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**ISLE OF WIGHT UNITARY DEVELOPMENT PLAN  
OBJECTOR SITES  
Land west of St. Johns Road, Wroxall**

**Agricultural Land Classification  
ALC Map and Report**

**September 1998**

**Resource Planning Team  
Eastern Region  
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# AGRICULTURAL LAND CLASSIFICATION REPORT

## ISLE OF WIGHT UNITARY DEVELOPMENT PLAN - OBJECTOR SITES LAND WEST OF ST. JOHNS ROAD, WROXALL

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 9.5 hectares of land west of St. Johns Road, Wroxall on the Isle of Wight. The survey was carried out during September 1998.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)<sup>1</sup> on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The survey was carried out in connection with MAFF's statutory input to the Isle of Wight Unitary Development Plan. The survey covers 1 area put forward as an objector site, this is outlined on the accompanying map. In order to provide a context for appraising these sites, further, adjacent land was also surveyed. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the entire agricultural land use was a mixture of rough and ley grassland.

### SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the objector site and total surveyed land are summarised in Tables 1 and 2.

Table 1: Area of grades - Objector Site

Grade/Other land	Area (hectares)	% site area
3a	3.5	89.8
3b	0.4	10.2
Total site area	3.9	100

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<sup>1</sup> FRCA is an executive agency of MAFF and the Welsh Office

**Table 2: Area of grades and other land - Total land surveyed west of St. Johns Road, Wroxall**

Grade/Other land	Area (hectares)	% surveyed area	% site area
3a	9.1	95.8	95.8
3b	0.4	4.2	4.2
Total surveyed area	9.5	100	100
Total site area	9.5	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 9 borings and 1 soil pit were described.
8. The majority of the agricultural land is classified as Subgrade 3a (good quality) with the remainder comprising Subgrade 3b (moderate quality). The principal limitation is soil wetness and workability with gradient being limited across a small part of the site.
9. Good quality agricultural land comprises non-calcareous clay loam soils, which become heavier with depth and show signs of impeded drainage. These soil profile characteristics in combination with the wet climate result in a soil wetness and workability limitation. Soil wetness and workability has the effect of restricting the number of days when the land is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock and adversely affecting crop growth and development.
10. Moderate quality land is restricted to the south west corner of the site where gradients exceed 7°. Gradient has the effect of restricting the safe and efficient use of farm machinery and land cannot be graded higher than Subgrade 3b.

## **FACTORS INFLUENCING ALC GRADE**

### **Climate**

11. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.
12. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).
13. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.
14. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (ATO, January to June), as a measure of the relative warmth of a locality.

**Table 2: Climatic and altitude data**

Factor	Units	Values	
Grid reference	N/A	SZ 549 807	SZ 549 809
Altitude	m, AOD	65	60
Accumulated Temperature	day°C (Jan-June)	1494	1499
Average Annual Rainfall	mm	934	931
Field Capacity Days	days	192	192
Moisture Deficit, Wheat	mm	113	114
Moisture Deficit, Potatoes	mm	108	108
Overall climatic grade	N/A	Grade 1	Grade 1

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Local climatic factors such as frost risk do not affect land quality at this location, but the site's close proximity to the sea means that it is shown as an area recorded as exposed by the Met. Office (Met. Office, unpublished data, 1968). However, there was no evidence of significant exposure detected at a low level across the site at the time of the survey. The site is, therefore, climatically Grade 1. Climatic factors do interact with soil properties to influence soil wetness and soil droughtiness. At this locality the climate is relatively cool and moist, in regional terms. The likelihood of soil wetness problems may therefore be enhanced.

#### Site

16. The site lies at altitudes in the range 55–70 m AOD, on the western flank of St Martin's Down. Most of the site is not affected by any site restrictions, such as gradient, microrelief or flooding. However, a small area along the southern boundary contains gradients which limit the land to Subgrade 3b.

#### Geology and soils

17. The most detailed published geological information for the site (BGS, 1976) shows it be underlain entirely by the Sandrock Beds.
18. The most detailed published soils information covering the area (SSEW, 1983) shows it to comprise entirely soils of the Fyfield 4 association. These soils are described as 'deep well drained often stoneless coarse loamy and sandy soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging, and some slowly permeable seasonally waterlogged fine loamy over clayey soils' (SSEW, 1983). Soils conforming to this description were observed across the site; fine loamy soils becoming clayey with depth showing signs of slight seasonal waterlogging.

