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**New Forest District Local Plan
Objector Sites 39,58,59
Land At Loperwood Farm, Calmore,
Hampshire**

**Agricultural Land Classification
ALC Map and Report**

February 1997

**Resource Planning Team
Eastern Region
FRCA Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

NEW FOREST DISTRICT LOCAL PLAN

OBJECTOR SITES 39, 58, 59 LAND AT LOPERWOOD FARM,

CALMORE, HAMPSHIRE

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on approximately 13 hectares of land at Loperwood Farm Calmore in Hampshire. The survey was carried out during February 1997.

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with its statutory input to the New Forest District Local Plan. The site is one of a number of objector sites. The results of this survey supersede any previous ALC information for this land.

3 Prior to 1 April 1997 the work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. After this date the work was completed by the same team as part of the Farming and Rural Conservation Agency (FRCA) Reading. 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 all of the agricultural land on this site was under permanent grassland. The areas shown as Other Land comprise mainly the recreation ground, houses, woodland and various roads. To the north east is a small area of Agricultural Land Not Surveyed where permission to survey was not granted.

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 surveyed land are summarised in Table 1 below.

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% Surveyed area	% Total site area
2	1.9	27.5	15.2
3a	5.0	72.5	40.0
Agricultural land not surveyed	0.5		4.0
Other land	5.1		40.8
Total surveyed area	6.9	100.0	
Total site area	12.5		100.0

7 The fieldwork was conducted at an average density of 1 boring per hectare. A total of 18 borings and two soil inspection pits were described.

8 The majority of the survey area comprises land of good quality (Subgrade 3a) the key limitation being one of soil wetness. Soils typically comprise coarse loamy slightly flinty topsoils over variable coarse or fine loamy subsoils becoming more flinty. At moderate depth, heavy subsoils impede drainage resulting in seasonal waterlogging which can adversely affect plant growth. However, this situation is improved because the coarse loamy topsoil allows a longer period on which the land can be worked. Grade 2 (very good quality agricultural land) is mapped toward the south east of the survey area on slightly sloping land where the drainage is better and the heavy subsoils are located further down the soil profile otherwise the soils are similar to those within the Subgrade 3a mapping unit.

FACTORS INFLUENCING ALC GRADE

Climate

9 Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

10 The key climatic variables used for grading this site are given in Table 2. These were obtained from the published 5km grid datasets using standard interpolation procedures (Met Office 1989).

11 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.

Table 2 Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SU 338 147
Altitude	m, AOD	20
Accumulated Temperature	day°C	1535
Average Annual Rainfall	mm	848
Field Capacity Days	days	176
Moisture Deficit, Wheat	mm	107
Moisture Deficit, Potatoes	mm	101

12 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 (AT0 January to June) as a measure of the relative warmth of a locality.

13 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Local climatic factors such as exposure and frost risk are not believed to significantly affect this area. The site is climatically Grade 1.

Site

14 The site lies at altitudes in the range 20 35m AOD sloping west to east. Nowhere on the site does gradient or microrelief affect agricultural land quality.

Geology and soils

15 The published geological information for the site (BGS 1973) shows the surveyed area to be mapped as a solid deposit of Bracklesham Beds composed of glauconitic sand and clay.

16 The most detailed published soils information for the site (SSEW 1983 and 1984) has mapped the site as the Wickham 3 association. These are described as slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging. Landslips and associated surface irregularities on slopes (SSEW 1984).

AGRICULTURAL LAND CLASSIFICATION

17 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.

18 The location of the auger borings and pits is shown on the attached sample location map and details of the soils data are presented in Appendix II.

Grade 2

19 Very good quality agricultural land has been mapped as a single mapping unit to the south east of the site. The restriction is a minor soil wetness and droughtiness limitation.

20 Soils in this area are of a single type. They are characterised by the pit observation 1P. The topsoils commonly comprise a very slightly stony (up to 5% total flints) non-calcareous medium sandy loam passing to a very slightly stony to slightly stony (up to 15% total flints) gleyed fine sandy loam or gleyed medium clay loam upper subsoil horizon exhibiting moderate structural characteristics. The lower subsoil comprises slightly stony to moderately stony (up to 35% total flints) gleyed fine sandy loam or gleyed medium clay loam texture over a lower very slightly stony (up to 5% total flints) gleyed heavy clay loam or gleyed clay exhibiting poor structural conditions characteristic of a slowly permeable layer (from 80+ cm). Given the local climate the gleying is an indicator of impeded soil drainage equating to Wetness Class II. Grade 2 is an appropriate classification for land with such drainage characteristics.

