Report of the MAFF Agricultural Land Classification Survey (1988) - Church Hill, Burton Dassett

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 land surveyed 88% is classified as sub-grade 3a and 9% as sub-grade 3b. A further 3% is classified as Grade 4.

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, restricting the highest possible grade to Grade 2.

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 are site limitations affecting the use of the land, where gradient influences the grade 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 wetness, droughtiness and erosion. Soil wetness, which expresses the extent to which excess water imposes restrictions on crop growth, is the main interacting limitation affecting the grading on this site. Soil wetness is assessed in the field by identifying the depth to any slowly permeable soil horizon, which is defined in terms of soil texture, structure and gleying and relating this to the texture of the top 25 cms. Combining the soil wetness class and the field capacity days (FCD) a land classification grade is arrived at. Reference will be made to this limitation in Section 6.

5. **Background Information:**

The underlying geology is mapped as Middle and Upper Lias deposits of Marlstone Rock Bed over Church Hill summit and eastern banks with Lower Lias clay along the haul road (Sheet 201, Banbury, Geological Survey).

6. **Agricultural Land Use:**

At the time of the survey, April 1989, land was under winter cereal with a small area of grass.

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

Sub-grade 3a: the soil typically has a medium clay loam texture overlying clay at depths of between 35 and 60 cms. Observations of gleying and depth to the slowly permeable layer combined with a field capacity day figure of 161 indicate wetness class III and sub-grade 3a.

On the summit of Church Hill a stony layer is present and a few stony knolls also occur. Stone in the soil can be a limitation to the agricultural use of the land through its influence on the available water holding capacity of the soil. Where the stony layer occurs, a droughtiness limitation exists, hence the sub-grade 3a classification.

The main limitations to the agricultural use of this land include soil wetness and in places soil droughtiness.

Sub-grade 3b: the main limitation to the agricultural use of this land is the gradient where it exceeds 7^{o}, and fails to satisfy the criteria for a higher grade, therefore has been classified as sub-grade 3b.

Grade 4: a small area is classified as grade 4, where the surface is uneven and steep slopes in excess of 11^{o} are present.

Resource Planning Group
Wolverhampton

April 1989

Agricultural Land Classification Summary

Grade sub/grade	ha	as % of total
3a	9.9	88
3b	1.0	9
4	0.4	3
TOTAL	11.3	(100)

KAR

REPORT OF THE SOIL RESOURCES AT CHURCH HILL, BURTON DASSETT

Introduction

The site lies to the south east of Burton Dassett at Church Hill (grid reference SP401 516).

Following an Agricultural Land Classification Survey carried out on a 100 metre grid with supplementary auger borings as required, information on the soil resources has been drawn together and soil units identified. Soil units reflect similarities in texture and therefore stripping and handling characteristics. Soil pits are dug to observe the physical characterists such as structure.

On this site one soil unit, covering the whole area, is identified as soil textures are generally uniform, being medium clay loam overlying clay at depth.

Soil Unit Description

The top soil (top 30 cms), has a medium clay texture overlying further depths of medium clay loam and clay. The medium clay loam textured soil varies in depth from 35 cms to 45 cms.

Around the summit of Church Hill a stony layer is present, which prevented augering below depths of 45 cms and in places as shallow as 15 cms.

From soil pit observations the medium clay loam textured soil extended to 50 cms. The soil has a weakly developed medium and fine sub-angular blocky structure and is slightly porous. Few stones are present in the upper part of the profile. At 50 cms a stony layer is present and the soil is very stony at this point. To 75 cms the soil has a crumb/granular structure. At this depth soil structure was difficult to assess because of numerous stone fragment.

Along the route of the Haul Road the top soil has a medium clay loam texture overlying clay at depths of between 35 and 45 cms. This part of the site the soil is stoneless.

Resource Planning Group
Wolverhampton

April 1989

APPENDIX 1

DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subragde 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

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 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 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 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 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.

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: private park land, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to ‘soft’ after-uses may apply.

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.

Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised guidelines and criteria for grading the quality of agricultural land) Alnwick.

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for between 31 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not within 40cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

Notes: The number of days specified is not necessarily a continuous period. ‘In most years’ is defined as more than 10 out of 20 years.

Source: Hodgson, J M (in preparation) Soil Survey Field Handbook (revised edition).