

AGRICULTURAL LAND CLASSIFICATION INCORPORATING

SOIL PHYSICAL CHARACTERISTICS, COXFORD HEATH, NORFOLK

1. BACKGROUND

1.1 The Site, an area of 61.1 hectares, is the subject of an application, by Longwater Gravel Ltd, for the extraction of sand and gravel at Coxford Heath, Norfolk. Just over the half the site is non agricultural (coniferous woodland). MAFF surveyed the site in July 1991 at an auger boring density of approximately one per hectare. In addition 3 inspection pits were used to assess subsoil conditions.

2. SITE PHYSICAL CHARACTERISTICS

2.1 Climate

Climatic data for the site was obtained from the published agricultural climatic dataset (Met Office, 1989). This indicates that for the site's mid range altitude of 60m AOD the annual average rainfall is 703 mm (28.7"). This data also indicates that the field capacity days are 148 and moisture deficits are 102 mm for wheat and 92 mm for potatoes. The climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site.

2.2 Altitude and Relief

The survey area lies on gently sloping land falling from approximately 70m AOD on the western edge to approximately 50m AOD on the eastern edge. Gradient and altitude do not constitute limitations to the ALC grade.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification (ALC) grades are included in Appendix 2.

3.2 The table below shows the breakdown of the ALC grades for the survey area.

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
3b	29.6	48.4
Non Agricultural	31.5	51.6
Total	<u>61.1</u>	<u>100</u>

3.3 Subgrade 3b

All the agricultural land has been graded 3b. The soils typically comprise coarse loamy or sandy topsoils over sandy and moderately to very stony subsoils. The combination of coarse textures and stoniness result in a low water holding capacity and therefore these soils are significantly droughty. In addition much of agricultural land in the southern half of the site has a topsoil stone content (>2cm) of 15-20%, preventing this land from attaining a higher ALC grade.

4. SOIL PHYSICAL CHARACTERISTICS

4.1 GEOLOGY

The published 1: 253,440 scale drift edition geology map sheet 12 (Geological Survey of Great Britain 1971) shows the survey area to comprise glacial sand and gravel deposits.

4.2 Soils (Refer to Appendix 1)

During the survey two main soil types were identified.

4.2.1 SOIL TYPE 1

The agricultural soils typically comprise very slightly to moderately stony medium sandy loam or loamy medium sand topsoils which overlie similar or stonier upper subsoils. Often these soils became sandy and stonier at depth.

SOIL TYPE 2

- 4.2.2 The soils under the coniferous woodland typically comprise slightly to moderately stony organic sandy topsoils which are variable in depth. (10-40 cm) and may be acidic in nature. The subsoils are similar to those described in SOIL TYPE 1, typically sandy textures and moderate to very stony. In addition some subsoil horizons may be strongly acidic.

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RESOURCE PLANNING GROUP
Cambridge RO

Additional Information

Calcium carbonate: profiles were typically non calcareous

Rooting : rooting is evident throughout the profiles

Drainage status : Freely draining

SOIL TYPE 2

Topsoil texture: loamy medium sand occasionally medium sand or medium sandy loam.

Stone: very slightly to very stony

Organic matter: organic (average 8%)

depth: Variable depth in the range of 10 to 40cm (average 25 cm)

Upper subsoil texture: loamy sand occasionally medium sandy loam.

stone: Slightly to very stony (flints)

Structure: Weakly developed medium subangular blocky or too stony to assess,

Consistence: very friable

depth: 40/65 cm

Lower subsoil texture: loamy medium sand occasional medium sand

stone: moderately to very stony occasionally slightly stony.

Structure: Too stony to assess

Consistence: Very friable

depth: 120 cm

Additional Information

Calcium carbonate: profiles are non calcareous

Rooting : rooting is evident throughout the profile except where strongly acidic subsoil horizons are encountered.

Drainage status : Freely draining

pH : Strongly acidic (<pH 4.5) topsoil and subsoil horizons may be encountered within this soil type.

Appendix 2

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 which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. When 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 level 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.

References

GEOLOGICAL SURVEY OF GREAT BRITAIN (1971). Solid and drift edition geology map sheet 12. Scale 1: 253,440.

MAFF (1988) Agricultural Land classification of England and Wales (Revised Guidelines and criteria for grading the quality of agricultural land). Alnwick.

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