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**New Forest District Local Plan  
Objector Site 51 Land at Irons Hill  
Walk, Lyndhurst, Hampshire**

**Agricultural Land Classification  
ALC Map and Report**

**April 1997**

**Resource Planning Team  
Eastern Region  
FRCA Reading**

**RPT Job Number 1508/030/97  
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**AGRICULTURAL LAND CLASSIFICATION REPORT**  
**NEW FOREST DISTRICT LOCAL PLAN**  
**OBJECTOR SITE 51**  
**LAND AT IRONS HILL WALK, LYNDHURST, HAMPSHIRE**

**INTRODUCTION**

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately five hectares of land at Irons Hill Walk to the south east of Lyndhurst south 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 the agricultural land on this site was in permanent grassland. The area to the west of the site shown as 'Other Land' comprises a broad drain.

**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.

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3a	3.4	70.8	65.4
3b	1.4	29.2	26.9
Other land	0.4	N/A	7.7
Total surveyed area	4.8	100.0	92.3
Total site area	5.2		100.0

7 The fieldwork was conducted at an average density of just over one boring per hectare of land surveyed. A total of seven borings and one soil pit were described.

8 The majority of land at this site has been classified as Subgrade 3a (good quality) because of soil wetness and workability limitations. Typical profiles comprise fine textured loamy and sandy soils which are subject to fluctuating groundwater levels which may be difficult to control. At this relatively wet locality this land may experience some restrictions on the flexibility of cropping, stocking and cultivations.

9 The flatter lower-lying land in the north of the site has been classified as Subgrade 3b (moderate quality). Soil drainage is less effective across this area and in comparison to the Subgrade 3a land the soil profiles will be waterlogged for longer durations.

## FACTORS INFLUENCING ALC GRADE

### Climate

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

11 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).

Table 2 Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SU 303 073
Altitude	m AOD	35
Accumulated Temperature	day°C (Jan June)	1521
Average Annual Rainfall	mm	899
Field Capacity Days	days	185
Moisture Deficit, Wheat	mm	104
Moisture Deficit, Potatoes	mm	96
Overall climatic grade	N/A	Grade 1

12 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.

13 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.

14 The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation. However climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. The field capacity days (a measure of climatic wetness) at this locality are above average for the south-east of England. This may increase the likelihood of soil wetness limitations. No local climatic factors such as exposure or frost risk, are believed to adversely affect the land quality on the site. This site is climatically Grade 1.

## Site

15 The south of the site lies at an altitude of 35 m AOD and gently falls through gradients of 1-4° to lie at approximately 30 m AOD along the northern site boundary. Nowhere on the site do gradient or microrelief affect agricultural land quality.

## Geology and soils

16 The published geological information (BGS 1987) shows the southern half of the site to be underlain by Becton Sand (sand and fossils), the northern half is shown as Chama Sand (bluish-grey loamy sand and fossils). Drift deposits of alluvium are mapped to the immediate north and west of the site.

17 The published soil survey map (SSEW 1983) for the area indicates the site to comprise soils of the Holidays Hill Association. These soils are described as Naturally very acid sandy over clayey and loamy over clayey soils, locally with humose or peaty surface horizons, slowly permeable subsoils and slight seasonal waterlogging. Some very acid well drained sandy soils and some deep sandy soils affected by groundwater with humose surface horizon (SSEW 1983). To the immediate south west of the site soils of the Wickham 3 Association are mapped. These soils 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. Some deep coarse loamy soils affected by groundwater (SSEW 1983). Detailed field survey work found fine textured loamy and sandy soils which are variably affected by fluctuating groundwater levels.

## AGRICULTURAL LAND CLASSIFICATION

18 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.

19 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 page 8.

## Subgrade 3a

20 The slightly higher land on the site has been classified as Subgrade 3a (good quality) because of soil wetness and workability limitations. Topsoils comprise non calcareous fine sandy loams. These overlie similarly textured sandy clay loam or loamy fine sand upper subsoils which in most profiles pass into fine sand lower subsoils at approximately 40-90 cm depth. Topsoils are very slightly stony (containing 2-4% total hard stone), subsoils have a similar or slightly higher stone content (containing 2-10% total hard stone). These profiles are either gleyed from the surface or immediately below the topsoil. From Pit 1 which represents such profiles it was observed that no slowly permeable layer occurs within 80 cm depth. However given the shallow depths to gleying and the wet prevailing climate these profiles have been assessed as imperfectly drained (Wetness Class III) because of high groundwater levels which are likely to prove difficult to regulate.

