Cambs 109/92

AGRICULTURAL LAND CLASSIFICATION

RUTLAND DISTRICT LOCAL PLAN, LEICESTERSHIRE OAKHAM & UPPINGHAM

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RUTLAND DISTRICT LOCAL PLAN, LEICESTERSHIRE
SITES AT OAKHAM AND UPPINGHAM

1.0 BACKGROUND

1.1 The three sites form part of the Rutland District Local Plan. ADAS Statutory Unit surveyed two of the sites covering 12.1 hectares in total, in January 1992 to assess the agricultural land quality. The surveyed sites are known as: Site B Oakham - Land to the East of Oakham, and Site adjacent Leicester Road, Uppingham. A third site, Site A Oakham - Land to the West of Springfield House is included in the Local Plan, however it was not surveyed by the ADAS Statutory Unit because site access was not permitted.

1.2 At the time of the survey the land at Site B Oakham was under cereals, while the land at Uppingham was under rough grass and scrub.

1.3 On the published Agricultural Land Classification Map, sheet number 122 (Provisional, scale 1:63,360, MAFF 1972) site B Oakham is shown as entirely grade 3, with the site at Uppingham shown as mainly grade 3 with a smaller area of grade 2 in the north.

1.4 Site A Oakham is shown as mainly grade 2 with a smaller area of grade 3 to the north. The likely ALC grade at this site was previously assessed earlier this year using published soils and geology information. This desk study indicated that the ALC grade is likely to be no better than subgrade 3b.

1.5 The current survey of the other two sites was undertaken to provide more detailed information on land quality. Soils information was collected from auger borings spaced at 100 m intervals and subsoil structural conditions and stone contents assessed from two representative soil pits.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Site specific climatic information for the two surveyed sites was obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office (1989). This information is shown, in summary, overleaf:

SITES

	Oakham B	Uppingham
Annual Average Rainfall (mm)	647	668
Altitude (m)	94	155
Field Capacity Days	141	141
MD Wheat (mm)	100	95
MD Potatoes (mm)	90	83
Accumulated Temperature (°C)	1353	1287

2.2 These climatic characteristics do not impose any climatic limitation to the ALC grade of Site B Oakham, however a slight climatic limitation does occur at Uppingham and therefore the site is excluded from grade 1.

Altitude and Relief

2.3 Site B Oakham occupies part of a slope of a tributary stream of Rutland Water and ranges in height from 90 to 98 m AOD. Gradients of 7 to 8° are encountered on the southern part of the site, adjacent to the stream. These impose a moderate limitation to the safety and efficienct use of agricultural machinery on this land. Within this area the ALC grading of the land is restricted to 3b.

2.4 Uppingham comprises level land lying at an altitude of 155 m AOD. Consequently, there are no altitude or gradient limitations excluding this land from an ALC grade of 1.

Geology and Soils

2.5 Both the sites are shown on the published 1:50,000 scale solid and drift edition geology map, sheet 157 (Geological Survey of Great Britain, 1978). Site B Oakham is split almost equally in two, parallel to the watercourse, with Middle Lias Marlstone Rock Bed upslope to the north and a slightly larger area of Middle Lias Silt and Silty Clay in the south. Very small areas of alluvium are shown adjacent to the stream in the southeast and southwest. Uppingham is shown in the north as Northampton Sand with Ironstone, and as boulder clay drift in the south. In the southeast corner a very small area of Lower Estuarine deposits occurs.

2.6 The Soil Survey of England and Wales published reconnaissance scale map (Sheet 4, scale 1:250000, 1983) shows the occurrence at Site B Oakham of the Banbury Association (*1). Uppingham is also shown as mainly comprising the Banbury Association, with a smaller area of the Ragdale Association (*2) in the northwest. The current more detailed survey identified four main soil types in the Local Plan area, two at each site.

2.6.1 In the northern half of Site B Oakham soils typically comprise free draining (wetness class I) heavy clay loam textures overlying ironstone between depths of 30 to 55 cms. Stone contents are typically slight (7-15%) although within these areas moderately stony topsoil patches (15-20%) do occur locally.