21 Soil wetness restricts land utilisation by reducing the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock as well as adversely affecting crop growth and development.

Subgrade 3a

22 Land of Subgrade 3a quality has been mapped as a single mapping unit covering the majority of the site. The principal limitation is soil wetness.

23 Soils in this area are of a single type. As with the Grade 2 soils, they are characterised by the pit observation, 1P. The soil properties associated with the Subgrade 3a mapping unit are similar to the Grade 2 unit, except the slowly permeable layer is found at a shallower depth (from 67+ cm). Consequently, the depth to the impeded drainage determines the severity of the limitation and therefore the ALC grade. In the local climate, the combination of soil characteristics, particularly the soil water regime and the texture of the top 25 cm, is used in the assessment of soil wetness and a Wetness Class III is appropriate in this case, leading to an appropriate Subgrade 3a classification based on a soil wetness limitation.

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SOURCES OF REFERENCE

British Geological Survey (1973) *Sheet 315 Southampton Solid and Drift Edition*
1 50 000 Scale 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

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

Soil Survey of England and Wales (1983) *Soils of South East England. 1 250 000 Scale*
SSEW Harpenden

Soil Survey of England and Wales (1984) *Soils of South East England Bulletin No 15*
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 descriptions

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

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

MREL	Microrelief limitation	FLOOD	Flood risk	EROSN	Soil erosion risk
EXP	Exposure limitation	FROST	Frost prone	DIST	Disturbed land
CHEM	Chemical limitation				

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

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

Soil Pits and Auger Borings

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

S	Sand	LS	Loamy Sand	SL	Sandy Loam
SZL	Sandy Silt Loam	CL	Clay Loam	ZCL	Silty Clay Loam
ZL	Silt Loam	SCL	Sandy Clay Loam	C	Clay
SC	Sandy Clay	ZC	Silty Clay	OL	Organic Loam
P	Peat	SP	Sandy Peat	LP	Loamy Peat
PL	Peaty Loam	PS	Peaty Sand	MZ	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

HR	all hard rocks and stones	FSST	soft fine grained sandstone
ZR	soft argillaceous or silty rocks	CH	chalk
MSST	soft medium grained sandstone	GS	gravel with porous (soft) stones
SI	soft weathered igneous/metamorphic rock	GH	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	WK	weakly developed	MD	moderately developed
	ST	strongly developed		
Ped size	F	fine	M	medium
	C	coarse		
Ped shape	S	single grain	M	massive
	GR	granular	AB	angular blocky
	SAB	sub angular blocky	PR	prismatic
	PL	platy		

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

L loose	FM firm	EH extremely hard
VF very friable	VM very firm	
FR friable	EM 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

SOIL PIT DESCRIPTION

Site Name NEW FOREST DLP 39 58 59 Pit Number 1P

Grid Reference SU33541470 Average Annual Rainfall 849 mm
 Accumulated Temperature 1535 degree days
 Field Capacity Level 177 days
 Land Use Permanent Grass
 Slope and Aspect 01 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MSL	10YR42 00	0	3	HR	C				
27- 43	FSL	10YR52 00	0	10	HR	C	MVCSAB	FR	M	
43- 66	FSL	10YR62 00	0	10	HR	C	MDCSAB	FR	M	
66- 90	C	25Y 63 00	0	5	HR	M	WKVCPR	FM	P	

Wetness Grade 3A Wetness Class III
 Gleying 027 cm
 SPL 066 cm

Drought Grade 2 APW 117mm MBW 10 mm
 APP 113mm MBP 12 mm

FINAL ALC GRADE 3A
 MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
1P	SU33541470	PGR SE	01	027 066	3	3A	117	10 113	12	2			WE	3A	AT AB8
2	SU33701490	PGR E	01	025 070	3	3A	130	23 104	3	2			WE	3A	
3	SU33801490	PGR E	02	025 065	3	3A	120	13 109	8	2			WE	3A	
5	SU33701480	PGR SE	02	025 080	2	2	120	13 108	7	2			WD	2	VWET90
6	SU33801480	PGR E	01	025 067	3	3A	110	3 101	0	3A			WE	3A	I95 FLINTS
8	SU33541470	PGR SE	01	025 060	3	3A	106	-1 104	3	3A			WE	3A	SEE 1P
9	SU33701470	PGR SE	02	028 070	3	3A	107	0 105	4	3A			WE	3A	VWET70
10	SU33801470	PGR E	02	038 105	2	2	144	37 112	11	1			WE	2	
12	SU33701460	PGR SE	01	0 082	2	2	125	18 110	9	2			WD	2	I105 FLINTS
13	SU33801460	PGR SE	01	048 068	2	2	131	24 105	4	2			WD	2	
14	SU33751455	PGR SE	01	050 085	2	2	119	12 104	3	2			WD	2	WT50CM

