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**AGRICULTURAL LAND CLASSIFICATION**

**LAND AT NAPPERS LAND OFF SANDRINGHAM ROAD**

**DIDCOT OXFORDSHIRE**

## AGRICULTURAL LAND CLASSIFICATION

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### 1 BACKGROUND

1 1 Land on this 3 49 ha site was inspected on 1 August 1989 in connection with residential development proposals 9 auger boring tests were made together with 1 soil inspection pit At the time of survey the site which forms part of a larger enclosure was in wheat production

### 2 PHYSICAL FACTORS AFFECTING LAND QUALITY

#### Relief

2 1 The site lies at approximately 60m A O D on the gentle slopes of a small ridge which forms part of a bench near the foot of the chalk escarpment The lowest land occurs along the northern boundary of the site Gradients on the site are not a limitation in terms of the agricultural land quality

#### Climate

2 2 Site interpolated meteorological data (Met Office 1989) indicates an average annual rainfall of 565 mm which is low in a national context The accumulated temperature\* a measure of the relative warmth of a locality is 1451 day degrees A field capacity day value of 121 days is obtained which is relatively low and reflects the dry climate of the area Crop adjusted moisture deficits of 114 mm and 108 mm respectively for wheat and potatoes are calculated Climatic factors per se place no limitation on the land classification grade on the site but with affect interactions between soil and climatic factors namely soil wetness and droughtiness

#### Geology and Soils

2 3 The published geological map for the site (Sheet 254 \_I G S 1978) indicates that the land lies within an area of Upper Greensand deposits close to the boundary with the Gault Clay Detailed survey of the site indicates that the soils are consistent with those developed from Upper Greensand and comprise non or very slightly calcareous soils having fine sandy silt loam or medium silty clay loam topsoils usually, overlying similar textured subsoils which frequently have a higher clay content (i e becoming clay or silty clay) with increasing depth Soils are very slightly to slightly stony containing small fragments of malmstone a fine soft sandstone At two sampling locations impenetrable malmstone was encountered within the subsoil

2 4 The topsoils are typically grey or dark grey brown in colour passing to greyish brown light greyish brown and olive grey subsoils The colour reflects the mineralogy of the Upper Greensand deposit Faint ochreous mottling was noted in subsoil horizons but detailed examination of the soil indicated that this was derived from weathered sandstone fragments and could not in most cases be attributed to soil wetness This phenomena is also recorded for these soil types in published Soil Survey of England and Wales Bulletins (Jarvis 1973 SSEW 1984) Signs of wetness (including more prominent ochreous mottling) was however observed at depths below 60-80 cm in some soil profiles where heavier silty clay was found The soils were allocated to wetness classes I and II

\*Median accumulated temperature above 0 C January to June

3 AGRICULTURAL LAND CLASSIFICATION

Grade 2

- 3 1 The site has been mapped as grade 2 overall with the main agricultural limitations being minor wetness and droughtiness restrictions. As described in paragraph 2.4 the soil profiles have been allocated to wetness classes I and II. This gives no or minor wetness limitations given the medium textured topsoils. The high content of silt and fine sand in the topsoils can however result in surface capping which was noted at the time of survey. Minor droughtiness restrictions also arise at some locations in response to the dry climate particularly where impenetrable malmstone occurs within 1 metre or where clay content is slightly higher. Nevertheless soils on the site form easy working land capable of growing a wide range of crops.

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MAFF Reading

Sources of Reference

INSTITUTE GEOLOGICAL SCIENCES (1978) 1:50 000 Scale Solid and Drift Edition  
Geology Map Sheet 254 (Henley-on-Thames)

- JARVIS M G (1973) Soils of the Wantage and Abingdon District. Memoir of Sheet 253. Soil Survey of England and Wales.

MAFF (1988) Agricultural Land Classification in 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 (1984) Soils and their use in South East England. Bulletin No 15.

