

KENT MINERALS LOCAL PLAN
AGRICULTURAL LAND CLASSIFICATION

REPORT OF SURVEY

1. BACKGROUND

- 1.1. In February 1991 a detailed Agricultural Land Classification (ALC) was carried out at Nepicar Farm, Wrotham Heath as part of the statutory response of MAFF to the Kent Minerals Local Plan. Nepicar Farm was one of several sites surveyed, and is referenced as Site H in the Minerals Plan.
- 1.2. The fieldwork was conducted by the Resource Planning Group at an approximate observation density of 1 auger boring per hectare, corresponding to a mapping scale of 1:10,000. A total of 15 borings and 3 soil pits were examined.
- 1.3. *At the time of survey (February 1991), the site was predominantly under permanent grassland, with an area to the south west of Nepicar House and another in the extreme west of the site under non agricultural use (shrub & trees).*

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief.

- 2.1. *The site varies in height from just over 100m in the south west, to 70m in the northeast. Gradient is a limitation in small areas in the extreme south west, and south of Nepicar House, but over the rest of the site does not form a significant limitation.*

Climate

2.2.

- 2. Estimates of important climatic variables were obtained for the site by interpolation from a 5 km grid Met Office/MAFF database in order to assess any overall climatic limitation. The indicative parameters for assessing such a limitation are accumulated temperature (a measure of the relative warmth of a locality) and average annual rainfall (A measure of overall wetness). The results are given in Table 2 below, which show there is no overall climatic limitation to the grade of the land. However the relatively low field capacity days and high moisture deficits are potentially important in determining the final grades of the survey area. No local climatic limitations were observed.

Climatic Interpolations

Grid reference	TQ 623578	TQ 626580
Altitude (m)	100	85
Average Annual Rainfall (mm)	725	718
Accumulated Temperature (° days)	1395	1412
Field Capacity (days)	148	147
Moisture Deficit, Wheat (mm)	104	107
Potatoes (mm)	95	98
Climatic grade	1	1

Geology & Soils

- 2.3. British Geological Survey Sheet sheet shows the site to be underlain by Gault clay and the sandy Folkestone beds. The Gault clay is found over much of the northern part of the site, with Folkestone beds found in the southerly areas.
- 2.4. Soil survey of England & Wales Sheet 6, soils of south-east England (1983), shows the land associated with Gault clay comprising Denchworth series soils, namely slowly permeable, seasonally waterlogged clayey soils, and the land associated with the Folkestone beds comprising the Fyfield 2 series, namely well drained coarse loamy and sandy soils over sands and sandstone.

- 2.5. Detailed field examination of the soils indicates that there are three soil types across the site.
- 2.6. Firstly and most extensively are deep fine loamy soils, comprising a dark greyish brown medium clay loam (occ. medium silty clay loam or heavy clay loam), sometimes gleyed topsoil, over heavy clay loam subsoils, which may also be mottled & gleyed. The soils are placed in wetness classes I & II, and are found in the centre of the site.
- 2.7. Secondly, and associated with the sandy Folkestone Beds, to the south and east of the site, are well drained deep sandy soils, comprising dark brown medium sandy loam (occ. sandy clay loam) topsoils over medium sandy loam or sandy clay loam subsoils, with no evidence of gleying above 80cm. Soils are therefore assigned to wetness class I.
- 2.8. Thirdly, associated with the Gault clay to the west of the site, are poorly drained fine loamy over clayey soils. Soils comprise a dark greyish brown medium/heavy clay loam occasionally mottled and gleyed topsoil, over slowly permeable gleyed clay. Soils are assigned to wetness classes III & IV.

3. AGRICULTURAL; LAND CLASSIFICATION

3.1. Distribution of the Grades and Sub-grades*

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Survey Area</u>	<u>% of Agricultural land</u>
1	2.6	16.8	23.7
3a	6.11	39.5	55.8
3b	1.95	12.6	17.8
4	0.3	1.9	<u>2.7</u>
Non-Agric	2.9	18.8	100% (10.9 ha)
Farm Bdgs	0.75	4.9	
Urban	<u>0.85</u>	<u>5.5</u>	
	15.46 ha	100%	

3.2. Appendix 1 gives a general description of the grades & subgrades identified in this survey.

3.3

GRADE 1

There are two areas of Grade 1. All soils described in section 2.7 are assigned to this grade.