#### AGRICULTURAL LAND CLASSIFICATION

19. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.
20. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

### **Subgrade 3a**

21. Good quality agricultural land is mapped over most of the site. Limitations include soil wetness and soil workability.
22. Soils in this mapping unit are non-calcareous and comprise medium clay loam topsoils, which contain up to 2% total flints by volume. These overlie gleyed heavy clay loam upper subsoils, which contain up to 5% total flints by volume. These pass to similarly textured, gleyed clay lower subsoils most of which are impenetrable to the soil auger, from 68 to 90 cm. Pit 1 (see Appendix II) is typical of these soils (although the lower horizons in 1P contain heavy clay loam rather than clay textures). The pit revealed large flints, recorded at 15% by volume, to be the cause of impenetrable layer. In addition, subsoils were porous and moderately structured and soil wetness in the form of gleying is indicative of soils which are moderately well drained. Consequently, these soils are assigned to Wetness Class II and this, combined with the topsoil texture, interacting with the regionally wet local climate (192 field capacity days), results in land which suffers from a slight soil wetness and soil workability limitation. This degree of soil wetness and workability may adversely affect crop growth and development, as well as limiting the flexibility of the land due to a reduction in the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

### **Subgrade 3b**

23. A small area along the southern boundary of the objector site is restricted to Subgrade 3b because of steep slopes. Gradients in excess of 7° were recorded which will compromise the safe and efficient use of farm machinery.

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## SOURCES OF REFERENCE

British Geological Survey (1976) *Sheet No. 344 & 345, Isle of Wight*.  
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*.  
MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*.  
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South-East England, 1:250,000*.  
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*  
SSEW: Harpenden

## APPENDIX I

### DESCRIPTIONS OF THE GRADES AND SUBGRADES

#### **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 includes 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 or horticultural crops can usually be grown but on some land of this 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 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 can 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

**APPENDIX II**

**SOIL DATA**

**Contents:**

**Sample location map**

**Soil abbreviations - explanatory note**

**Soil pit and soil boring descriptions (boring and horizon levels)**

## SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

### Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.
2. **USE:** Land use at the time of survey. The following abbreviations are used:

<b>ARA:</b>	Arable	<b>WHT:</b>	Wheat	<b>BAR:</b>	Barley
<b>CER:</b>	Cereals	<b>OAT:</b>	Oats	<b>MZE:</b>	Maize
<b>OSR:</b>	Oilseed rape	<b>BEN:</b>	Field beans	<b>BRA:</b>	Brassicae
<b>POT:</b>	Potatoes	<b>SBT:</b>	Sugar beet	<b>FCD:</b>	Fodder crops
<b>LIN:</b>	Linseed	<b>FRT:</b>	Soft and top fruit	<b>FLW:</b>	Fallow
<b>PGR:</b>	Permanent pasture	<b>LEY:</b>	Ley grass	<b>RGR:</b>	Rough grazing
<b>SCR:</b>	Scrub	<b>CFW:</b>	Coniferous woodland	<b>OTH:</b>	Other
<b>DCW:</b>	Deciduous woodland	<b>BOG:</b>	Bog or marsh	<b>SAS:</b>	Set-Aside
<b>HTH:</b>	Heathland	<b>HRT:</b>	Horticultural crops	<b>PLO:</b>	Ploughed

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL:** Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS):** Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS):** Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT:** Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column:

<b>MREL:</b>	Microrelief limitation	<b>FLOOD:</b>	Flood risk	<b>EROSN:</b>	Soil erosion risk
<b>EXP:</b>	Exposure limitation	<b>FROST:</b>	Frost prone	<b>DIST:</b>	Disturbed land
<b>CHEM:</b>	Chemical limitation				

9. **LIMIT:** The main limitation to land quality. The following abbreviations are used:

