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WILTSHIRE MINERALS LOCAL PLAN
S69 LAND NORTH OF WATER EATON HOUSE

**AGRICULTURAL LAND CLASSIFICATION
REPORT OF SURVEY**

Resource Planning Team
Taunton Statutory Unit

November 1992

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WILTSHIRE MINERALS LOCAL PLAN
S69 LAND NORTH OF WATER EATON HOUSE

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. SUMMARY

Seventy one hectares of land north of Water Eaton House were graded using the Agricultural Land Classification (ALC) System in November 1992. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Wiltshire Minerals Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000. The information is correct at this scale but any enlargement would be misleading. A total of 69 auger borings and 3 soil profile pits were examined.

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying map.

Distribution of ALC grades: North of Water Eaton House

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	17.6	24.6	24.9	
3b	6.9	9.7	9.7	
4	46.3	64.9	<u>65.4</u>	
Non Agric	<u>0.6</u>	<u>0.8</u>	100%	(70.8 ha)
TOTAL	71.4	100%		

There are no climatic or site limitations for the survey area. The main limitation in the survey area is flood risk, down grading land to Subgrade 3b and Grade 4. Part of the survey area also is downgraded to Subgrade 3a on the basis of a wetness limitation. This area is not affected by flooding and so the main limitation is that of the soil.

2. INTRODUCTION

Seventy one hectares of land north of Water Eaton House were graded using the Agricultural Land Classification (ALC) System in November 1992. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Wiltshire Minerals Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at this scale but any enlargement would be misleading. A total of 69 auger borings and 3 soil profile pits were examined.

The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows the site to be Grade 3. The area was surveyed in 1979 at a scale of 1:25,000 as part of the Cotswold Water Park ALC survey and was mapped as Subgrades 3a, 3b and 3c. The recent survey supersedes these maps having been carried out at a more detailed level and using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988).

The ALC provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120cm of the soil profile. A description of the grades used in the ALC System can be found in Appendix 2.

At the time of survey part of the site was under grassland part under winter cereals.

3. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to lower grades despite other favourable conditions.

Estimates of climatic variables were obtained for the site by interpolation from the 5km grid Meteorological Office Database (Meteorological Office 1989) and are shown in Table 1.

The parameters used for assessing overall climatic limitation are accumulated temperature, (a measure of the relative warmth of a locality) and average annual rainfall, (a measure of overall wetness). The values shown in Table 1 reveal that there is no overall climatic limitation.

No locally limiting climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for

wheat (MDW) and potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in Section 6.

Table 1 Climatic Interpolations: North of Water Eaton House

Grid Reference	SU 127 947
Height (m)	75
Accumulated Temperature (day deg)	1442
Average Annual Rainfall (mm)	678
Overall Climatic Grade	1
Field Capacity (Days)	154
Moisture Deficit, Wheat (mm)	106
Potatoes (mm)	98

4. RELIEF

The site is virtually flat with only a slight rise in the north west and therefore imposes no gradient limitations. None of the fields have microrelief limitations. The site is at 75m AOD.

5. GEOLOGY AND SOILS

The published one inch scale solid and drift geology map, sheet 252 (Geological Survey of England and Wales 1974) shows the majority of the site to be of Alluvium drift deposits. A small area in the north west has First Terrace River deposits.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250,000. This map shows the soils at the site to be of two associations. The majority of the site is of the Thames Association corresponding to the Alluvial drift. This soil is poorly drained. There is a small area corresponding to the river terrace deposits of the Badsey 2 Association, described as mainly well drained fine loamy soils over calcareous gravel.

The soils found in the recent survey show evidence of restricted drainage but do not have slowly permeable layers in the profile. Some of the profiles have stonier horizons at depth but this does not impose a greater limitation in terms of droughtiness.

6. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 2 Distribution of ALC grades: North of Water Eaton House

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	17.6	24.6	24.9	
3b	6.9	9.7	9.7	
4	46.3	64.9	<u>65.4</u>	
Non Agric	<u>0.6</u>	<u>0.8</u>	100%	(70.8 ha)
TOTAL	71.4	100%		

Subgrade 3a

All of the site would be Subgrade 3a if there was no flood risk. However only a small part of the site is unaffected by flood risk. The soils are limited by a wetness limitation. The soils are Wetness Class II, which combined with the clay loam topsoils limits the soils to 3a. Occasionally the soils are better drained but these only form small areas which are not mapped separately.

