

**A1
Swale Borough Local Plan
Objector Site Fav 2,
Land at Ospringe,
Faversham**

**Agricultural Land Classification
November 1996**

**Resource Planning Team
Guildford Statutory Group
ADAS Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

SWALE BOROUGH LOCAL PLAN OBJECTOR SITE FAV 2, LAND AT OSPRINGE, FAVERSHAM

Introduction

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 8.7 ha of land on the south western side of Faversham at Ospringe. The survey was carried out during November 1996.

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 the Swale Borough Local Plan. This survey supersedes any previous ALC surveys on this land.

3 The work was conducted under sub-contracting arrangements by NA Duncan and Associates and was supervised by members of the Resource Planning Team in the Guildford Statutory Group in ADAS. 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 majority of the site was in set aside following a cereal crop. The north western edge of the site however, comprises part of a field of permanent grass used for grazing horses and part of an area of orchard. On the eastern side of the site the land is used as a nursery garden and is partly covered by glasshouses and polythene tunnels and roadways with much of the remaining area covered with black polythene on which container grown plants were standing.

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)	% Total site area	% Surveyed Area
1	4.0	46.0	63.5
3a	2.3	26.4	36.5
Other land	2.4	27.6	
Total surveyed area	6.3		100.0
Total site area	8.7	100.0	

7 The fieldwork was conducted at an average density of 1 boring per hectare. A total of 9 borings were described which were backed up by data from 2 soil inspection pits

8 The central part of the site has been mapped as Grade 1 excellent quality agricultural land with no or very minor limitations to agricultural use. The western part of the area, where relatively shallow soils overlying chalk were identified, land has been classified as Subgrade 3a, good quality agricultural land. The main limitation associated with this area is due to a moderate droughtiness restriction especially for deeper rooting crops. The nursery garden on the eastern side of the site has been mapped as Other Land since due to the nature of the enterprise, there was little bare soil remaining in the area.

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 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	TR 005 606
Altitude	m AOD	25
Accumulated Temperature	day°C (Jan June)	1470
Average Annual Rainfall	mm	665
Field Capacity Days	days	135
Moisture Deficit, Wheat	mm	120
Moisture Deficit, Potatoes	mm	116

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

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 under this warm and relatively dry climate soils will require a high available water capacity to avoid droughtiness limitations. There is however no overall climatic limitation in this area

Site

14 The site falls gently to the north and the altitude ranges from approximately 27 m AOD at the southern end to 19 m AOD alongside the A2 road in the north. Nowhere on the site does gradient or micro-relief impose any limitation on the agricultural use of the area.

Geology and soils

15 The published geological information for the area (BGS 1974) shows the majority of the area to be underlain by head brickearth with a small area of Upper Chalk at the south western corner of the site.

16 There is no detailed soil survey map for the area. The reconnaissance soil map (SSEW 1983) shows most of the area to comprise soils of the Coombe 1 association. These soils which are developed in flinty chalky drift are described as Well drained calcareous fine silty soils deep in valley bottoms shallow to chalk on valley sides in places. Slight risk of water erosion (SSEW 1983). The north east corner of the site is mapped as soils of the Hamble 1 association. These soils are described as Deep well drained often stoneless fine silty soils. Some similar soils affected by groundwater and some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Some shallower soils over chalk. Slight risk of water erosion (SSEW 1983).

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 page 1.

18 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 III.

Grade 1

19 The central part of the site has been mapped as Grade 1 excellent quality agricultural land. The soils in this area comprise deep well drained silty soils which are represented by Pit 2. A typical soil profile has a silt loam topsoil overlying a strong brown medium silty clay loam upper subsoil becoming heavy silty clay loam with depth. The soils are well drained (Wetness Class I) stoneless throughout and have moderately structured subsoils. These soils have high levels of available water and moisture balance calculations indicate that even in this low rainfall area there will be sufficient moisture for crop growth consequently the land has been mapped as Grade 1.

Subgrade 3a

20 An area of Subgrade 3a, good quality agricultural land has been mapped at the south west of the site where the soils are relatively shallow over chalk. The soils in this area have a strongly calcareous silt loam or medium silty clay loam topsoil overlying a well structured medium silty clay loam subsoil with common chalk stones (approximately 15-20% total by volume). Below approximately 40 cm depth is weathered fissured chalk. From Pit 2 which represents such profiles roots were seen to penetrate to approximately 60-70 cm depth. The

interaction between these soil characteristics (and in particular the restricted rooting depth) and the relatively dry prevailing climate leads to a restriction in water availability for plants in some years. Consequently Subgrade 3a is appropriate on the basis of soil droughtiness.