<b>OC:</b>	Overall Climate	<b>AE:</b>	Aspect	<b>ST:</b>	Topsoil Stoniness
<b>FR:</b>	Frost Risk	<b>GR:</b>	Gradient	<b>MR:</b>	Microrelief
<b>FL:</b>	Flood Risk	<b>TX:</b>	Topsoil Texture	<b>DP:</b>	Soil Depth
<b>CH:</b>	Chemical	<b>WE:</b>	Wetness	<b>WK:</b>	Workability
<b>DR:</b>	Drought	<b>ER:</b>	Erosion Risk	<b>WD:</b>	Soil Wetness/Droughtiness
<b>EX:</b>	Exposure				

### Soil Pits and Auger Borings

1. **TEXTURE:** soil texture classes are denoted by the following abbreviations:

<b>S:</b>	Sand	<b>LS:</b>	Loamy Sand	<b>SL:</b>	Sandy Loam
<b>SZL:</b>	Sandy Silt Loam	<b>CL:</b>	Clay Loam	<b>ZCL:</b>	Silty Clay Loam
<b>ZL:</b>	Silt Loam	<b>SCL:</b>	Sandy Clay Loam	<b>C:</b>	Clay
<b>SC:</b>	Sandy Clay	<b>ZC:</b>	Silty Clay	<b>OL:</b>	Organic Loam
<b>P:</b>	Peat	<b>SP:</b>	Sandy Peat	<b>LP:</b>	Loamy Peat
<b>PL:</b>	Peaty Loam	<b>PS:</b>	Peaty Sand	<b>MZ:</b>	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

- F: Fine (more than 66% of the sand less than 0.2mm)
- M: Medium (less than 66% fine sand and less than 33% coarse sand)
- C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content:

- M: Medium (<27% clay) H: Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.
3. **MOTTLE ABUN:** Mottle abundance, expressed as a percentage of the matrix or surface described:  
F: few <2% C: common 2-20% M: many 20-40% VM: very many 40% +
4. **MOTTLE CONT:** Mottle contrast:  
F: faint - indistinct mottles, evident only on close inspection  
D: distinct - mottles are readily seen  
P: prominent - mottling is conspicuous and one of the outstanding features of the horizon
5. **PED. COL:** Ped face colour using Munsell notation.
6. **GLEYS:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.
7. **STONE LITH:** Stone Lithology - one of the following is used:

<b>HR:</b>	all hard rocks and stones	<b>FSST:</b>	soft, fine grained sandstone
<b>ZR:</b>	soft, argillaceous, or silty rocks	<b>CH:</b>	chalk
<b>MSST:</b>	soft, medium grained sandstone	<b>GS:</b>	gravel with porous (soft) stones
<b>SI:</b>	soft weathered igneous/metamorphic rock	<b>GH:</b>	gravel with non-porous (hard) stones

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT:** the degree of development, size and shape of soil peds are described using the following notation:

Degree of development	<b>WK:</b> weakly developed	<b>MD:</b> moderately developed
	<b>ST:</b> strongly developed	
Ped size	<b>F:</b> fine	<b>M:</b> medium
	<b>C:</b> coarse	
Ped shape	<b>S:</b> single grain	<b>M:</b> massive
	<b>GR:</b> granular	<b>AB:</b> angular blocky
	<b>SAB:</b> sub-angular blocky	<b>PR:</b> prismatic
	<b>PL:</b> platy	

9. **CONSIST:** Soil consistence is described using the following notation:

<b>L:</b> loose	<b>FM:</b> firm	<b>EH:</b> extremely hard
<b>VF:</b> very friable	<b>VM:</b> very firm	
<b>FR:</b> friable	<b>EM:</b> extremely firm	

10. **SUBS STR:** Subsoil structural condition recorded for the purpose of calculating profile droughtiness:  
G: good M: moderate P: poor
11. **POR:** Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.
12. **IMP:** If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.
13. **SPL:** Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.
14. **CALC:** If the soil horizon is calcareous, a 'Y' will appear in this column.
15. Other notations:

**APW:** available water capacity (in mm) adjusted for wheat  
**APP:** available water capacity (in mm) adjusted for potatoes  
**MBW:** moisture balance, wheat  
**MBP:** moisture balance, potatoes