Subgrade 3b

These soils are similar to those described above but have been downgraded on the basis of flood risk. In this area the winter flooding occurs frequently but only lasts for 2-4 days.

Grade 4

In these areas the risk from flooding is greater than that above because the duration of the flood is longer. Whilst the soils are similar to those described under Subgrade 3a these areas must be downgraded to Grade 4 on the basis of flood risk. The versatility of the land is substantially reduced by this risk.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974) *Solid and drift* edition. Sheet 252 Swindon, 1:63,360 scale

MAFF (1973) Agricultural Land Classification Map sheet 157 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) Alnwick

METEOROLOGICAL OFFICE (1989) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5 Soils of South West England 1:250,000

SITE NAME N of Water Eaton House	PROFILE NUMBER 3	SLOPE AND ASPECT -	LAND USE Cereals	Av Rainfall :- 678 ATO :- 1442 FC Days :- 154 Climatic grade :- 1	PARENT MATERIAL Alluvium
JOB NO 67/92	DATE 26/11/92	GRID REFERENCE SU 125 943	DESCRIBED BY GMS/PRW		

Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
Topsoil	0-24	10YR43	HCL	0	None	MCSAB	>.5%	-	Friable	Many			
Sub 1	24-43	10YR53	C	0	cdom (gleyed)	MMAB tending to coarse some SAB, some strongly develop	>.5%	mod		Common			
Sub 2	43-130	10YR61	C	0	cdom g1	MMAB tending to coarse	>.5%			Common			

Profile Gleyed From:- Gleyed from 24cm

Depth to Slowly Permeable Horizon:- none

Wetness Class :- II

Wetness Grade :- 3a

Available Water Wheat :- 141

Potatoes :- 117

Moisture Deficit Wheat :- 106

Potatoes :- 98

Moisture Balance Wheat :- +35

Potatoes :- +19

Droughtiness Grade :- 1

Final ALC Grade :- 4

Main Limiting Factor(s) :- Flood risk

Remarks :-

Pit dug to 80 cm augered to 130 cm.

Peds in subsoil have good cutans.

SITE NAME N of Water Eaton House		PROFILE NUMBER Pit 1	SLOPE AND ASPECT -		LAND USE Ley	Av Rainfall :- 678 ATO :- 1442 FC Days :- 154		PARENT MATERIAL Alluvium				
JOB NO 67/92		DATE Nov 92	GRID REFERENCE SU 129 948		DESCRIBED BY GMS		Climatic grade :- 1					

Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	24	10YR43	HCL	0	10YR58 - few	MCSAB	>0.5%	-	Friable				
2	56	10YR51 Ped = 10YR51	C	0	Many 10YR68	MCSAB	<0.5%	Mod	Friable				
3	74	10YR63	LCS	50% hard rock	-	Too stony to assess		Mod	-				

Profile Gleyed From:- 24cm Depth to Slowly Permeable Horizon:- Wetness Class :- II Wetness Grade :- 3A	Available Water Wheat :- 94 Potatoes :- 97 Moisture Deficit Wheat :- 106 Potatoes :- 98 Moisture Balance Wheat :- -12) Potatoes :- +1) Droughtiness Grade :- 3A	Final ALC Grade :- 4 Main Limiting Factor(s) :- Flood risk Remarks :- Water table at 60 cm
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SITE NAME N of Water Eaton House		PROFILE NUMBER Pit 2	SLOPE AND ASPECT -		LAND USE Cereals	Av Rainfall :- 678 ATO :- 1442 FC Days :- 154 Climatic grade :- 1			PARENT MATERIAL Alluvium				
JOB NO 67/92		DATE Nov 92	GRID REFERENCE Su 125 941		DESCRIBED BY HG/DR								

Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	25	10YR52	HCL	0	Few och. Mottles	MCSAB	-	-	Firm				
2	65	10YR62	C	0	Common - 10YR58 (Gleyed)	Mod VCAB	>.5	Mod	Firm				
3	120		C	0	Many - (Gleyed)	Mod VCSAB	>.5	Mod	Firm				

Profile Gleyed From:- 25cm	Available Water Wheat :- 141	Final ALC Grade :- 4
Depth to Slowly Permeable Horizon:-	Potatoes :- 117	
Wetness Class :- II	Moisture Deficit Wheat :- 106	
	Potatoes :- 98	
Wetness Grade :- 3A	Moisture Balance Wheat :- +35	Main Limiting Factor(s) :- Flood risk
	Potatoes :- +19	
	Droughtiness Grade :- 1	Remarks :-