A1

HAVANT BOROUGH LOCAL PLAN

Objector Site - Area 8 Land South of Tournerbury Lane, Hayling Island, Hampshire

Agricultural Land Classification
ALC Map and Report

June 1998

Resource Planning Team
Eastern Region
FRCA Reading

RPT Job Number 1507/041/98
FRCA Reference EL 15/01041

AGRICULTURAL LAND CLASSIFICATION REPORT

HAVANT BOROUGH LOCAL PLAN, OBJECTOR SITE - AREA 8
LAND SOUTH OF TOURNERBURY LANE, HAYLING ISLAND, HAMPSHIRE

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 9 4 hectares of land to the south of Tournerbury Lane Hayling Island in Hampshire The survey was carried out during June 1998

2 The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture Fisheries and Food (MAFF) in connection with MAFF s statutory input to the Havant Borough Local Plan The survey covers Objector Site 8 as detailed on the accompanying map In order to provide a context for appraising the current objector site further adjacent land was also surveyed This survey supersedes any previous ALC information for this land Land immediately south west of the site was surveyed in 1992 (FRCA Ref 1507/074/92) This 1992 data has been used in conjunction with the current survey data in order to derive the agricultural land classification for Objector Site 8

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 agricultural land use on the site consisted of permanent grassland and winter wheat with the grassland partly used for grazing ponies and partly for hay production The areas mapped as Other land include a cattery farm buildings tracks and a small pony paddock

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 all of the surveyed land are summarised in Tables 1 and 2 overleaf

7 The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land A total of 12 borings and 1 soil pit were described

8 The site has been classified as mostly Grade 2 (very good quality agricultural land) with two small areas of Subgrade 3a (good quality) in the extreme south and east of the site The soil profiles are variable across the site and the principal limitation is soil droughtiness which acts alone or in combination with soil wetness

---

[1] FRCA is an executive agency of MAFF and the Welsh Office

Table 1 Area of grades and other land Objector Site 8

Grade/Other land	Area (hectares)	% surveyed area	% site area
2 Other land	1 4 0 1	100 N/A	93 3 6 6
Total surveyed area Total site area	1 4 1 5	100	93 3 100

Table 2 Area of grades and other land Land South of Tournerbury lane, Hayling Island

Grade/Other land	Area (hectares)	% surveyed area	% site area
2 3a Other land	6 3 2 5 0 6	71 6 28 4 N/A	67 0 26 6 6 4
Total surveyed area Total site area	8 8 9 4	100	93 6 100

9 The Grade 2 unit mainly comprises fine and coarse silty or fine loamy topsoils which are stoneless to slightly stony These overlie similar or slightly heavier upper subsoils which have similar stone contents to the topsoils but are often gleyed Lower subsoils are variable in texture (ranging from medium sandy to clayey) and contain up to 45% total hard rock at moderate to deep depths Occasional profiles are impenetrable to the auger at depths between 50cm and 100cm Such soils combine with the prevailing climate to give land which has very minor soil droughtiness and/or soil wetness limitations to agricultural use Soil droughtiness causes a reduction in the amount of water available for crop uptake and thus leads to the level and consistency of crop yields being restricted A soil wetness limitation will restrict seed germination and growth and also impose restrictions on cultivations or grazing by livestock

10 The Subgrade 3a land is of good agricultural quality and consists of soil profiles which are similar to those described above but tend to be impenetrable to the soil auger at depths between 40cm and 60cm due to higher stone contents in the subsoils Consequently the droughtiness restriction is more limiting and the land can be classified no higher than Subgrade 3a

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 3 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

15 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation The site is believed not to be at risk from frost However it does lie in an area which is indicated as being Exposed (Met Office 1970) Detailed field examination indicates that exposure is not likely to be a significant limitation in the grading of this site The site is climatically Grade 1