21 Occasionally the profiles pass into plastic clay subsoils at depth. These subsoils are slowly permeable and act to impede soil drainage such profiles have also been assigned to Wetness Class III. Across this entire Subgrade 3a mapping unit the interaction between the topsoil textures and soil drainage characteristics (both groundwater and surface water induced) with the relatively wet local climate means that this land can be graded no higher than Subgrade 3a. This land will be subject to some restrictions on the flexibility of cropping, stocking and cultivations.

### **Subgrade 3b**

22 All of the flatter, lower lying land on the site has been classified as Subgrade 3b (moderate quality) because of significant soil wetness and workability limitations. These profiles are similar to those described in paragraph 20. However, the flat and low-lying nature of this land means that for much of the year it is unlikely that these profiles could be adequately drained and that the groundwater levels would be high for much of the year. Consequently, this land has been assessed as poorly drained (Wetness Class IV) as indicated by high groundwater levels in both ditches and soil auger borings at the time of survey. In the north west of the site, plastic clay subsoils occur at shallow depths within the soil profile. The subsoils are slowly permeable and result in poor soil drainage conditions (Wetness Class IV is appropriate). The interaction between these soil drainage characteristics and the local climate means that all of this land is classified as Subgrade 3b because of soil wetness. Excessive soil wetness adversely affects seed germination and survival and inhibits the development of a good root system. Soil wetness also imposes restrictions on cultivations, trafficking by machinery or grazing by livestock.

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## SOURCES OF REFERENCE

British Geological Survey (1987) *Sheet No 315 Southampton 1 50 000 (solid and drift edition)*

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 1 250 000 scale Soils of South East England and accompanying legend.*

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

<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

<b>F</b>	Fine (more than 66% of the sand less than 0.2mm)
<b>M</b>	Medium (less than 66% fine sand and less than 33% coarse sand)
<b>C</b>	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

<b>F</b>	faint - indistinct mottles evident only on close inspection
<b>D</b>	distinct - mottles are readily seen
<b>P</b>	prominent mottling is conspicuous and one of the outstanding features of the horizon

5 **PED COL** Ped face colour using Munsell notation

6 **GLEY** 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>VF</b> very friable	<b>FR</b> friable	<b>FM</b> firm	<b>VM</b> very firm
<b>EM</b> extremely firm		<b>EH</b> extremely hard		

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

<b>APW</b>	available water capacity (in mm) adjusted for wheat
<b>APP</b>	available water capacity (in mm) adjusted for potatoes
<b>MBW</b>	moisture balance wheat
<b>MBP</b>	moisture balance potatoes

SOIL PIT DESCRIPTION

Site Name NFOLP SITE 51 Pit Number 1P

Grid Reference SU43300730 Average Annual Rainfall 899 mm  
 Accumulated Temperature 1521 degree days  
 Field Capacity Level 185 days  
 Land Use Permanent Grass  
 Slope and Aspect 02 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 23	FSL	10YR42 00	0	2	HR					
23- 55	FSL	10YR53 00	0	8	HR	C	MDCSAB	FR	M	
55- 80	SCL	10YR53 00	0	2	HR	M	MDCSAB	FR	M	
80-120	FS	25 Y73 00	0	0		M	MDCSAB	FR	M	

Wetness Grade 3A Wetness Class III  
 Gleying 023 cm  
 SPL No SPL

Drought Grade APW mm MBW 0 mm  
 APP mm MBP 0 mm

FINAL ALC GRADE 3A  
 MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB					
1	SU43300748	PGR NW	01	025 040	4	3B		0	0				WE	3B	Sp1 Lower land
1P	SU43300730	PGR S	02	023	3	3A		0	0				WE	3A	G water higher
2	SU43300740	PGR N	01	0	4	3B		0	0				WE	3B	G water lower
3	SU43400740	PGR N	01	025	4	3B		0	0				WE	3B	G water lower
4	SU43300730	PGR S	02	025	3	3A		0	0				WE	3A	G water higher
5	SU44400730	PGR N	02	025 075	3	3A		0	0				WE	3A	Sp1 In dip
6	SU44500730	PGR		0	3	3A		0	0				WE	3A	G water higher
7	SU43200732	PGR NW	04	025	3	3A		0	0				WE	3A	G water higher