NAPPER S LAND OFF SANDRINGHAM ROAD DIDCOT OXFORDSHIRE

AUGER BORING SCHEDULE

1	Wheat	few malmstone fragments on surface and throughout profile		
	0-35	FSZL	10 YR 4/1	
	35-45	FSZL	10 YR 5/1	
	45-65	ZL/MZCL	2 5 Y 5/2	Increasingly clayey
	65-100+	ZC	5 Y 6/2 and 5 Y 5/2	Common faint and distinct ochreous mottles and Mn concs Gleyed
			Wetness Class II	Grade 1
2	Wheat	few malmstone fragments on surface and throughout profile		
	0-30	MZCL	2 5 Y 4/2	Non-calc
	30-35	MZCL	2 5 Y 5/2	Occasional lumps of yellow/orange weathered ironstone
	35-60	HZCL	2 5 Y 5/2	Ochreous patches weathered ironstone
	60-100	ZC	5 Y 5/2	Prominent mottles 7 5 YR 4/6 (gleyed) Containing lenses of pale grey FS bleached
			Wetness Class II	Droughty Grade 2
3	Upper slopes wheat	Few malmstone fragments on surface and throughout profile		
	0-30	MZCL	2 5 Y 4/2	
	30-50	ZC	2 5 Y 5/2	Weathered gresand inclusions Some inclusions of pale sand 2 5 Y 8/2 and 2 5 Y 8/8 Becoming paler and greener with depth
	50-70	ZL	5 Y 6/2	
	70-90	ZCL	5 Y 6/2 matrix	Many pale inclusions 5 Y 7/3 2 5 Y 8/6
			Wetness Class I/II	Grade 1/2
4	Wheat	few malmstone fragments on surface and throughout profile		
	0-30	MZCL	10 YR 4/1	
	30-50	MZCL	10 YR 4/2	

8	Wheat	Few malmstone fragments throughout profile		
	0-40	MZCL	2 5 Y 4/2	Pale and yellow patches - sand Weathered greensand and malmstone
	40-70	HZCL/ZC	2 5 Y 5/4	Increasing pale and yellow patches pale 10 YR 8/1 yellow 10 YR 5/6 and 10 YR 8/8 Increasing silt content with depth
	70-90	HZCL	2 5 Y 6/2	Becoming paler
	90-100	MZCL	Colours as above	
			Wetness Class I	Droughty                      Grade 2
9	Wheat	Lower slopes		
	0-30	FSZL	10 YR 4/1	
	30-50	FSZL	2 5 Y 5/2	Occasional paler and weathered ochreous patches from parent materials
	50-80	MZCL	2 5 Y 4/2	Becoming HZCL    Occasional ochreous patches derived from orange coloured sand
	80-100	C/ZC	2 5 Y 4/2 and 2 5 Y 5/2	Common faint and distinct ochreous mottles    Probably gleyed
			Wetness Class I	Grade 1

PIT NEAR BORING 5

TOPSOIL

	0-28	MZCL	10 YR 4/1	Much undecomposed straw at c 20 cm
	28-35	MZCL	10 YR 4/2	Plough pan - massive

SUBSOIL

	35-45	MZCL	10 YR 4/2	Many very small malmstone fragments - pale and soft    Not gleyed    Moderately well developed medium and coarse prismatic friable
	45-65	HZCL	2 5 Y 5/2	Moderately well developed medium and coarse prismatic friable    Around weathered malmstone inclusions medium and coarse subangular blocky    also some coarse blocky noted    Yellow patches - weathered ironstone - from parent material (greensand?)    Porosity < 0.5% biopores    Mottling derived from weathering and parent materials - not an indication of drainage imperfection

Estimated 5% volume of malmstone fragments in soil profile as exposed

Lumps of ochreous weathered parent material - ironstone and pale sand Some inclusions of pale material

50+ Impenetrable soft sandstone (malmstone)

Droughty

Grade 3a

5 Mid slope wheat Occasional patches of platy malmstone on surface near boring Malmstone fragments throughout profile (slightly stony)

0-30 FSZL/MZCL 10 YR 4/1

30-40 FSZL/MZCL 10 YR 4/2 Paler patches and very small weathered ironstone lumps

40-100 HZCL 2 5 Y 5/2 with paler patches of 2 5 Y 7/2 and occasional yellowish inclusions of 2 5 Y 7/4 (not gleyed) No evidence of wetness Becoming ZC in bands with depth with increasing paler FS inclusions (weathered parent material)

Wetness Class I

Droughty

Grade 2

6 Wheat Few malmstone fragments throughout profile

0-60 FSZL 2 5 Y 4/2 Pale and yellow fine sand patches - 2 5 Y 7/2 10 YR 7/6 10 YR 7/8 and 10 YR 8/6

60-75 MZCL Colours as above Matrix 2 5 Y 5/2 Pale and yellow sand patches as above

75-100 FSCL Increasingly clayey Becoming FSC Possible Mn concs? Possible few distinct ochreous mottles gleyed?

Wetness Class I/II

Grade 1

7 Wheat Few malmstone fragments throughout profile

0-30 MZCL 2 5 Y 4/2 matrix Pale inclusions

30-45 C Matrix 5 Y 5/3 Increasingly pale

45-60 HZCL/ZC 2 5 Y 5/2 matrix Pale patches 5 Y 8/1 Few ochreous patches derived from parent material

60-75 ZC Colours as above

75+ Impenetrable (Malmstone)

Wetness Class I/II

Droughty

Grade 2