AGRICULTURAL LAND CLASSIFICATION
LOWDHAM GRANGE, LOWDHAM, NOTTINGHAMSHIRE

1. BACKGROUND

1.1 This site, of approximately 211ha, was inspected during August and September 1993 in connection with development proposals for commercial, social, residential and leisure uses. A total of 84 soil inspections were made at a density of one every two hectares on the agricultural land on the site. This data was supplemented by observations from three soil profile pits. At the time of survey all of the agricultural land on the site was under ley or permanent grassland.

1.2 On the provisional 1:63,360 scale agricultural land classification (ALC) map (MAFF, 1970), the survey area is shown as principally Grade 3 with a small area of Grade 2 in the north eastern corner of the site. The current survey was undertaken to provide a more detailed representation of agricultural land quality.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was extrapolated from data contained within the published agricultural climatic data set (Met. Office, 1989). This indicates that average annual rainfall is 653mm and that the soils are at field capacity for 136 days in the average year. Moisture deficits are 104mm for wheat and 94mm for potatoes, and the accumulated temperature (January to June) is 1358 day°C. These climatic characteristics do not impose any limitations on ALC grade.

Altitude and Relief

2.2 The site occupies level to strongly sloping land between altitudes of 32m (in the north-east) and 91m (in the west). Slopes of between 8° and 11° in some parts of the site limit the land in these areas to Subgrade 3b.

Geology

2.3 The 1:63,360 scale geology map (Sheet 126, Solid and Drift edition) shows most of the site to be underlain by deposits of Keuper Marl, with small areas of Waterstones (consisting of flaggy sandstones and marl) in the south-east and north-east. There are no drift deposits marked,

with the exception of a narrow band of alluvium adjoining Cocker Beck, in the south-east of the site.

Soils

2.4 No detailed soil maps exists for this area but the generalised 1:250,000 scale soil map (Soil Survey of England and Wales, 1983) shows the occurrence of the Worcester Association over most of the site, with the Hodnet Association in the north-eastern and south-eastern corners.

2.5 Over the majority of the site soil profiles typically consist of stoneless medium clay loam or heavy clay loam topsoils overlying reddish heavy clay loam or clay subsoils. The subsoils, which form slowly permeable layers, generally begin at between 25cm and 35cm depth and profiles are usually poorly drained, falling in Wetness Class IV.

2.6 The soils in the south-eastern corner of the site and in a small area in the east are better drained than those described above. Profiles in these areas are well or moderately well drained (falling in Wetness Classes I or II) and typically consist of stoneless sandy loam or medium clay loam topsoils overlying reddish sandy loam, sandy clay loam or medium silty clay loam subsoils. Clay lower subsoils occur at depth in places.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site is predominantly Subgrade 3b, with two small areas of Grade 2 land in the east and south-east. Non-agricultural land occurs in the east (a cricket ground) and west (a landing strip), farm woodland occurs in the north-west (Ploughman Wood), and Agricultural Buildings occur at Hunters Hill Farm, in the south of the site. The former Borstal and associated houses and roads in the centre of the site are classified at Urban land.

ALC Grade	Ha	%
2	15.2	7.2
3b	148.8	70.5
Non-Agricultural	30.0	14.2
Agricultural Buildings	1.5	0.7
Urban	15.7	7.4
Total	211.2	100.00

Grade 2

3.2 Grade 2 land is mapped in the east and south-east of the site, in two separate areas. The soils are described in Paragraph 2.6 and the land is limited to Grade 2 by slight soil wetness and a slight pattern limitation.

Grade 3b

3.3 Subgrade 3b land covers the remainder of the agricultural land on the site. The soils are as described in Paragraph 2.5 and the land is limited to subgrade 3b by soil wetness and workability restrictions.

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LOWDHAM GRANGE, LOWDHAM, NOTTINGHAMSHIRE

SOIL PROFILE DESCRIPTIONS

PIT 1 (Boring 156)

Slope: 1°s
Land Use: Ley Grassland
Weather: Bright and warm

Depth cm	Description
0-35	Brown (7.5 YR 4/2) medium silty clay loam; few distinct brown (7.5YR 5/4) mottles; stoneless; slightly moist; moderately developed coarse angular blocky structure; very firm soil strength; slightly porous; abrupt wavy boundary
35-120	Reddish brown (5YR 4/3) heavy clay loam (containing lenses of light reddish yellow (5YR 7/6) medium silty clay loam); common distinct dark reddish grey (5YR 4/2) mottles; stoneless; slightly moist; weakly to moderately developed medium prismatic structure; extremely firm soil strength; slightly porous (>0.5% pores >0.5mm) with many large worm cases 4-5mm wide.

PIT 2 (Boring 119)

Slope: 3°S
Land Use: Ley Grassland
Weather: Bright and warm

Depth cm	Description
0-35	Dark reddish brown (5YR 3/3) medium silty clay loam; no mottles; stoneless; slightly moist; well developed coarse angular blocky structure; firm soil strength; very slightly porous; smooth, clear boundary.
35-110	Dark reddish brown (2.5YR 3/3) and light olive grey (5Y 6/2) clay; few distinct mottles; stoneless; dry, well developed coarse to very coarse prismatic structure; very firm to extremely firm soil strength; very slightly porous (<0.5% pores >0.5mm)