Table 3 Climatic and altitude data

Factors	Units	Values
Grid reference	N/A	SZ 728 998
Altitude	m AOD	5
Accumulated Temperature	day°C	1549
Average Annual Rainfall	mm	688
Field Capacity Days	days	141
Moisture Deficit Wheat	mm	124
Moisture Deficit Potatoes	mm	121
Overall Climatic Grade	N/A	Grade 1

Site

16 The majority of the site lies at an altitude of 5m AOD and is flat or very gently sloping Nowhere on the site does gradient microrelief or flood risk limit land quality

Geology and soils

17 The published geological information for the area (BGS 1970) shows the whole site to be underlain by brickearth deposits which rest upon London Clay

18 The most recently published soil information for the area (SSEW 1983) shows the Park Gate association to cover the whole site These soils are described as deep stoneless silty soils variably affected by groundwater (SSEW 1983)

19 Upon detailed field examination soils similar to the above description were found to exist across the majority of the survey area although many of the borings were stonier

Agricultural Land Classification

20 The details of the classification of the objector site and total area surveyed are shown on the attached ALC map and the area statistics of each grade are given in Table 1 and 2

21 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

Grade 2

22 Approximately two thirds of the site is mapped as Grade 2 (very good quality agricultural land) The land is affected by a combination of wetness and droughtiness restrictions Very occasional borings which are of slightly better quality are also included within this unit

23 The soils generally comprise stoneless to slightly stony (0 10% total flints 0 1% >2cm) medium silty clay loam or occasionally medium clay loam topsoils These rest upon similar upper subsoils (in terms of textures and stone contents) which are usually gleyed but friable and moderately structured Lower subsoils are also gleyed and commonly become heavier in texture with depth varying from clay loams to clays (with very occasional loamy medium sands) Where a soil wetness limitation occurs profiles tend to be gleyed within depths of 30cm from the surface (see Pit 1 Appendix II) Depending on the depth to gleying and the texture of the various horizons most of the soil profiles within this unit suffer from slight impeded drainage causing them to be assigned to Wetness Class II The interaction between these soils and the local climatic regime results in a minor wetness limitation which will restrict the utilisation of the land and lead to a reduction in crop growth and yields

24 The soils within this unit are equally affected by soil droughtiness The combination of soil textures and stone contents together with the local climatic regime means that profiles often have restricted reserves of available water This leads to a slight risk of drought stress to plants in most years and means that this land can be classified no better than Grade 2 Soil Pit 2 (see Appendix II) is representative of this soil type

Subgrade 3a

25 Restricted areas of the site to the east and south are mapped as good quality agricultural land (Subgrade 3a) The land is affected mainly by soil droughtiness restrictions The topsoils are similar to those in the Grade 2 unit in that they consist of very slightly to slightly stony (containing between 5 and 8% total flints) medium silty clay loams with very occasional fine sandy silt loams These rest over similar or slightly heavier textured upper subsoils which are variably stony (containing up to 35% total flints by volume) Very occasional borings within this unit have slowly permeable clayey lower subsoils (at 75cm depth) Soil drainage is found to be slightly impeded in all the profiles within this unit to such an extent that gleying occurs at shallow depths in the profile (at depths above 28cm) Depending on the depth to gleying the soils have been assigned to Wetness Class I or II On the whole these soils have higher stone contents than the profiles in the Grade 2 unit and as a consequence tend to become impenetrable to the auger at depths between 40cm and 60cm It is the

interaction between these high stone contents and soil textures together with the local climatic regime which causes restricted amounts of profile available water to such an extent that Subgrade 3a is appropriate for this land on the basis of soil droughtiness Information from the adjacent survey (FRCA Ref 1507/074/92) has been used in the grading of this land

Sharron Cauldwell
Resource Planning Team
FRCA
Eastern Region

SOURCES OF REFERENCE

British Geological Survey (1970) Sheet No 331 Portsmouth 1 63 360 scale (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

Met Office (1970) *Unpublished Climatological Data* Map Sheet 181
Met Office Bracknell