2.6.2 Deeper soils occur over the remainder of Site B Oakham in association with the Middle Lias Silt and Silty Clay geological deposits. These soils are typically very slightly stony throughout (3-5%) and comprise heavy clay loam topsoils over similar upper subsoils. Lower subsoils typically consist of gleyed heavy clay loam textures (wetness class II).

2.6.3 The majority of the site at Uppingham, particularly in the north, has free draining soils typically comprising slightly stony (3-5%) heavy or medium clay loam topsoils over heavy clay loam upper subsoils which are slightly or moderately stony (10-20% ironstones). Lower subsoils comprise stonier (15-35% ironstones) heavy clay loam or clay.

2.6.4 A smaller area of heavier textured, poorly drained soils occurs at Uppingham in the southern part of the site. Profiles typically comprise heavy clay loam topsoils over gleyed clay subsoils (wetness class IV). Horizons are generally non-calcareous although lower subsoils may be calcareous where fragments of calcium carbonate nodules occur and are very slightly stony throughout (2-3%).

(*1) Banbury Association: Well drained brashy fine and coarse loamy ferruginous soils over ironstone. Some deep fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

(*2) Ragdale Association: Slowly permeable seasonally waterlogged clayey and fine loamy over clayey soils. Some slowly permeable calcareous clayey soils especially on slopes.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The table below gives a precise breakdown of the ALC grades in hectares and % terms for both survey sites.

SITE	GRADE	HECTARES	%
Oakham B	3a	1.6	39.0
	3b	2.5	61.0
	TOTAL	4.1	100.0
Uppingham	3a	5.0	62.5
	3b	3.0	37.5
	TOTAL	8.0	100.0

3.2 The definition of the ALC grades is included in Appendix 1.

Site B Oakham (4.1 hectares)

Subgrade 3a

3.3 The land graded 3a occupies the higher ground in the northwest and corresponds largely with the deeper soils (40 cm+) described in paragraph 2.6.1. The light textured nature of the soils combines with profile stoniness to impose moderate droughtiness limitations on the available water reserves for crop growth, therefore the land has been graded 3a (good quality agricultural land).

3.4 Mid-slope in the west of the site deep soils which are described in paragraph 2.6.2 occur. The presence of a slowly permeable horizon at depth in these soils (wetness class II) combines with the heavy topsoil to impose moderate wetness and workability limitations precluding the land from a higher grade.

Subgrade 3b

3.5 Mid-slope in the centre and east of the site shallow varients of the soils described in paragraph 2.6.1 occur, having ironstone directly below the topsoil. The shallowness of the soil on the slope reduces the available water reserves for crop growth, reduces root growth and can restrict the range and type of cultivations which can be carried out. Consequently the ALC grade is assessed as 3b (moderate quality agricultural land).

3.6 In the south of the site land is mapped 3b and occurs where gradients are in excess of 7° (see paragraph 2.3). This limits the safe and efficient use of machinery and restricts this land to subgrade 3b.

Uppingham (8.0 hectares)

Subgrade 3a

3.7 Subgrade 3a land occurs in the north, covering the majority of the site and coincides with the well drained soils described in paragraph 2.6.3. The soil textures combine with profile stoniness to impose a moderate limitation on the available water reserves for crop growth and therefore the land has been assessed as 3a.

Subgrade 3b

3.8 The smaller area of land graded 3b, located in the south of the site corresponds with the heavy textured soils described in paragraph 2.6.4. These heavy textures combined with slow permeability directly below the topsoil (wetness class IV) impose a significant limitation on the ability of the land to grow a wide range of crops. Therefore drainage and workability imperfections exclude the land from a higher grade.

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Appendix 1

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 crops. The level of yields 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 levels of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yield 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.

REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN (ENGLAND AND WALES), 1978. Solid and drift edition, Geology sheet 157 Stamford, 1:50,000 scale.

MAFF, 1972. Agricultural Land Classification Map Sheet 122 (Provisional) 1:63,360 scale.

MAFF, 1988. Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the quality of Agricultural Land). Alnwick.

METEOROLOGICAL OFFICE, 1989. Data extracted from the published agroclimatic dataset.

SOIL SURVEY OF ENGLAND WALES, 1983. Sheet 4 Soils of Eastern England, 1:250,000 scale.