

**AGRICULTURAL LAND CLASSIFICATION
CHARNWOOD DISTRICT LOCAL PLAN
LEICESTERSHIRE**

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1.0 BACKGROUND

- 1.1 The five sites surveyed, covering 262.7 hectares in total, form part of the Charnwood District Local Plan. ADAS Statutory Unit surveyed the sites in November/December 1992 to assess the agricultural land quality. The sites are known as; Rothley Lodge (R5), East of Colby Drive (T2), Ratcliffe Road (S5), South of Blackberry Lane (C2) and Dishley Grange (L11).
- 1.2 On the published Agricultural Land Classification Map, sheet number 121 (Provisional, 1:63,360, MAFF 1971) the areas are shown as mainly grade 3 with a small proportion of grade 2 land. Site S5 is entirely grade 2 and R5 has only a small proportion of grade 3 land in the north of the site. Site S5 was previously surveyed by MAFF in 1984 at a semi-detailed survey scale, this survey showed the land to comprise ALC Grades 3a and 3b. The current survey was undertaken to provide a more detailed Agricultural Land Classification (ALC) at the five sites.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Site specific climatic information for the five sites has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office 1989. This information is shown in summary below:

	S I T E S				
	S5	C2	T2	R5	L11
Annual Average Rainfall (mm)	640	642	644	648	643
Altitude (m)	55	70	60	60	39
Field Capacity Days	148	148	145	149	142
MD Wheat (mm)	108	106	107	107	105
MD Potatoes (mm)	100	98	98	98	97
Accumulated Temperature (°C)	1401	1384	1397	1396	1418

These climatic characteristics do not impose any climatic limitation to the ALC grade of the sites.

Altitude and Relief

- 2.2 Four of the sites mainly occupy the slopes and plateaux of tributary valleys of the River Soar. They are gently sloping and range in height from 55 to 70 m AOD.
- 2.3 Site L11 is in the Soar Valley itself, lying on fairly level ground at altitudes between 35 and 40 m AOD.
- 2.4 Gradient and altitude do not constitute limitations to the ALC grading of the five sites.

Geology and Soils

- 2.5 The published solid and drift edition geology maps 156 and 141 (1:63,360 GSE&W 1963 and 1969) show the sites to comprise an equal mixture of Triassic Keuper Marl with beds of both sandstone and gypsum and glacial sands and gravels outcropping locally. Small areas of boulder clay are present at sites S5 and C2 with alluvium adjacent to the brook at site L11. Site C2 and L11 also have Recent and Pleistocene river terrace gravel shown.
- 2.6 The published reconnaissance scale "Soils of Midland and Western England" map (1:250,000 SSEW 1983) shows the occurrence of three soil associations within the Local Plan area, namely, the Whimple 3 Association (*1) at site T2, the Wick Association (*2) at sites R5 and L11, and Dunnington Heath Association (*3) at sites S5 and C2. The current more detailed survey more accurately identified four main soil types within the Local Plan area.

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- (*1) Whimple 3 Association Reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes.
- (*2) Wick 1 Association Deep, well drained coarse loamy and sandy soils especially over gravels. Some similar soils affected by groundwater.
- (*3) Dunnington Heath Association Reddish coarse and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

- 2.7.1 The main soil type identified within the Plan area (sites C2, T2 and S5) comprises heavy clay loam topsoils over plastic, gleyed red marl clays (at site L11, the clayey subsoils have sandy lenses and the red marl clay is absent). Horizons are generally non-calcareous (except to the north-east of site C2) where some subsoils contain lenses of calcium carbonate which correspond with the boulder clay geological deposits). At site S5, clayey, alluvial pockets outcrop adjacent to the brook. Where these clayey soils outcrop profile wetness class is assessed as IV due to the presence of slowly permeable clays directly below the topsoil.
- 2.7.2 Lighter textured, better drained soils outcrop along the eastern and western peripheries of site C2. Profiles typically comprise medium clay loam topsoils*¹ over heavy clay loam upper subsoils which merge into gleyed, red marl clay at depths of 45/50 cm+. Wetness class is assessed as III, occasionally II, due to the presence of a slowly permeable layer at depth.
- 2.7.3 A narrow tract of land running through the centre of site S5 comprises soils which are similar to those described in paragraph 2.7.2. The profiles tend to be sandier and lighter in texture to a greater depth over the marl clay. In summary, soils typically comprise medium clay loam topsoils (at sites R5 and T2 sandy clay loams, occasionally medium sandy loams) over medium clay loam or sandy clay loam upper subsoils which merge into clay at 40/45 cms*². Profile wetness has been assessed as III, occasionally II, due to the presence of slowly permeable clay at depth. At site R5 topsoils are typically very slightly or slightly stony with the majority of stones being greater than 2 cm.
- 2.7.4 On the western and northern peripheries of site L11, light textured soils predominate. The profiles typically comprise medium or sandy clay loam topsoils over sandy clay loams which become sandier with depth. The soils are well drained and have been assessed as wetness class I.

*¹ Occasionally topsoils are heavier (ie heavy clay loams) and depth to red marl clay is deeper.

*² Occasionally deeper upper subsoils exist and extend to a depth of 55 cm. However, these cover too small an area to delineate separately.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification grades are included in Appendix 1.

