Cambs 38/94

AGRICULTURAL LAND CLASSIFICATION
LAND AT RAF NEWTON
NOTTINGHAMSHIRE

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1.0 BACKGROUND

1.1 The site comprises two areas, the larger western site and the smaller eastern site covering 12.3 hectares in total, and is the subject of an application by the Ministry of Defence for an Airfield Damage Repair training area. In May 1994 ADAS Statutory Resource Planning Team undertook an Agricultural Land Classification (ALC) survey, carrying out a total of 13 auger borings. In addition two soil inspection pits were dug to provide more detailed information on subsoil conditions.

1.2 At the time of the survey the majority of the site was in cereal production with small areas of concrete in the southern part of both areas.

1.3 On the published 1 : 63 360 scale ALC map, sheet 112 (MAFF 1970) the whole survey area is mapped as Grade 2 land. This map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality for the site.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

2.1 Climate

2.1.1 Climate data was obtained from the published agricultural climatic dataset (Met Office, 1989). This indicates that for the survey area's average altitude of 55m AOD, the annual average rainfall is 605mm (23.8"). It also indicates that field capacity days are 123 and the moisture deficits for wheat and potatoes are 112mm and 105mm respectively. These climatic characteristics do not impose any climatic limitation of the ALC grade of the site.

2.2 Altitude and Relief

2.2.1 The site is situated on the plateau to the south east of the Trent Valley and ranges in altitude from 57m AOD near Lawson's Barn Farm to 51m AOD in the south east corner of the site. A small ridge runs in a westerly direction across the site

from Lawson's Barn Farm with the land falling gently to the north and south with slopes not exceeding 3°. Neither gradient nor altitude constitute limitations to the ALC grade.

2.3 Geology and Soils

2.3.1 The published 1: 50 000 scale solid and drift edition geology map, sheet 126 (Geological Survey of England and Wales 1972) shows the whole site to comprise Permo - Triassic Keuper Marl.

2.3.2 No detailed soil map is available of the area but the reconnaissance 1:250 000 scale soil map "Soils of Midland and Western England" (Soil Survey of England and Wales 1983) shows the presence of a single soil association, Dunnington Heath (*1). During the current more detailed survey work two variants of a single type were identified which correspond well with the description of Dunnington Heath soils.

2.3.3 The first soil variant is found to the north west of Lawson's Barn Farm. Typically, these soils comprise very slightly stony non calcareous sandy clay loam topsoils to a depth of 30/35cms over slowly permeable red clay subsoils. Subsoils are typically very slightly stony and non calcareous throughout. Soils have been assessed as wetness class III due to the shallow depth to the slowly permeable clay.

2.3.4 The second soil variant is found over the remainder of the areas and comprise sandy clay loam or medium sandy loam topsoils which are typically very slightly stony and non calcareous. Upper subsoils comprise similar textures and stone content to typically 45/65cms depth. The lower subsoil comprises slightly stony slowly permeable red clay. Profiles are typically assessed as wetness class II but very occasionally clay is encountered below 80cms and these profiles have been assessed as wetness class I.

(*1) Dunnington Heath Association: Reddish coarse and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the ALC grades are included in Appendix 1.

3.2 The 2 areas have been mapped largely as Grade 2 (very good quality agricultural lane) with an area of subgrade 3a land (good quality agricultural land) to the north west of Lawson's Barn Farm. Concrete hard standing areas in the south of both sites have been mapped as urban. The table below shows the breakdown of the grades in hectares and percentage terms for the survey area.

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Grade	ha	%
2	7.5	61
Subgrade 3a	4.0	32.5
Urban	0.8	6.5
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TOTAL	12.3	100

3.3 Grade 2

Grade 2 land is associated with the fine and coarse loamy textured soils described in paragraph 2.3.4. These soils are generally assessed as wetness class II and the land is limited by a combination of minor winter wetness and summer droughtiness constraints.

3.4 Subgrade 3a

Land classed as 3a is associated with the soils described in paragraph 2.3.3. Soil drainage is moderate (wetness class III), and this combined with the fine loamy topsoils excludes the land from a higher grade on wetness and workability grounds. Also where slowly permeable clay is encountered at depth in the profile (paragraph 2.3.4) moderate droughtiness restricts the land to subgrade 3a.

3.5 Urban

Concrete hard standing areas are mapped as urban.

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REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN (ENGLAND AND WALES) 1972. Solid and Drift Edition, Sheet 126, Nottingham, 1:50,000 scale.

MAFF 1970. Agricultural Land Classification Map (Provisional), Sheet 112, 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 AND WALES 1983. Soils of Midland and Western England, Sheet 3, 1:250,000 scale.

SOIL SURVEY OF ENGLAND AND WALLS 1984. Soils and their use in Midland and Western England by 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.