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SOURCES OF REFERENCE

British Geological Survey (1974) *Sheet No 273 Faversham 1 50 000*
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 South East England 1 250 000 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 WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years ²
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 90 days but only wet within 40 cm depth for 30 days in most years
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or if there is no slowly permeable layer present within 80 cm depth it is wet within 70 cm for more than 180 days but only wet within 40 cm depth for between 31-90 days in most years
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or if there is no slowly permeable layer present within 80 cm depth it is wet within 40 cm depth for 91-210 days in most years
V	The soil profile is wet within 40 cm depth for 211-335 days in most years
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* (MAFF 1988)

¹ The number of days is not necessarily a continuous period

² In most years is defined as more than 10 out of 20 years

APPENDIX III

SOIL DATA

Contents

Sample location map

Soil abbreviations - Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout - Horizon Level Information

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 **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	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 subdivided 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	SLST	soft oolitic or dolomitic 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)

SOIL PIT DESCRIPTION

Site Name SWALE BOROUGH LP FAV 2 Pit Number 1P

Grid Reference TR00406050
 Average Annual Rainfall 665 mm
 Accumulated Temperature 1470 degree days
 Field Capacity Level 135 days
 Land Use Set-aside
 Slope and Aspect 01 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	ZL	10YR33 00	2	4	HR					Y
28- 37	MZCL	10YR45 00	0	20	CH		MDMSAB	FR	G	Y
37- 65	CH	10YR81 00	0	3	HR				P	Y

Wetness Grade 1
 Wetness Class I
 Gleying cm
 SPL No SPL

Drought Grade 3A
 APW 103mm MBW -17 mm
 APP 108mm MBP -8 mm

FINAL ALC GRADE 3A
 MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name SWALE BOROUGH LP FAV 2 Pit Number 2P

Grid Reference TR00506060 Average Annual Rainfall 665 mm
 Accumulated Temperature 1470 degree days
 Field Capacity Level 135 days
 Land Use Set-aside
 Slope and Aspect 01 degrees NW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	ZL	10YR33 00	0	1	HR					
27- 65	MZCL	75YR55 00	0	0			MDMPR	FR	M	
65-120	HZCL	75YR54 00	0	0			MDVCSB	FM	M	

Wetness Grade 1 Wetness Class I
 Gleying cm
 SPL No SPL

Drought Grade 1 APW 171mm MBW 51 mm
 APP 135mm MBP 19 mm

FINAL ALC GRADE 1
 MAIN LIMITATION

SAMPLE NO	GRID REF	ASPECT USE	GRDNT	--WETNESS--		-WHEAT-		-POTS-		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
				GLEYS	SPL	CLASS	GRADE	AP	MB	AP	MB					
1	TR00546070	SAS NE	01		1	1	170	50	134	18	1				1	
1A	TR00576078	PGR NW	02		1	1	173	53	137	21	1				1	
1P	TR00406050	SAS W	01		1	1	103	-17	108	-8	3A			DR	3A	
2	TR00606070	SAS NE	01		1	1	173	53	137	21	1				1	
2P	TR00506060	SAS NW	01		1	1	171	51	135	19	1				1	
3	TR00406060	SAS NW	01		1	1	077	-43	080	-36	3B			DR	3A	See Pit 1
3A	TR00456060	SAS NE	01		1	1	173	53	137	21	1				1	
4	TR00506060	SAS NE	01		1	1	171	51	135	19	1				1	
6	TR00406050	SAS W	01		1	1	090	-30	093	-23	3B			DR	3A	See Pit 1
6A	TR00346052	SAS W	05		1	1	105	-15	110	-6	3A			DR	3A	See Pit 1
7	TR00506050	SAS N	01		1	1	139	19	123	7	2			DR	2	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL	----STONES----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT		GLEY >2	>6	LITH		TOT	STR	POR		
1	0-25	z1	10YR33 00					0	0	0						
	25-75	mzc1	75YR55 00					0	0	0			M			
	75-120	hc1	10YR55 00					0	0	0			M			Y
1A	0-30	z1	10YR33 00					0	0	0						
	30-50	mzc1	10YR45 00					0	0	0			M			
	50-120	mzc1	10YR55 00					0	0	0			M			
1P	0-28	z1	10YR33 00					2	1	HR	4					Y
	28-37	mzc1	10YR45 00					0	0	CH	20	MDMSAB	FR	G		Y
	37-65	ch	10YR81 00					0	0	HR	3			P		Y
2	0-30	z1	10YR33 00					0	0	0						
	30-50	mzc1	75YR44 00					0	0	0				M		
	50-120	hzc1	75YR55 00					0	0	0				M		
2P	0-27	z1	10YR33 00					0	0	HR	1					
	27-65	mzc1	75YR55 00					0	0	0		MDMPR	FR	M		
	65-120	hzc1	75YR54 00					0	0	0		MDVCSB	FM	M		
3	0-25	mzc1	10YR33 00					1	0	HR	3					Y
	25-60	ch	10YR81 00					0	0	HR	3			P		Y
3A	0-30	z1	10YR33 00					0	0	0						
	30-40	mzc1	75YR45 00					0	0	0				M		
	40-80	hzc1	75YR55 00					0	0	0				M		
	80-120	hzc1	10YR56 00					0	0	0				M		
4	0-28	z1	10YR33 00					0	0	HR	1					
	28-120	mzc1	75YR55 00					0	0	0				M		
6	0-28	z1	10YR33 00					2	1	HR	4					Y
	28-60	ch	10YR81 00					0	0	HR	3			P		Y
6A	0-28	mzc1	10YR33 00					1	0	HR	3					Y
	28-45	hzc1	10YR54 00					0	0	CH	15			G		Y
	45-70	ch	10YR81 00					0	0	HR	3			P		Y
7	0-30	mzc1	10YR33 00					0	0	HR	2					
	30-40	hzc1	75YR45 00					0	0	0				M		Y
	40-70	hzc1	75YR56 00					0	0	HR	1			M		Y
	70-90	zc	10YR56 00					0	0	HR	3			M		Y
	90-110	ch	10YR81 00					0	0	HR	3			P		Y