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT		--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1	SZ54808090	LEY W	2	20	2	3A	97	-16	99	-9	3A					WE 3A	NOSPLSEE/1P
2	SZ54908090	LEY W	2	22	2	3A	130	17	107	-1	2					WE 3A	NOSPLSEE/1P
3	SZ54808080	LEY W	2	28	2	3A	68	-45	68	-40	3B					WE 3A	NOSPLSEE/1P
4	SZ54908080	LEY W	2	20	2	3A	110	-3	108	0	3A					WE 3A	NOSPLSEE/1P
5	SZ54808070	RGR		26	2	3A	107	-6	118	10	3A					WE 3A	NOSPLSEE/1P
6	SZ54908070	RGR W	1	0	2	3A	97	-16	108	0	3A					WE 3A	NOSPLSEE/1P
7	SZ54808060	RGR W	4	0	2	3A	108	-5	115	7	3A					WE 3A	NOSPLSEE/1P
8	SZ54908060	RGR W	1	74	1	2	142	29	118	10	2					WD 2	NOSPLSEE/1P
9	SZ54808050	RGR W	2	0	2	3A	138	25	115	7	2					WE 3A	NOSPLSEE/1P
1P	SZ54808070	RGR W	2	28	2	3A	146	33	112	4	2					WE 3A	PITATAB6

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES-----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT		GLY	>2	>6		LITH	TOT	STR		
1	0-20	MCL	10YR42	10YR46	F	D			0	0	HR	2				
	20-60	C	10YR53	10YR58	C	D		Y	0	0		0		M		NOSPLSEE1P
	60-84	C	10YR53	10YR58	M	D		Y	0	0	HR	10		M		IMPLARGEFLINTS
2	0-22	MCL	10YR42						0	0	HR	2				
	22-45	HCL	25Y 63	10YR68	C	D		Y	0	0	HR	2		M		
	45-120	C	25Y 6373	10YR58	C	D		Y	0	0		0		M		NOSPLSEE1P
3	0-28	MCL	10YR42						0	0	HR	2				
	28-40	MCL	10YR62	10YR56	C	D		Y	0	0	HR	2		M		IMPLARGEFLINTS
4	0-20	MCL	10YR42	10YR46	F	D			0	0	HR	2				
	20-45	HCL	10YR5253	10YR56	C	D		Y	0	0		0		M		
	45-90	C	25Y6353	10YR58	M	D		Y	0	0		0		M		IMPLARGEFLINTS
5	0-26	MZCL	10YR53						2	0		0				
	26-46	MZCL	10YR52	10YR56	C	D		Y	0	0		0				
	46-68	MCL	10YR52	75YR46	C	D		Y	0	0		0				IMPLARGEFLINTS
6	0-30	MCL	10YR42	75YR58	M	D		Y	0	0		0				
	30-45	HCL	10YR52	10YR56	M	D		Y	0	0		0		M		
	45-68	C	10YR52	10YR56	M	D		Y	0	0		0		M		IMPLARGEFLINTS
7	0-26	MCL	10YR53	01YR56	C	D		Y	5	0		0				
	26-75	HCL	75YR54	10YR46	C	D		S	0	0		0				IMPLARGEFLINTS
8	0-28	MCL	10YR41	75YR46	C				0	0		0				
	28-55	HCL	10YR44						0	0		0		M		
	55-74	HCL	10YR44	10YR58	C			S	0	0		0		M		
	74-120	C	10YR53	10YR58	C			Y	0	0		0		M		NOSPLSEE1P
9	0-30	MCL	10YR42	75YR58	M	D		Y	0	0		0				
	30-45	HCL	10YR44						0	0		0		M		
	45-60	HCL	10YR44	75YR58	M	D		S	0	0		0		M		
	60-120	C	10YR53	10YR58	M	D		Y	0	0		0		M		NOSPLSEE1P
1P	0-28	MCL	10YR42						0	0	HR	2				
	28-62	HCL	25Y5352	10YR56	C	D		Y	0	0	HR	5	WKCP	FR	M	POROUS
	62-80	HCL	25Y62	10YR58	M	D		Y	0	0	HR	15	MDCSAB	FR	M	LARGEFLINTS
	80-120	MCL	25Y63	10YR58	M	D		Y	0	0	HR	10	MDCSAB	FR	M	POROUS