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED COL	-----STONES-----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT		GLY	>2	>6		LITH	TOT	STR		
1	0-25	fs1	10YR32 00					0	0	HR	5					
	25-40	fs1	10YR21 42 75YR58 00 M					Y	0	0	HR	25		M		
	40-60	c	25 Y53 62 10YR56 00 M					Y	0	0	HR	20		P	Y	Plastic clay
	60-75	c	25 Y63 62 10YR58 00 M					Y	0	0	HR	20		P	Y	Plastic clay
1P	0-23	fs1	10YR42 00					0	0	HR	2					hand=fs1
	23-55	fs1	10YR53 00 10YR58 00 C				00MND0 00	Y	0	0	HR	8	MDCSAB	FR M		hand=sc1/fs1
	55-80	sc1	10YR53 00 75YR58 00 M					Y	0	0	HR	2	MDCSAB	FR M		psd=border fs1
	80-120	fs	25 Y73 00 10YR58 00 M					Y	0	0		0	MDCSAB	FR M		hand=fs
2	0-25	fs1	10YR22 00 10YR46 00 C					Y	0	0	HR	2				
	25-47	fs1	10YR42 00 10YR56 00 C					Y	0	0	HR	2		M		
	47-85	lfs	10YR21 00 10YR56 00 C					Y	0	0	HR	2		M		
	85-105	fs	25 Y62 63 25 Y68 00 M					Y	0	0	HR	5		M		Mod see 1P 80cm+
	105-120	fs1	25 Y62 63 25 Y68 00 M					Y	0	0	HR	5		M		
3	0-25	fs1	10YR32 00					0	0	HR	5					
	25-45	fs1	10YR32 42 10YR58 52 C					Y	0	0	HR	5		M		
	45-55	fs1	25Y 53 63 10YR58 00 M					Y	0	0		0		M		
	55-120	fs	25Y 53 63 10YR58 00 M					Y	0	0		0		M		Mod see 1P 80cm+
4	0-25	fs1	10YR42 00					0	0	HR	4					
	25-50	lfs	10YR52 00 10YR56 00 C					Y	0	0	HR	2		M		Mod see 1P 80cm+
	50-60	sc1	10YR52 00 10YR56 00 M					Y	0	0	HR	2		M		
	60-90	c	25Y 52 00 75YR58 00 M					Y	0	0	HR	2		M		1P psd=sc1/fs1
	90-105	fs	25Y 63 00 10YR56 00 M					Y	0	0		0		M		Mod see 1P 80cm+
	105-120	fs	25Y 64 00 10YR56 00 M					Y	0	0		0		M		Mod see 1P 80cm+
5	0-25	fs1	10YR32 00					0	0	HR	2					
	25-40	fs1	10YR41 51 75YR46 00 C					Y	0	0	HR	2		M		
	40-68	lfs	10YR51 00 10YR58 00 C					Y	0	0	HR	8		M		Mod see 1P 80cm+
	68-75	fs	10YR64 00 10YR58 00 M					Y	0	0	HR	8		M		Mod see 1P 80cm+
	75-120	c	05Y 51 00 75YR58 00 M					Y	0	0	HR	15		M	Y	Plastic clay
6	0-25	fs1	10YR42 00 10YR56 00 C					Y	0	0	HR	2				
	25-40	lfs	25Y 53 00 10YR56 00 C					Y	0	0	HR	2		M		Mod see 1P 80cm+
	40-65	fs	10YR63 53 10YR56 00 C					Y	0	0		0		M		Mod see 1P 80cm+
	65-120	fs	25Y 53 52 10YR56 00 C					Y	0	0		0		M		Mod see 1P 80cm+
7	0-25	fs1	10YR42 00 75YR56 00 F					0	0	HR	2					psd=fs1
	25-40	fs1	10YR42 00 10YR56 00 C					Y	0	0	HR	2		M		
	40-50	lfs	10YR52 00 10YR58 62 C					Y	0	0	HR	10		M		Mod see 1P 80cm+
	50-120	fs1	10YR42 41 10YR58 00 C					Y	0	0	HR	8		M		