

AGRICULTURAL LAND CLASSIFICATION

NORTH WEST LEICESTERSHIRE LOCAL PLAN

1.0 BACKGROUND

- 1.1 Two sites were surveyed by the ADAS Statutory Unit, Cambridge, in February 1994, in connection with the North West Leicestershire Local Plan. The site at Money Hill is located on the northeastern side of Ashby de la Zouch and extends to 87.4 hectares. The other site, which is located at Grange Road, Hugglescote, southeast of Coalville, and extends to 91.0 hectares.
- 1.2 The sites were examined on a structured 100 m grid basis using a dutch auger, and this information was supplemented by data collected from soil pits dug to help assess subsoil conditions in greater detail. A total of 86 auger borings were made at the Money Hill site, together with 2 subsoil pits, whilst at Hugglescote 93 auger borings and one soil pit were examined.
- 1.3 At the time of the survey, the Hugglescote site was predominantly under grass associated with a stud farm, with some winter cereals in the west of the site. The Money Hill site was a mixture of winter cereals and grass.
- 1.4 On the published provisional 1:63,360 Agricultural Land Classification Map Sheet 121 (MAFF 1962), and 120 (MAFF (1962)), the Hugglescote site is shown as grade 3 and the Money Hill site as grade 4. Since these maps are of a reconnaissance nature, designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Site specific climatic information has been obtained by interpolating data contained in the published 5 km grid dataset (Met Office 1989). This information is shown in summary overleaf.

| | Hugglescote | Money Hill |
|------------------------------|-------------|------------|
| Average Annual Rainfall (mm) | 705 | 684 |
| Altitude (m) | 150 | 140 |
| Field Capacity Days | 166 | 155 |
| MD Wheat (mm) | 88 | 95 |
| MD Potatoes (mm) | 74 | 83 |
| Accumulated Temperature (°C) | 1297 | 1308 |

- 2.2 The relatively cool temperatures and moderate rainfall for the area impose a minor limitation to crop growth and the land at both sites is therefore restricted to grade 2.

Altitude and Relief

- 2.3 The Hugglescote site lies at the head of a tributary valley of the river Sence, and falls from a maximum height of 152 m AOD around the northern and southeastern peripheries to 135 m AOD in the southwest. Shallow tributary valleys run from the north and east to the south of the site. Gradients of up to 7° were recorded on site, but these do not impose an overriding limitation to land quality.
- 2.4 The Money Hill site lies at the upper end of a tributary valley of the river Mease. The highest ground, on Money Hill itself, is 160 m AOD, and falls, generally to the south and west, to a minimum height of 130 m AOD in the southwest corner of the site. A shallow valley feature exists in the extreme north of the site. Slopes of up to 9° were measured which limit some areas in the north and central parts of the site to subgrade 3b.

Geology and Soils

- 2.5 At Hugglescote, the published 1:50,000 scale geology map sheet 155 (GSEW 1982) shows the site to comprise predominantly boulder clay overlying Mercia Mudstone with small amounts of alluvium in the valley features.
- 2.6 The published 1:50,000 scale geology map sheet 141 (GSEW 1976) shows the southern part of the Money Hill site to comprise Carboniferous shale with bands of sandstone and marl. In the northern half of the site, Triassic Keuper Sandstone

with bands of Marl outcrops and, along the extreme northern boundary, a narrow band of boulder clay drift has been mapped.

- 2.7 The published 1:250,000 scale soils map entitled "The Soils of Midland and Western England" (SSEW 1983) shows the Hugglescote site to comprise predominantly the Salop Association (*1) with a very small area of Flint Association (*2) mapped at the southwestern boundary.
- 2.8 The same map shows the Money Hill site to comprise almost entirely the Bardsey Association (*3), with the possibility of a thin strip of the Hodnet Association (*4) along the extreme northern boundary.

