location. The moisture balance is calculated on the basis of two parameters - the crop adjusted available water capacity of the soil profile and the moisture deficit. Reference will be made to droughtiness where it is a limiting factor in Section 7.

A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock. The soil wetness assessment takes account of a climatic regime, the soil water regime and the texture of the top 25 cm of the soil. Reference will be made to soil wetness where it is a limiting factor in Section 7.

## 5. Background Information

The underlying solid geology is mapped as Keuper Marl covered with alluvium, sand and gravel deposits (Birmingham Sheet 168).

6. **Agricultural Land Use**

At the time of the survey February 1992, the site was either under grass, cereals or fallow.

7. **Agricultural Land Quality (Appendix 1)**

Sub-Grade 3a - land in this grade covers much of the area. The topsoil typically has a sandy loam texture overlying loamy sand by about 40 cm and then on to sand extending to 100 cm. The main limitation to the agricultural use of this land is droughtiness.

Sub-Grade 3b - land in this grade is found where soils with a sandy loam texture overlie loamy sand at about 35 cm and then on to a lower subsoil of sand. The main limitation to the agricultural use of this land is droughtiness.

Close to the River Blythe, the topsoil has a clay or heavy clay loam texture extending to 20 cm and overlying clay below this depth. The depth to the slowly permeable layer, observation of gleying and a field capacity day figure of 163 places these soils in wetness class IV and hence a classification of sub-grade 3b. The main limitation to the agricultural use of this land is soil wetness. Much of this area lies within the flood plain of the River Blythe where there is occasional flooding.

Urban - this includes the old main road.

Resource Planning Group  
Wolverhampton  
March 1992

AGRICULTURAL LAND QUALITY

1)	Cornets End Lane		
	Grade/sub-grade	ha	
	3a	15.3	
	3b	3.9	
		<hr/>	
	TOTAL	19.2	
		<hr/>	
2)	Land West of A452		
	Grade/sub-grade	ha	
	3a	28.1	
	3b	7.3	
	Non-agricultural	0.3	
	Urban	1.7	
		<hr/>	
	TOTAL	37.4	
		<hr/>	
3)	All land		
	Grade/sub-grade	ha	as % of agricultural land
	3a	43.4	80
	3b	11.2	20
		(54.6)	
	Non-agricultural	0.3	
	Urban	1.7	
		<hr/>	<hr/>
	TOTAL	56.6	100
		<hr/>	<hr/>

## DESCRIPTION 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 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 root 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 or 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 limitation which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

### **Descriptions of other land categories used on ALC maps**

#### **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

## **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airport/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

## **Woodland**

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

## **Agricultural buildings**

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

## **Open water**

Includes lakes, ponds and rivers as map scale permits.

## **Land not surveyed**

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

# NOTES ON SOIL RESOURCES FOR BERKSWELL QUARRY, CORNETS END LANE, MERIDEN

## INTRODUCTION

Following the Agricultural Land Classification survey of the site, a soil resource map has been compiled from information collected. Soil texture and depth data was collected on 100 metre grid augering with a hand held auger to 100 cm, where possible. Several soil pits were dug to obtain further detail on physical characteristics such as structure. The soil resource map identifies soils of a similar texture and places them into units, thus reflecting the differences in stripping, handling and storage requirements. A total of 4 units are identified, which include the old main road.

### UNIT 1

This covers much of the area where the soils have a sandy loam texture overlying loamy sand and sand. The topsoil typically has a sandy loam texture to depths of between 30 and 50 cm with a moderately developed medium sub-angular blocky structure. Below the sandy loam topsoil, the upper subsoil of loamy medium sand varies in depth between 40 and 70 cm, and has a weakly developed medium sub-angular blocky structure. The lower subsoil of sand extends to 120 cm and has a single grain structure. The soil is slightly stony throughout and roots are common in the topsoil becoming fewer with depth.

### UNIT 2

This is found in the north west part of the land lying to the west of the main A452 road. The topsoil typically has a sandy clay loam texture extending to about 36 cm although depths vary between 30 and 65 cm. The upper subsoil consists of loamy sand extending to about 56 cm with either sand or clay present below this depth. The topsoil has a moderately developed fine sub-angular blocky structure with common plant roots. The upper subsoil has a well developed granular structure, is friable and has few plant roots present. The



subsoil of sand has a single grain structure, is friable with few roots present. The stone content varies from 5% in the topsoil to 30% in the lower subsoil.

### UNIT 3

This is found close to the River Blythe. The topsoil typically has either a heavy clay loam or clay texture and overlies clay to depth. The topsoil extends to about 30 cm and has a weakly developed medium angular blocky structure and is stoneless. Below 30 cm clay extends to at least 100cm and has a weakly developed coarse prismatic structure with few stones present. Plant roots are common in the topsoil with fewer in the subsoil.

### UNIT 4

The old main road crosses part of the site and if planned to remove it, it should be stripped separately from the agricultural land.

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