AGRICULTURAL LAND CLASSIFICATION

KINGS LYNN LOCAL PLAN, LAND AT WATLINGTON - OPTION 2

1.0 INTRODUCTION

1.1 The site, an area of 32.1 hectares, is the subject for an application for residential development. MAFF surveyed the site in December 1991 at an auger boring density of approximately 1 per hectare. The borings were supplemented by 2 soil inspection pits in order to assess subsoil conditions.

1.2 On the published Agricultural Land Classification Map sheet No 124 (Provisional scale 1:63,360, MAFF 1972) the area is mapped as grade 2. The current survey was undertaken to provide a more detailed representation of the agricultural land quality.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was obtained from the agricultural climatic dataset (Met Office, 1989). This indicates that for the sites modal altitude of 8m AOD the annual average rainfall is 583 mm (22.9"). This data also indicates that the field capacity days are 109 and moisture deficits are 118 mm for wheat and 113 mm for potatoes. The climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site but in this dry area soils require high water holding capacities to reduce the droughtiness risk.

Altitude and Relief

2.2 The survey site slopes very gently to the south eastern corner and has an average altitude of approximately 8m AOD. Gradient and altitude do not constitute any limitation to the ALC grade.

Geology and Soils

2.3 The published ¼" to 1 mile solid and drift geology map sheet No 12 (1953) shows the site mainly to comprise fen and valley gravels or loams with Kimmeridge Clay outcropping in the south eastern quarter.

2.4 The Soil Survey of England and Wales have mapped the soils on two previous occasions. Firstly, in 1973, at a scale of 1:100,000 and secondly in 1983 at a reconnaissance scale of 1:250,000. These maps broadly agree and the latter map indicates that the land comprises sandy and coarse loamy Downham Association (*1). The soils observed during the MAFF survey were generally consistent with the published maps although some heavier subsoil textures were encountered towards the centre of the site. Two soil types were identified.

2.4.1 The first soil type represents the lighter textured soils and occurs over the majority of the site with the exception of a central band of heavier land in the vicinity of the lake. Profiles typically comprise very slightly or slightly stony sandy loam and loamy sand topsoils which overlie loamy sand (occasionally sandy loam) upper subsoils. The lower subsoils are typically sandy in texture and slightly to moderately stony, although heavier horizons may be encountered at depth. Profiles are well drained and have been assessed as Wetness Class I.

2.4.2 The second type occurs in central portion of the site and represents the better bodied soils. Profiles typically comprise very slightly or slightly stony medium sandy loam (occasionally sand clay loam) topsoils over similar or heavier upper subsoils. These overlie clay loam or clay lower subsoils (45/65 cm+) which are commonly slowly permeable and therefore these profiles have been assessed as Wetness Class II. These soils are variable and sandier pockets or horizons occur sporadically within some of these profiles.

(*1) DOWNHAM ASSOCIATION. Deep permeable sandy and coarse loamy often ferruginous soils variably affected by ground water. Some well drained sandy soils on higher ground.

3.0 AGRICULTURAL LAND QUALITY

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

3.2 The table below shows the breakdown of the ALC grades for this site.

	Agricultural Land Classification	
Grade	ha	%
3a	16.4	51.1
3b	13.2	41.1
Non Agricultural	2.2	6.9
Agricultural Buildings	0.3	0.9
TOTAL	32.1	100.0

3.3 Subgrade 3a

3.3.1 Approximately half the site has been mapped as subgrade 3a. It is associated with the soils described in section 2.4.2 and the deeper medium sandy loam variant of the soils described in 2.4.1. In all these profiles droughtiness is the overriding limitation to the grade. In the more clayey profiles the heavier textures and poor subsoil structures combine with the dry climate to produce profiles with a moderate droughtiness limitation. In the remaining profiles coarse soil textures (especially in the lower subsoils) and locally profile stone content combine to produce a similar droughtiness limitation.

3.3.2 Due to the variable nature of these soils some profiles of grade 2 or subgrade 3b were located within this area of subgrade 3a but these comprise too small an area to delineate separately at this scale.

3.4 Subgrade 3b

3.4.1 The subgrade 3b land has been mapped in two separate locations. Firstly on the western side of the site and secondly in the south eastern corner. Both these areas are associated with the soils described in section 2.4.1.

3.4.2 Due to the combination of coarse soil textures and profile stone content these soils have low water holding capacities and as a result have a significant droughtiness limitation. Droughtiness is therefore the overriding limitation to the grade in both these areas of subgrade 3b land.

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References

GEOLOGICAL SURVEY OF ENGLAND & WALES (1953). Solid and Drift geology map, Sheet No 12, ¼" to 1 mile scale.

MAFF (1972). Agricultural Land Classification Sheet No 124, 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).

METEOROLOGICAL OFFICE (1989). Climate data extracted from the published Agricultural Climatic Dataset.

SOIL SURVEY OF ENGLAND & WALES (1973). Map entitled "Soils of Norfolk", 1:100,000 scale.

SOIL SURVEY OF ENGLAND & WALES (1983). Sheet No 4, *reconnaissance survey*, 1:250,000 scale.

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 includes 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 root 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 will affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. When more demanding crops and 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 level of yields. It is mainly suited to grass with occasional arable crops (eg cereal and forage crops) the yields of which are variable. In moist 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.