

STCS 4707A

66/92

WILTSHIRE MINERALS LOCAL PLAN  
S68 ALEX FARM, LATTON

**AGRICULTURAL LAND CLASSIFICATION  
REPORT OF SURVEY**

Resource Planning Team  
Taunton Statutory Unit

November 1992

**ADAS** 

WILTSHIRE MINERALS LOCAL PLAN  
S68 ALEX FARM

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1. SUMMARY

Fifty five hectares of land at Alex Farm, Latton 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 59 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: Alex Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	16.6	30.3	31.9	
3b	29.1	53.1	56.0	
4	6.3	11.5	<u>12.1</u>	
Urban	0.4	0.7	100%	(52.0 ha)
Non Agric	0.5	0.9		
Agric Bdgs	<u>1.9</u>	<u>3.5</u>		
TOTAL	54.8	100%		

There are no climatic or site limitations for the survey area. The main limitation in the survey area is droughtiness, down grading land to Subgrades 3a and 3b. The soils are stoney and this restricts the available water for crop growth. Part of the survey area also is downgraded on the basis of flood risk, to Subgrade 3b and Grade 4. Wetness is a limitation in parts of the survey area.

## 2. INTRODUCTION

Fifty five hectares of land at Alex Farm, Latton 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 59 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 as part of the 1:25,000 scale Cotswold Water Park ALC survey and was mapped as Subgrades 3a and 3b. 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 the whole site was under grass except for the north east field which was growing 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: Alex Farm

Grid Reference	SU 117 955
Height (m)	75
Accumulated Temperature (day deg)	1442
Average Annual Rainfall (mm)	684
Overall Climatic Grade	1
Field Capacity (Days)	156
Moisture Deficit, Wheat (mm)	105
Potatoes (mm)	97

#### 4. RELIEF

The site is virtually flat 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 site to be underlain by First Terrace River drift 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 the Badsey 2 Association, described as mainly well drained fine loamy soils over calcareous gravel. There is a small area in the west of the site with the Kelmscot Association which are similar soils but more poorly drained.

The soils found in the recent survey are all over more stoney material. The stone content of the lower horizons is variable. The soils are variably affected by groundwater. The majority of the area has heavy clay loam and clay topsoils.

## 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: Alex Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	16.6	30.3	31.9	
3b	29.1	53.1	56.0	
4	6.3	11.5	<u>12.1</u>	
Urban	0.4	0.7	100%	(52.0 ha)
Non Agric	0.5	0.9		
Agric Bdgs	<u>1.9</u>	<u>3.5</u>		
TOTAL	54.8	100%		

### Subgrade 3a

Two areas of Subgrade 3a have been identified. These soils show varying evidence of being affected by groundwater. At the time of survey the water table was seen to be between 50cm and 80cm. These soils are variably Wetness Class I, II or III, based on the definitions of Wetness Class found in Appendix 3. This variation is typical in river terrace deposits. It is however droughtiness that is the main limitation, although in places this is matched by wetness. The soils are slightly stoney in the topsoil but become significantly stonier at depth. Where there are high contents, of hard stones, of typically over 50% in the subsoil the matrix texture has a high sand content. Topsoil textures are heavy clay loams with some clays, as shown by particle size distribution analysis. These soils restrict the amount of available water that can be held in the profile and for the two key indicator crops of wheat and potatoes there is a moisture balance which does not permit the soils to be graded better than 3a.

### Subgrade 3b

Over half of the survey area has been down graded to Subgrade 3b. Parts of these areas are down graded on the basis of a droughtiness limitation, more severe than that described under Subgrade 3b. Here the higher stone contents are found higher in the profile and so further limit the amount of available water in the profile. Like other parts of the site the soils are affected by fluctuating groundwater and the soils are variably Wetness Classes I, II and III. Part of the

area of 3b east of the central north south drain have soils which would qualify for Subgrade 3a, but have been down graded on the basis of flood risk. This area east of the drain experiences occasional winter flooding, lasting several days.