3.2 The table below shows the ALC grades for each of the survey sites.

SITE	GRADE	HECTARES	PERCENTAGE
RATCLIFFE ROAD S5	3a	15.2	35.5
	3b	25.6	60.0
	Urban/	0.1	
	Non-Agricultural	0.9	2.0
	Agricultural Buildings	1.1	2.5
	TOTAL	42.9	100
SOUTH OF BLACKBERRY LANE C2	3a	15.8	12.0
	3b	117.0	86.0
	Non-Agricultural	2.6	2.0
	TOTAL	135.4	100
EAST OF COLBY DRIVE T2	3a	7.8	18.0
	3b	33.8	81.0
	Urban	0.1	1.0
	TOTAL	41.7	100
ROTHLEY LODGE R5	3a	4.0	80
	Non-Agricultural	1.0	20
	TOTAL	5.0	100
DISHLEY GRANGE L11	2	13.9	37
	3b	12.1	32
	Non-Agricultural	11.7	31
	TOTAL	37.7	100

Ratcliffe Road Site S5 (42.9 hectares)

Subgrade 3a

- 3.3 The land graded as 3a occupies a narrow central tract of land which corresponds with the soils described in paragraph 2.7.3. The presence of a slowly permeable horizon at depth (ie wetness class III) combined with the fine textured topsoil textures impose a moderate limitation on the wetness and workability of the land. Consequently, the ALC grade is assessed as 3a (good quality agricultural land).

Subgrade 3b

- 3.4 The land mapped as 3b lies in association with the heavy textured, poorly drained soils described in paragraph 2.7.1. These soils cover the majority of the site, typically at the higher elevations and on the lower land adjacent to the brook. The clayey textures and high wetness class of IV combine to impose a significant limitation on the flexibility of the land to grow a range of agricultural crops. Consequently, workability and drainage imperfections exclude the land from a higher grade.

South of Blackberry Lane Site C2 (135.4 hectares)

Subgrade 3a

- 3.5 The two small areas of land graded 3a, located near Humbles Farm and Wreake House Farm correspond with the lighter textured soils described in paragraph 2.7.2. The presence of a slowly permeable horizon at depth (ie wetness class III), combines with the fine textured topsoil textures to impose a moderate limitation on the wetness and workability of the land. Consequently, ALC grade is assessed as 3a (good quality agricultural land).

Subgrade 3b

- 3.6 The majority of the site comprises soils which correspond with the heavy textured soils described in paragraph 2.7.1. The clayey textures combined with the high wetness class of IV imposes 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.

East of Colby Drive site T2 (41.7 hectares)

Subgrade 3a

- 3.7 A small area of land has been mapped as 3a and comprises the lighter textured soils described in paragraph 2.7.3. The presence of a slowly permeable layer at depth, (ie wetness class III), associated with the topsoil texture of sandy clay loam, imposes a moderate limitation on the wetness and workability of the land. Consequently this land has been assessed as subgrade 3a.

Subgrade 3b

- 3.8 The majority of the area has been graded 3b and corresponds with the soils described in paragraph 2.7.1. Slowly permeable subsoils at shallow depth of 35 cm and the clayey profile textures result in a wetness class assessment of IV. This combination of factors imposes a significant limitation on the wetness and workability of the land, thus excluding it from higher ALC grade.

Rothley Lodge Site R2 (5 hectares)

Subgrade 3a

- 3.9 The entire agricultural area has been mapped as subgrade 3a and corresponds with the light textured soils described in paragraph 2.7.3. The ALC grade assigned to this land is due to the presence of a slowly permeable layer at depth (ie wetness class III), which imposes a modest limitation, in association with the sandier upper horizon textures, on cultivation. The resulting wetness and workability imperfections limit the land to ALC subgrade 3a.

Non Agricultural

- 3.10 A small disused quarry area has been mapped as non agricultural towards the southern edge of the site.

Dishley Grange Site L11 (37.7 hectares)

Grade 2

- 3.11 Approximately one third of the site, on the western and northern boundaries, has been graded 2 and is associated with the soils which are described in paragraph 2.7.4. The soils are well drained (wetness class I) and hold moderately good reserves of available water for crop growth. Consequently the land is slightly drought prone and is restricted to grade 2 (very good quality agricultural land).

Subgrade 3b

- 3.12 The central part of the site comprises the clayey, poorly drained soils which are described in paragraph 2.7.1. Slowly permeable subsoils immediately below the heavy textured topsoils (35 cms+) result in a wetness class of IV. The above factors combine to impose a significant limitation on the wetness and workability of the site, thus the land has been graded 3b (moderate quality agricultural land).

Non Agricultural

- 3.13 The eastern third of the site is currently used as playing fields and has been shown as Non Agricultural.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1963. Solid and drift Edition
Map Sheet 156, 1:63,360.

GEOLOGICAL SURVEY OF GREAT BRITAIN (ENGLAND AND WALES) 1969.
Solid and Drift Edition Map Sheet 141, 1:63,360.

MAFF 1971. Agricultural Land Classification Map Sheet 121 Provisional, 1:63,360.

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

METEOROLOGICAL OFFICE 1989. Published climatological data for Agricultural
Land Classification.

SOIL SURVEY OF ENGLAND AND WALES 1983. Soils of Midland and Western
England, 1:250,000.

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 winter 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.

CHARNWOOD DISTRICTAL LOCAL PLAN

MAP 1: RATCLIFFE RD, SITE S5

MAP 2: SOUTH OF BLACKBERRY LANE, SITE C 2

MAP 3: EAST OF COLBY DRIVE, SITE T2

MAP 4: ROTHLEY LODGE, SITE R5

MAP 5: DISHLEY GRANGE, L11