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED		----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL	GLEY	>2	>6	LITH		TOT	STR	POR	IMP	SPL	CALC
1P	0-27	msl	10YR42 00	10YR46 00	C				0	0	HR	3						ROOT MOTTLES
	27-43	fsl	10YR52 00	10YR68 00	C			Y	0	0	HR	10	MVCSAB	FR	M			
	43-66	fsl	10YR62 00	10YR68 00	C			Y	0	0	HR	10	MDCSAB	FR	M			
	66-90	c	25Y 63 00	75YR68 00	M			Y	0	0	HR	5	WKVCPR	FM	P	Y		Y
2	0-25	msl	10YR42 00						0	0	HR	5						
	25-40	fsl	10YR53 00	10YR56 00	C			Y	0	0	HR	10			M			MOIST
	40-70	fsl	10YR58 00	10YR58 00	C			Y	0	0	HR	30			M			V WET
	70-120	hcl	25Y 63 00	05YR58 00	M			Y	0	0	HR	5			P		Y	FIRM/BORDER CLAY
3	0-25	msl	10YR42 00						0	0	HR	5						
	25-40	fsl	25Y 52 00	10YR58 00	C			Y	0	0	HR	10			M			SOFT
	40-65	fsl	10YR52 00	10YR58 00	C			Y	0	0	HR	15			M			V WET
	65-100	hcl	25Y 63 00	75YR58 00	M			Y	0	0	HR	5			P		Y	V FIRM
5	0-25	msl	10YR43 00						0	0	HR	2						SL SANDY
	25-55	mc1	10YR52 42	10YR58 00	C			Y	0	0	HR	8			M			SL SANDY
	55-80	mc1	10YR62 53	10YR58 00	C			Y	0	0	HR	8			M			SL SANDY
	80-100	c	25Y 61 00	75YR68 58	M			Y	0	0	HR	5			P		Y	V FIRM
6	0-25	msl	10YR42 00						0	0	HR	5						BORDER MCL
	25-40	fsl	10YR52 00	10YR56 00	C			Y	0	0	HR	10			M			V MOIST
	40-67	fsl	10YR52 00	10YR56 00	C			Y	0	0	HR	35			M			V WET
	67-95	hcl	25Y 63 00	75YR58 00	M			Y	0	0	HR	5			P		Y	I FLINTS/BORDER CLA
8	0-25	msl	10YR32 00						0	0	HR	2						SL SANDY
	25-42	mc1	10YR51 00	10YR58 00	C			Y	0	0	HR	12			M			V WET
	42-60	mc1	25Y 52 53	10YR58 00	C			Y	0	0	HR	12			M			
	60-90	c	25Y 52 00	75YR56 00	M			Y	0	0	HR	5			P		Y	
9	0-28	msl	10YR41 00						0	0	HR	2						ROOT MOTTLES
	28-38	msl	10YR53 00	10YR56 00	C			Y	0	0	HR	12			M			
	38-70	mc1	10YR52 00	10YR58 00	M			Y	0	0	HR	12			M			V MOIST
	70-90	c	25Y 52 51	75YR56 00	M			Y	0	0	HR	10			P		Y	V WET
10	0-28	msl	10YR32 00						0	0	HR	3						
	28-38	mc1	10YR42 00						0	0	HR	3			M			
	38-70	mc1	10YR53 00	10YR58 00	C			Y	0	0	HR	3			M			
	70-105	mc1	10YR63 00	75YR68 00	M			Y	0	0	HR	3			M			
	105-120	c	25Y 62 00	75YR68 00	M			Y	0	0	HR	3			P		Y	
12	0-30	msl	10YR42 00	10YR58 00	C			Y	0	0	HR	5						
	30-58	fsl	10YR52 00	10YR58 00	C			Y	0	0	HR	10			M			V MOIST
	58-82	mc1	10YR63 00	75YR58 00	M			Y	0	0	HR	20			M			V WET
	82-105	c	25Y 63 00	75YR58 00	M			Y	0	0	HR	5			P		Y	I FLINT/FIRM
13	0-25	msl	10YR42 00	10YR46 00	C				0	0	HR	5						ROOT MOTTLES
	25-48	mc1	10YR42 00						0	0	HR	5			M			
	48-68	fsl	10YR53 00	10YR58 00	C			Y	0	0	HR	25			M			V WET
	68-120	hcl	25Y 63 00	75YR58 00	M			Y	0	0	HR	5			P		Y	FIRM/DRY