Hugglescote

- 2.9 One main soil type has been mapped at Hugglescote. A typical profile on this site comprises a heavy clay loam topsoil over a gleyed, heavy clay loam upper subsoil. Below 45/55 cms, the lower subsoil is a slowly permeable clay with distinct ochreous and grey mottling. In some profiles however, the slowly permeable clay lies directly under the topsoil. Over much of the site, the lower subsoil has inclusions of weathering sandstone and/or mudstone. Chalky boulder clay was occasionally encountered at depth. The soils are typically assessed as wetness class III or IV depending on the depth to slowly permeable clay.

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- (*1) Salop Association - slowly permeable, seasonally waterlogged reddish fine loamy over clayey, fine loamy and clayey soils associated with fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.
- (*2) Flint Association - reddish fine loamy over clayey soils with slowly permeable subsoil sand and slight seasonal waterlogging. Some similar fine loamy soils and some slowly permeable seasonally waterlogged fine loamy over clayey soils.
- (*3) Bardsey Association - slowly permeable seasonally waterlogged loamy over clayey and fine silty soils over soft rock. Some well drained coarse loamy soils over hard rock.
- (*4) Hodnet Association - reddish fine and coarse loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar well drained reddish fine loamy soils. Slight risk of water erosion.

- 2.10 Very occasionally, better drained variants were found, associated with the valley features, where the slowly permeable clay was encountered at lower depths. Inclusions of black shale/coal were common in these profiles and the soils were assessed as wetness class II or III. These soils however, were not widespread enough to merit a separate delineation.

Money Hill

- 2.11 Four main soil types were found at the Money Hill site.

2.11.1 The first soil type, which occurs mainly in the northwest and east of the site comprises heavy (rarely medium) clay loam topsoils which overlie gleyed, slowly permeable clay to depth. Locally, upper subsoils are heavy clay loam, and occasional bands of red clay and/or coal/shale bands are found in the profile. The soils are assessed as wetness class IV, occasionally III.

2.11.2 The second soil type is found in the north of the site and is derived from the underlying Keuper Marl deposits. Profiles typically comprise medium clay loam topsoils over medium or heavy upper subsoils which in turn overlie red, slowly permeable clay at depths between 45/70 cms. Weathering sandstone is occasionally encountered at depth in the profile. Despite the presence of occasional large earthworm channels, the clay is still considered to be slowly permeable. Wetness class is therefore assessed as II, and III where the clay is higher in the profile.

2.11.3 The third soil unit covers most of the lower lying land in the south of the site and is thought to be derived from watersorted boulder clay deposits which are extremely variable over short distances. Soil profiles comprise topsoils which are typically medium clay loam, over subsoils which may vary from deep medium clay loam to sandy clay loam, to slowly permeable clay. In many profiles sandy lenses were found and occasionally pockets of shale/coal were encountered. The majority of these soils were assessed as wetness class III, although better and poorer drained variants occur locally.

2.11.4 The fourth soil unit occurs in a small area around Money Hill itself, and corresponds to outcrops of sandstone within the Keuper Marl. Profiles comprise medium clay loam topsoils over loamy sand/sandy loam upper subsoils, over medium sand. Occasionally, clay is encountered at depths below 80 cms, whilst in

other profiles weathering sandstone was present. Wetness class is generally assessed as I or II.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 Hugglescote has been graded predominantly 3b, and Money Hill as a mixture of grades 2, 3a and 3b. A full breakdown of grades, in hectares and percentage terms, is given below.

| GRADE | AGRICULTURAL LAND CLASSIFICATION | | | |
|------------------------|----------------------------------|------|------------|------|
| | HUGGLESCOTE | | MONEY HILL | |
| | ha | % | ha | % |
| 2 | - | - | 17.9 | 20.5 |
| 3a | - | - | 41.9 | 47.9 |
| 3b | 79.5 | 87.4 | 25.5 | 29.2 |
| Non Agricultural | 4.2 | 4.6 | 1.1 | 1.2 |
| Woodland | - | - | 0.4 | 0.5 |
| Agricultural Buildings | 1.3 | 1.4 | 0.6 | 0.7 |
| Urban | 4.4 | 4.8 | - | - |
| Waterbodies | 0.4 | 0.5 | - | - |
| Unsurveyed | 1.2 | 1.3 | - | - |
| Total | 91.0 | 100 | 87.4 | 100 |

