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CLEVEDON, NAILSEA AND PORTISHEAD LOCAL PLAN

AGRICULTURAL LAND CLASSIFICATION

REPORT OF SURVEY

1. Introduction

In response to objections to the Clevedon, Nailsea, Portishead Local Plan, at the public consultation stage, Agricultural Land Classifications (ALC) of three areas were carried out in December 1990 and January 1991. These were Heath Farm, Nailsea (22 ha), West End, Nailsea (46.5 ha) and Clapton-in-Gordano (5 ha). The surveys were carried out by members of the Resource Planning Group.

The ALC provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture. The distribution of ALC grades is detailed in each section of the report and illustrated on the accompanying ALC maps at a scale of 1:5556 for Heath Farm and West End, and 1:5000 for Clapton-in-Gordano. The information is accurate at the relevant scales, but any enlargement would be misleading.

2. Climate

Estimates of important climatic variables were obtained for each site by interpolation from a 5 km grid database in order to assess any overall climatic limitation. The results are outlined in each section. The effects of overall climate on agriculture are assessed by reference to two indicative parameters, accumulated temperature (a measure of the relative warmth of a locality and average annual rainfall (a measure of overall wetness).

3. Heath Farm, Nailsea

An objection to the non-inclusion of land around Heath Farm, adjacent to existing residential areas in the North West of Nailsea was received by the Woodspring Planning Authority. The area was surveyed in December 1990 at an approximate observation density of one auger boring per hectare. A total of 25 borings and 2 soil pits were examined.

Table 1 Distribution of ALC grades

Grade	Area (ha)	% of survey area	% of Agricultural land
3a	11.3	51.4	60.1
3b	7.5	34.1	39.9
Non Ag	3.2	14.5	
	22.0 ha	100%	100%(18.8 ha)

Table 2 Climatic interpolation

Grid reference	ST 461708
Altitude (m)	10
Accumulated temperature (° days)	1543
Average Annual Rainfall (mm)	837
Field capacity days	190
Moisture Deficit, Wheat (mm)	96
Moisture Deficit, Potatoes (mm)	87
Overall Climatic grade	1

The survey area is flat and low lying with soils developed over shale with bands of sandstone. There is no overall climatic limitation across the site and there are no evident local climatic limitations.

Sub Grade 3a

The majority of the survey area has been placed in this grade, with soil wetness as the most limiting physical factor. The soils exhibit distinct evidence of wetness (in the form of grey colours and mottling) at shallow depths but do not have slowly permeable layers present within the top 80 cm, indeed the subsoils often contain sandy loam or sandy clay loam textures. The evidence of wetness places these soils in Wetness Class II (indicating in general that the profiles are wet within 70 cm for more than 3 months, but not normally wet within 70 cm for more than 1 month in most years). This degree of waterlogging of the profile in combination with the medium clay loam and medium silty clay loam topsoil textures, limits these soils to sub-grade 3A. The range of crops able to tolerate these wet conditions is limited, as is the flexibility of the land in terms of the timing of cultivations.

One of the two soil pits examined in this area revealed shallower soils over fractured sandstone at approximately 45 cm. These soils are also placed in 3A due to a droughtiness limitation.

Sub-Grade 3b

A northern block of 3B land exhibits a more severe wetness problem than the 3A land to the south and north described above. A typical profile has medium clay loam topsoils with heavily gleyed clay subsoils from 25 cm which are slowly permeable within 40 cm. These soils are assigned to Wetness Class IV, (ie they are wet within 70 cm for more than 6 months but not wet within 40 cm for more than 7 months in most years).

A small area of land to the south of Watery Lane showed evidence of disturbance confirmed by local farmers. The irregular surface combined with shallow stoney topsoils produces land of low productivity and versatility, where 3B is the most appropriate grade.

4. West End, Nailsea

An objection to the non-inclusion of 46.5 ha of land at West End, Nailsea for residential development was placed with Woodspring Planning Authority. The area lies between West End and Bay Tree Farm to the West and Four Gables Lane to the East. The area was surveyed in January 1991 at an approximate observation density of one auger boring per hectare. A total of 49 borings and 4 soil pits were examined.

Table 3 Distribution of ALC grades

Grade	Area (ha)	% of survey area	% of Agricultural land
1	5.5	11.8	12.2
2	9.7	20.9	21.6
3a	24.2	52.1	53.9
3b	5.5	11.8	12.2
Non-Agric	1.6	3.4	100% (44.9 ha)
	46.5	100%	

Table 4 Climatic Interpolation

Grid reference	ST 456692
Altitude (m)	23
Accumulated Temperature (° days)	1528
Average Annual Rainfall (mm)	842
Field capacity days	190
Moisture Deficit, Wheat (mm)	94
Potatoes (mm)	84
Overall Climatic grade	1

The survey area has an undulating topography with soils developed over sandstone with two small areas of shale. There is neither an overall climatic limitation or any local climatic limitations such as frost or exposure evident.