Soil Survey of England and Wales (1983) *Sheet 6 Soils of South East England*
SSEW Harpenden

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

APPENDIX I

DESCRIPTION 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 that 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 that restricts use to permanent pasture or rough grazing except for occasional pioneer forage crops

APPENDIX II

SOIL DATA

Contents

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	**DCW**	Deciduous Wood
HTH	Heathland	**BOG**	Bog or Marsh	**FLW**	Fallow
PLO	Ploughed	**SAS**	Set aside	**OTH**	Other
HRT	Horticultural Crops				

3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer

4 **GLEY/SPL** 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	**EX**	Exposure
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
ST	Topsoil Stoniness				

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 **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

HR	all hard rocks and stones	**SLST**	soft oolitic or dolimitic limestone
CH	chalk	**FSST**	soft fine grained sandstone
ZR	soft argillaceous or silty rocks	**GH**	gravel with non porous (hard) stones
MSST	soft medium grained sandstone	**GS**	gravel with porous (soft) stones
SI	soft weathered igneous/metamorphic rock		

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 **ST** strongly developed	**MD** moderately developed
ped size	**F** fine **C** coarse	**M** medium **VC** very coarse
ped shape	**S** single grain **GR** granular **SAB** sub angular blocky **PL** platy	**M** massive **AB** angular blocky **PR** prismatic

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

L loose **VF** very friable **FR** friable **FM** firm **VM** very firm
EM extremely firm **EH** 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 appropiate 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	GLEY	SPL	WETNESS- CLASS	WHEAT GRADE	POTS AP	POTS MB	M REL AP	M REL MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SZ72809980	CER	0			2	2	132	8	114	-7	2				WD	2	
2	SZ72869994	PGR	0			2	2	82	42	82	39	3B				WD	2	I50 SEE 1P
3	SZ73009990	HAY	28			2	1	75	-49	75	-46	3B				DR	3A	IMP 40
4	SZ72789980	PGR	50			1	1	173	49	137	16	1					1	SEE 1P
5	SZ72909980	HAY	28			2	2	132	8	120	-1	2				WD	2	IMP 100 SEE 1P
6	SZ73009980	HAY	27			2	2	100	-24	109	12	3B				WD	2	IMP 65 SEE 1P
7	SZ72909970	HAY	30			2	2	134	10	121	0	2				WD	2	SEE 1P
8	SZ72909960	HAY	0	75		2	2	129	5	105	16	3A				DR	3A	
9	SZ72909950	HAY	30	90		2	2	141	17	113	8	2				WD	2	
10	SZ73109975	HAY	45			1	1	82	-42	85	-36	3B				DR	3A	IMP 60
11	SZ72769971	PGR	0	70		2	2	146	22	125	4	2				WD	2	SEE 1P
12	SZ72759988	RGR	0			2	2	138	14	114	-7	2				WD	2	SEE 1P
P	SZ72769971	PGR	0			2	2	155	31	121	0	2				WD	2	WET AT 110CM

