8FCs 4996

10/93

LAND AT HARRY STOKE ROAD/FILTON ROAD, STOKE GIFFORD

AGRICULTURAL LAND CLASSIFICATION

Report of survey

1. INTRODUCTION

Twenty one hectares of land at Stoke Gifford bordered by Harry Stoke Road and Filton Road were graded using the Agricultural Land Classification (ALC) System in February 1993. The survey was carried out for MAFF as part of its statutory role in response to an ad hoc planning application to Northavon District Council.

The fieldwork was carried out by ADAS's Resource Planning Team (Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at the scale shown but any enlargement would be misleading. A total of 19 borings and 2 soil pits were examined.

The published Provisional 1" to the mile ALC map of this area (MAFF 1971) shows the site to be Grade 3. The recent survey supercedes this map 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 Agricultural Land Classification 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 the appendix.

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

Table 1 Distribution of ALC grades: Harry Stoke Road

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	11.7	54.2	62.9
3A	3.1	14.4	16.6
3B	3.8	17.6	20.5
Urban	3.0	13.8	100% (18.6ha)
TOTAL	21.6	100%	

2. 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 2.

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 2 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. This data is used in assessing the soil wetness and droughtiness limitations referred to in Section 5.

Table 2 Climatic Interpolations: Harry Stoke Road

Grid Reference	ST 622 789
Height (m)	65
Accumulated Temperature (days deg)	1472
Average Annual Rainfall (mm)	789
Overall Climatic Grade	1
Field Capacity (Days)	175
Moisture Deficit, Wheat (mm)	97
Potatoes (mm)	87

3. RELIEF

The site slopes to the east. The land drops from a maximum altitude of 70m OAD to 55m OAD. The slopes are not limiting to agricultural use except for a small area in the north of the site.

4. GEOLOGY AND SOILS

The published 1:50,00 scale solid and drift geology map, sheet 264 (Geological Survey of England and Wales 1974) shows the majority of the area to be underlain by Triassic Keuper Marl. The higher part of the area has Tea Green Marl. There is an area of drift deposits in the north which area Head deposits from the Pleistocene and Recent eras.

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 to be of two associations within the survey area. On the higher land the soils are of the Denchworth Association which are heavy poorly drained soils. The majority of the area is of the Worcester Association. These soils are reddish soils which are better drained than the Denchworth soils.

Several different types of soil were identified in the area during the recent ALC survey. The part of the site is well drained, whilst other parts have poorer drainage. This is reflected in the ALC Grading. There are two areas of medium clay loam/medium silty clay loam topsoils. These are found in the north and south east of the site. The rest of the topsoils are heavier.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC Grades identified in the survey area is detailed in Section 1 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade 2

The majority of the site has been classified as Grade 2. Most of these soils are generally well drained and show no evidence of wetness. They are Wetness Class I. The topsoil texture of these soils is heavy clay loam or heavy silty clay loam, with the occasional medium clay loam qualifying for Grade 1 but incorporated into this unit. The subsoils are clay. Some of the soils are reddish in colour. Parts of this unit has medium silty clay loam topsoils but these soils have a slight drainage limitation and are Wetness Class II. They still qualify for Grade 2. Droughtiness is not a limiting factor to soils in this unit.

Subgrade 3a

Two small areas of Subgrade 3a are found in the area. These soils show evidence of restricted drainage and are Wetness Class III. Gleying of the soil is caused by slowly permeable layers at depth. The medium clay loam topsoils allow these soils to qualify for Subgrade 3a. The subsoils are heavier in texture than the topsoil. These soils are virtually stoneless.

Subgrade 3b

There is a small area of restricting slope in the north which has downgraded the land to 3b. The other two areas of this Grade have poorly drained soils with heavy clay loam and heavy silty clay loam topsoils. The poor drainage caused by slowly permeable layers restricts the soils to Wetness

Classes III and IV. These soils can therefore be no better than Subgrade 3b.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974) Solid and Drift edition. Sheet 264 Bristol, Provisional 1:50,000 scale

MAFF (1971) Agricultural LAnd Classification Map Sheet 155 Provisional 1:63,360 scale

MAFF (1988) Agricultural Land Classification of England and Wales (revised guidelines and criteria for grading the quality of 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 scale

APPENDIX

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 include 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. Where 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 an 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 yields of which are variable. In moist 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.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

SITE NAME	PROFILE NUMBER	SLOPE AND ASPECT	LAND USE	Av Rainfall :-	PARENT MATERIAL
Harry Stokes Rd	1	0	PGR	ATO :-	
	DATE 26/2/93	GRID REFERENCE		FC Days :-	
				Climatic grade:-	

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	Horizo Bounda Distinct and Fo
1	0-24	7.5YR4/2	MCL	0	10YR5/8 common (gleyed)					many med+fine	none	none	Abrupt smooth
2	24-35	5YR4/2	HCL	0	com (gleyed)	MCAB	good	Moderate	Friable	many fine	none	common	Abrupt smooth
3	35-65+	10YR5/2	C	10% HR (visual)	Many colours incl. ochreous+red → gleyed	WCSAB (SPL)	Low	Moderate	Friable	many/ common fine	yes	common	

Depth to Slowly Permeable Horizon :- 35cm gleyed from surface

Wetness Class :- IV

Wetness Grade :- 3b

RPG0023/WJC

Available Water Wheat :-

Potatoes :-

Moisture Deficit Wheat :-

Potatoes :-

Moisture Balance Wheat :-

Potatoes :-

Droughtiness Grade :-

Final ALC Grade :- 3B

Main Limiting Factor(s) :- wetness

Remarks :- Possibly disturbed area in past since evidence of glass + tiles/bricks but pit reflects borings 18+19. This part of field is raised + flat and grass has different appearance
But no known history of disturbance.

SITE NAME	PROFILE NUMBER	SLOPE AND ASPECT	LAND USE	Av Rainfall :-	PARENT MATERIAL
HARRY STOKE 10/93	Pit 2.	-	Permanent Grazing	ATO :-	-
	DATE 26/2/93	GRID REFERENCE		FC Days :-	
				Climatic grade:-	

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	Horizo Bounda Distinct and Fo
1 T/S	29	7.5YR 4/3	MZCL	-	-	-	Good	-	-	Fine / V Fine Fibrous Many	None	Few	Smooth + Abrupt
2	49	0.5YR 4/4 Red Faces 0.5YR 4/3	C	-	-	MCAB	Good	Mod.	V. Fr	Fine + Fibrous Comm	Slight	-	Wavy + Clear
3	100+	7.5YR 5.6/6 Pockets of 10YR 7/2	C	-	-	MCAB	Good	Mod	V Fr.	Few + Fine	High	-	-

Depth to Slowly Permeable Horizon :- —

Wetness Class :- 1

Wetness Grade :- 2

RPG0023/WJC

Available Water Wheat :-

Potatoes :-

Moisture Deficit Wheat :-

Potatoes :-

Moisture Balance Wheat :- +48

Potatoes :- +34

Droughtiness Grade :- 1

Final ALC Grade :- 2

Main Limiting Factor(s) :- Wk.

Remarks :-