3.2 A full description of the ALC grades is given in Appendix 1.

Hugglescote

Subgrade 3b

3.3 The majority of the Hugglescote site has been graded 3b and corresponds principally to the soils described fully in paragraph 2.9. The shallow depth to clay results in a moderately severe wetness and workability limitation which excludes the land from a higher grade. Although some better drained profiles occur (as described in paragraph 2.10), they are too scattered to delineate separately.

Non Agricultural

3.4 Non Agricultural land has been mapped at the north and west peripheries and on the lowlying ground in the south of the site, comprising scrub land and a small area of builders rubble.

Agricultural Buildings

- 3.5 The Louella Stud Farm, at the southeast boundary of the site falls into this category.

Urban

- 3.6 The railway which runs through the centre of the site in a north-south direction has been mapped as urban.

Open Water

- 3.7 The pond in the south of the site, surrounded by non agricultural land, is mapped as open water.

Unsurveyed

- 3.8 A small pony paddock in the extreme west of the site was unsurveyed due to access problems.

Money Hill

Grade 2

- 3.9 An area of grade 2 has been mapped at the northern end of the site and corresponds to the soils developed on the Keuper Marl deposits described in paragraphs 2.11.2 and 2.11.4. The better drained (wetness class II) soils developed on red clays described in paragraph 2.11.2 are restricted to this grade due to a minor wetness and workability limitation. In the case of the sandy soils described in paragraph 2.11.4, the less droughty variants which overlie clay at depth have been included within this grade due to a minor droughtiness impediment.

Subgrade 3a

- 3.10 Two areas of subgrade 3a have been mapped, a small area at the northeast of the site and a larger area covering the majority of the lower lying land on the southern half of the site. The smaller area comprises the poorer drained soils developed on

the Keuper Marl deposits described in paragraph 2.11.2. These soils, which are assessed as wetness class III due to the shallower depth to the underlying slowly permeable clay, are restricted to this grade due to a moderate wetness and workability limitation.

- 3.11 The larger area comprises the more droughty variants of the soils described in paragraph 2.11.4 and the variable soils developed in the water sorted boulder clay deposits described in paragraph 2.11.3. The former, which occur on the southern side of Money Hill itself, have sandy subsoils horizons giving rise to moderately low available water capacities. The soils therefore have a moderate summer droughtiness limitation restricting them to this grade.

The soils described in paragraph 2.11.3 are restricted to this grade largely due to a wetness and workability limitation. They are generally assessed as wetness class III, although better drained variants often occur in close proximity, giving rise to considerable variability within the mapping unit. This variability, found to occur over short distances, prevents the delineation of different grades and has therefore resulted in the whole of this area being mapped as subgrade 3a.

Subgrade 3b

- 3.12 This land lies in the west and east of the site and corresponds to the poorly drained, clayey soils described in paragraph 2.11.1. A moderately severe winter wetness and workability limitation restricts the land from a higher grade.
- 3.13 Small areas around Money Hill itself and to the northwest of Lawn Barn have slopes of up to 9°, restricting these areas to subgrade 3b.

Agricultural Buildings

- 3.14 The farm buildings at Money Hill Farm are mapped in this category.

Non Agricultural

- 3.15 An area in the north of the site is mapped as non-agricultural and comprises scrubby grass, occasionally used as an access route.

Woodland

3.16 A small woodland exists to the south of Lawn Barn.

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REFERENCES

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1:63,360 scale.

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dataset.

SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 3. Soils of Midland and
Western England, 1:250,000 scale.

SOIL SURVEY OF ENGLAND AND WALES, 1984. Soils and their use in Midland
and Western England. J M Ragg *et al.* Harpenden.

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 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 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.