The soils comprise dark greyish brown/brown (10YR 4/2-4/3) stoneless, non calcareous medium sandy loam or sandy clay loam topsoils, over yellowish/dark yellowish brown or brown (10YR 5/4, 5/6, 4/4, 5/3, 7.5YR 5/4), stoneless medium sandy loam or sandy clay loam subsoils, which may be mottled and gleyed. Sandy clay loam profiles are found to predominate in the more westerly area, and show no signs of wetness, whereas the sandy loam profiles in the more easterly area often show evidence of wetness immediately below the topsoil. A soil examination pit revealed the subsoils to be of moderate structure (strongly developed coarse firm angular blocky becoming moderately developed coarse friable subangular blocky below 80 cm).

All soils in this grade are wetness class I (ie well drained), and though evidence of wetness (mottling and gleying) may be found in the profiles of some soils (notably southeast of Nepicar House), this is not associated with a slowly permeable layer of soil, thus these soils still fall into wetness class I, due to the subsoils being coarse textured (<18% clay). The soils hold large amounts of available water, and so are not droughty, and are thus assigned to grade 1.

3.4

GRADE 3a

Land of grade 3a forms a continuous band across the site from northeast to southwest and occupies over half the agricultural land in this survey. All soils described in section 2.6 are assigned to this grade. The soils comprise dark greyish brown (10YR 4/2), stoneless, non calcareous medium clay loam (occ. medium silty clay loam) topsoils, which may be mottled and gleyed, over heavy clay loam, yellowish brown (10YR 5/4, 5/6, 5/8), stoneless heavy clay loam subsoils, which are slowly permeable where signs of wetness are evident. Subsoil structures are moderately well developed angular blocky, and contain less than 0.5% biopores. Subsoils are usually gleyed or show some signs of wetness (ie mottling).

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Soil wetness is the most limiting factor in these soils. Evidence of wetness (mottling and gleying), is present within the slowly permeable subsoil layers in the majority of the soil between 30 and 60 cm+, thus placing the soils in wetness class 3, which associated with the soil textures assigns the soils to grade 3a.

* 3.5 GRADE 3b

There are two small areas of grade 3b slopes in the survey area, where the slopes are between 7 and 11 degrees. This in itself is sufficient to reduce the grade to 3b. A larger area of this grade in the west is limited by soil wetness.

Soils here consist of brown or occasionally dark grey (10YR 5/3, 4/1) stoneless heavy clay loam topsoils, over slowly permeable greyish brown or light greyish brown (10YR 5/2, 6/2) stoneless clay subsoils, which are poorly structured (weakly developed coarse sub angular blocky friable <0.5% biopores). The soils are mottled and gleyed, often in the topsoil, though all soils are mottled and gleyed below 40 cm. The slowly permeable clay subsoils are found below a depth of 20-40 cm. This results in the soils being placed in wetness class 4 (3, where gleying and slowly permeable layer is deeper ie 40 cm), which given the heavy clay loam topsoils, places these soils in grade 3b.

3.6. GRADE 4

There is a small area of grade 4 slopes (12°) in the west of the site. Slopes alone are sufficient here to reduce the grade to 4, regardless of soil properties.

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Ref:

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REFERENCES

- MAFF (1988) Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.
- METEOROLOGICAL OFFICE (1989) Climatological Datasets for Agricultural Land Classification.
- SOIL SURVEY OF ENGLAND AND WALES (1983), Sheet 6, Soils of South East England.
- SOIL SURVEY OF ENGLAND AND WALES (1984), Bulletin 15, Soils and their use in South East England.
- BRITISH GEOLOGICAL SURVEY (1976) Sheet 288, Maidstone, solid and drift.