SAMPLE	DEPTH	TEXTURE	COLOUR	-- -MOTTLES COL	ABUN	CONT	PED COL	GLEY	- --STONES---- 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0-32	MCL	10YR42	10YR46	C			Y	0	0	HR	5							
	32 55	MCL	25Y 52 62	10YR56 58	M	D		Y	0	0	HR	3		M					BORDER HCL
	55 100	HCL	25Y 51 61	75YR58	M	D		Y	0	0	HR	2		M					VARIABLE /DENSE
2	0 30	MZCL	10YR42	10YR56	C	F		Y	0	0	HR	10							
	30 50	MZCL	10YR53	10YR56 58	M	D		Y	0	0	HR	10		M					IMP DRY/FLINTS
3	0-28	FSZL	10YR42						1	0	HR	8							
	28-40	MZCL	10YR53	10YR56	C	D		Y	0	0	HR	12		M					IMP DRY/FLINTS
4	0-30	ZL	10YR43 53						0	0		0							
	30-50	MZCL	10YR54						0	0		0		M					
	50-120	HZCL	10YR63 73	75YR58	M	D		Y	0	0		0		M					LOOSE/DRY
5	0 28	MZCL	10YR42						0	0	HR	3							
	28 50	MZCL	25Y 63	10YR66	C	D		Y	0	0	HR	3		M					
	50 90	HZCL	10YR52 54	10YR58	M	D		Y	0	0	HR	5		M					POROUS/LOOSE
	90 100	SCL	25Y 72	10YR58	M	D		Y	0	0	HR	45		M					POROUS/LOOSE
6	0 27	MZCL	10YR42						0	0	HR	3							
	27 42	MZCL	25Y 53	10YR58	M	D		Y	0	0	HR	3		M					
	42 60	HZCL	25Y 53	75YR58	M	D		Y	0	0	HR	5		M					
	60 65	HZCL	10YR53	10YR58	C	D		Y	0	0	HR	35		M					IMP FLINTS
7	0 30	MZCL	10YR42						0	0	HR	3							
	30 50	MZCL	25Y 63 62	10YR58 68	C	D		Y	0	0	HR	3		M					
	50 95	HZCL	10YR62	75YR58	M	D		Y	0	0	HR	5		M					
	95 100	HZCL	10YR71	75YR58	M	D		Y	0	0	HR	45		M					POROUS/LOOSE
8	0 30	MZCL	10YR42	10YR46	C	D		Y	0	0	HR	5							
	30 55	HZCL	25Y 62	10YR58	C	D		Y	0	0	HR	35		M					
	55 75	HCL	25Y 62	10YR58	M	D		Y	0	0	HR	10		M					
	75 120	C	10YR62	10YR58	M	D		Y	0	0	HR	2		P		Y			DENSE/FIRM
9	0 30	MZCL	10YR32 42						1	0	HR	8							
	30 45	MZCL	10YR42	10YR58	C	D		Y	0	0	HR	5		M					
	45 90	HCL	10YR62 71	10YR58	M	D		Y	0	0	HR	10		M					POROUS/LOOSE
	90 120	C	25Y 62	75YR58	M	D		Y	0	0		0		P		Y			DENSE/FIRM
10	0 25	MZCL	10YR42						2	0	HR	10							
	25 45	MZCL	10YR54	10YR66	F	F			0	0	HR	20		M					SEE1P 1507/74/92
	45 60	SCL	10YR53	10YR58	C	D		Y	0	0	HR	40		M					IMP DRY/FLINTS
11	0 32	MZCL	10YR53 63	10YR46	C	D		Y	0	0		0							
	32 50	MZCL	25Y 52 53	10YR46 58	C	D		Y	0	0	HR	2		M					
	50 70	HZCL	25Y 62 72	10YR58	M	D		Y	0	0	HR	1		M					LOOSE/DRY
	70 120	ZC	25Y 62 72	10YR58	M	D		Y	0	0		0		P		Y			DENSE/FIRM

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	>2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
12	0-25	MCL	10YR42	10YR56	C	F		Y	0	0		0							
	25-50	MCL	25Y 62 72	10YR46 58	C	D		Y	0	0		0			M				WITH MS/FS
	50-90	HCL	25Y 52 62	10YR58	M	D		Y	0	0	HR	10			M				WITH MS
	90 120	LMS	25Y 52 62	10YR46 58	M	D		Y	0	0	HR	5			M				WET Q G/W
1P	0-30	MZCL	10YR43 53	10YR56	C	D		Y	0	0	HR	3							
	30 50	MZCL	25Y 62 53	10YR58	M	D		Y	0	0	HR	2	MDCAB	FR	M				POROUS/LOOSE
	50 120	HZCL	25Y 62 52	75YR58	M	D		Y	0	0	HR	5	MDCAB	FR	M				POROUS/LOOSE