Grade 1

Two areas of Grade 1 were identified in the survey area. These areas had deep slightly stoney profiles exhibiting no evidence of wetness. A typical profile has medium sandy silt loam topsoil to 30 cm with medium clay loam upper subsoil and a deep sandy loam lower subsoil. The profiles are placed in Wetness Class I (ie they are generally not wet within 70 cm for more than 30 days) which, with the topsoil texture and field capacity days (FCD) of 190, qualify them for Grade 1.

Grade 2

One fifth of the survey area was found to be Grade 2. The limitation in these soils is both workability and droughtiness. Two types of profile were found. The first were deep but showed some evidence of wetness in the form of gleying within 40 cm and had medium sandy silt loam topsoils, so fall into Wetness Class II, and Grade 2. The other profiles in this grade were stoney and had medium clay loam

topsoils. Although Wetness Class I soils, the combination of topsoil texture and prevailing FC Days places these profiles in Grade 2. Soil pits confirmed both the stone content and the extent of wetness. The droughtiness limitation caused by soil textures and stone contents also limits these soils to Grade 2 due to its affect on the water available to crops for growth.

Sub-Grade 3a

Over half of the survey area is placed in Sub-grade 3a. The majority of this area is affected by a droughtiness limitation caused by stone contents in the topsoil (2-20%) and upper subsoil (30%+) and fractured sandstone rock below 50 cm. These profiles show no evidence of wetness. Soil pits were dug to assess the stone contents.

The remaining area of sub-grade 3a has a wetness limitation. These have a slowly permeable layer (SPL) in clay below 60 cm. The SPL inhibits free drainage in the soil profile and can cause waterlogging further up the profile.

Sub-grade 3B

Two blocks of 3B land have been mapped in the west of the site where locally steep gradients are the most limiting factor.

The remaining 3B land is made up of some shallow profiles, and some soils with shallow heavy clay horizons that cause a significant wetness limitation.

5. Clapton-in-Gordano

An five hectare block on the northern fringe of the village was surveyed in January 1991. An objection had been lodged on this site as it had not been included in the Local Plan; a by-pass with residential infill was proposed.

A total of eight auger borings and one soil pit were described on the site. Their location and the subsequent distribution of grades are shown on the relevant ASP and ALC maps.

Table 5: Distribution of Grades and Sub-Grades

Grade	Area (ha)	%
2	4.2	79.2
3A	0.9	17.0
3B	0.2	3.8
	5.3 ha	100%

The climatic details for the site are given below, and show that there is no overall climatic limitation.

Table 6: Climatic Interpolation

Grid Reference	34751743
Height (m)	10
Average Annual Rainfall (mm)	866
Accumulated Temperature (° days)	1540
Field Capacity Days	193
Moisture Deficit, Wheat (mm)	96
Moisture Deficit, Potatoes (mm)	87

Grade 2

The majority of the site has been placed in this grade. Droughtiness is the limiting factor. The soils are deep sandy silt loams over stony clay loam subsoils. They are developed over weathering sandstone. The depth to the stony weathered zone varies across the site; some deep profiles exist, but the most appropriate grade is Grade 2.

Grade 3A

A very badly drained area in the north of the site is developed on alluvium in a wet floodplain situation. At the time of survey, these deep sandy silt loams had no freeboard access to the adjacent ditch; engineering work may be necessary to render the site drainable. As a result this area is seen to be no higher than 3A.

Grade 3B

Local gradients in the south of the site limit one minor area to 3B.

SOIL PROFILE DESCRIPTION

CLEVEDON, NAILSEA, PORTISHEAD LOCAL PLAN
CLAPTON-IN-GORDANO (OBJECTION NO 1195,1196)
8FCS 4052
DATE OF SURVEY 8 JANUARY 1991

NO	TEXTURE	COLOUR	DEPTH (CM)	SOIL PROFILE NOTES	TOPOGRAPHY NOTES
1	MSZL	10YR44	0-28		
	MSZL	7.5YR44	28-100+	Stony to auger 40-60 cm; wet from 70 cm; water table from 80 cm; no mottling; drainable; WC I	
2	MSZL	10YR43	0-20		slight surface irregularity
	MSZL	7.5YR44	20-40		
			I	(2 x 25 cm)	
3	MSZL	10YR43	0-30	towards MCL	
			I	(2nd Imp at 25 cm)	
4	MSZL	10YR43	0-22	fdom	4½° slope
	MCL	7.5YR54	22-62	very sandy; few ochreous weath colours	
			I	(2nd Imp at 42 cm)	
5	MSZL	7.5YR44	0-24		4° downslope
			I	(2 x 22 cm)	6° upslope
6	FSZL	10YR44	0-22		5° slope
	FSL	7.5YR44	22-58	5YR44 from 40 cm with common fresh soft sandstone	
			I		
7	FSZL	10YR43	0-28		
	MCL	7.5YR54	28-90+	very sandy; wet from 80 cm but no mottling; WC I	
8	FSZL	10YR52	0-30	abundant ogm	minor floodplain; adjacent to over-flowing drain; no ditch freeboard; requires some engineering works to be drainable
	FSZL	10YR53	30-45	ditto	
	MCL	10YR53	45-90+	ditto; WT from 45 cm	

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