#### Grade 4

*One field has been downgraded from 3a and 3b to Grade 4 on the basis of flood risk. Here flooding is frequent in the winter and lasts for several days. This reduces the versatility of the land.*

#### Urban, Non agricultural and Agricultural Buildings

An area of 2.8ha has been assigned to the above categories. This land is all associated with the operation of Alex Farm.

## 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 Alex Farm, Latton	PROFILE NUMBER Pit 3	SLOPE AND ASPECT -	LAND USE Permanent Grazing	Av Rainfall :- 684 ATO :- 1442 FC Days :- 156 Climatic grade :- 1	PARENT MATERIAL First Terrace River Deposits
JOB NO 66/92	DATE Nov 92	GRID REFERENCE SU 116 954	DESCRIBED BY		

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	23	10YR43	HCL	9% hard rock		Mod CSAB	-	-	Friable				
2	39	10YR74	LCS	32% hard rock	Common 10YR78	WFSAB	-	Mod	Very friable	-			
3	120	10YR83	LCS	59% hard rock	-	Too stony to assess	-	Mod	-	-			

Profile Gleyed From:- Gleyed from 23 cm	Available Water Wheat :- 64 Potatoes :- 55	Final ALC Grade :- 4
Depth to Slowly Permeable Horizon:- None	Moisture Deficit Wheat :- 105 Potatoes :- 97	Main Limiting Factor(s) :- Flood risk
Wetness Class :- II	Moisture Balance Wheat :- 41 Potatoes :- 42	Remarks :-
Wetness Grade :- 3A	Droughtiness Grade :- 3B	Water table at 60 cm.

SITE NAME Alex Farm, Latton		PROFILE NUMBER Pit 2	SLOPE AND ASPECT -		LAND USE Permanent Grazing	Av Rainfall :- 684 ATO :- 1442 FC Days :- 156 Climatic grade :- 1		PARENT MATERIAL First Terrace River Deposits				
JOB NO 66/92		DATE Nov 92		GRID REFERENCE SU 119 952		DESCRIBED BY						

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	10YR33	HCL	10% hard rock	-	Mod FSAB	-	-	Friable				
2	36	10YR44	HCL	35% hard rock	-	Mod CSAB	-	-	Friable				
3	120	10YR76	CS	50% hard rock	Few 10YR76	Too stony to assess	-	Mod	-				

Profile Gleyed From:- Not gleyed Depth to Slowly Permeable Horizon:- None Wetness Class :- II Wetness Grade :- 3A	Available Water Wheat :- 69 Potatoes :- 61 Moisture Deficit Wheat :- 105 Potatoes :- 97 Moisture Balance Wheat :- -36 Potatoes :- -36 Droughtiness Grade :- 38	Final ALC Grade :- 3B Main Limiting Factor(s) :- Droughtiness Remarks :- Water table at 75 cm, so wetness Class II
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SITE NAME	PROFILE NUMBER	SLOPE AND ASPECT	LAND USE	Av Rainfall :- 684	PARENT MATERIAL
Alex Farm, Latton	Pit 1	--	Permanet Grazing	ATO :- 1442	First Terrace River Deposits
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days :- 156	
66/92	Nov 92	SU 121 956		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	25	10YR42	HCL	4% hard rock	-	Mod CSAB	-	-	Friable				
2	36	10YR54	HCL	5% hard rock	10YR58 - Common Gleyed	Mod CSAB	-	Mod	Friable				
3	120	10YR74	LMS	59% hard rock	Gleyed	Too stony to assess	-	Mod	-				

Profile Gleyed From:- 25 cm

Depth to Slowly Permeable Horizon:- None

Wetness Class :- II

Wetness Grade :- 3A

Available Water Wheat :- 80

Potatoes :- 72

Moisture Deficit Wheat :- 105

Potatoes :- 97

Moisture Balance Wheat :- 25

Potatoes :- 25

Droughtiness Grade :- 3B

Final ALC Grade :- 3B

Main Limiting Factor(s) :- Droughtiness

Remarks :-

Water table at 50 cm.