

**A1
Swale Borough Local Plan
Site 5 Faversham
(Revised November 1996)**

**Agricultural Land Classification
November 1996**

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

**ADAS Reference 2011/175/94
MAFF Reference EL 20/245
LUPU Commission 01115**

AGRICULTURAL LAND CLASSIFICATION REPORT

SWALE BOROUGH LOCAL PLAN SITE 5 FAVERSHAM

Introduction

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 2.5 ha of land on the south western side of Faversham at Ospringe. The grading of this site has been re-evaluated since the original fieldwork in August 1994 to take into account new information on land quality in the north east corner of the site.

2 The survey was commissioned in 1994 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. However the results were re-evaluated when, as one of a number of objector sites, land to the immediate east and south of Site 5 (ADAS Ref 2011/143/96) was surveyed in 1996. As a result of this recent work in 1996 the data was reviewed and a new map and report produced in 1996 this supersedes the 1994 ALC information for this land.

3 The work was conducted by members of the Resource Planning Team in the Huntingdon Statutory Group of 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 the 1994 survey the agricultural land use was orchard and permanent grassland.

Summary

5 The findings of the 1996 re-evaluation of the site 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. This map supersedes the 1994 ALC map.

6 The revised area and proportions of the ALC grades and subgrades on the surveyed land are summarised below.

Table 1 Area of grades and other land

Grade	Area (hectares)	% Surveyed area
1	1.0	40.0
3a	1.2	48.0
3b	0.3	12.0
Total surveyed area	2.5	100.0

7 The fieldwork for the 1994 survey was conducted at an average density of 1 boring per hectare. A total of 3 borings were described.

8 The land quality on the site has been classified as Grade 1 and Subgrades 3a and 3b. Grade 1 (excellent quality) land has been mapped where deep silty soils occur. This land has no or very minor limitations to agricultural use. Subgrade 3a (good quality) land is limited on wetness and droughtiness whilst the narrow area of Subgrade 3b (moderate quality) land relates to land with a gradient of 10°.

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 004 608
Altitude	m, AOD	15
Accumulated Temperature	day°C (Jan June)	1482
Average Annual Rainfall	mm	657
Field Capacity Days	days	134
Moisture Deficit Wheat	mm	121
Moisture Deficit, Potatoes	mm	118

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 is located on a west facing valley side with the land rising from 10 m AOD along the western boundary to 18 m AOD at the eastern boundary. Steep gradients in excess of 8° are encountered on mid slopes.

Geology and soils

15 The published geological information for the area (BGS 1974) shows the site to be underlain by Cretaceous Upper Chalk which outcrops on the mid slopes. On the higher land in the east the chalk is overlain by head brickearth. In the valley bottom alluvial deposits cover the chalk.

16 There is no detailed soil survey map for the area. The reconnaissance soil map (SSEW 1983) shows the site 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).

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 Grade 1 (excellent quality) land is mapped in the valley bottom and in the north east corner of the site the former associated with the alluvial deposits and the latter with head brickearth deposits. Where the deposits are alluvial soils typically comprise very slightly stony deep silty loams which are variably calcareous in the subsoil. Soils show no sign of drainage impediment and have been assessed as Wetness Class I. In the north east corner of the site silt loam topsoils overlie 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 (see Pit 2 ADAS Ref 2011/143/96). 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 Subgrade 3a (good quality) land is mapped on the upper slopes of the site and occurs in two situations.

21 Firstly soils comprise very slightly stony medium silty clay loam over similar upper subsoils which are gleyed from 35 cm Lower subsoils are heavier comprising heavy clay loam, heavy silty clay loam and clay at depth, and are slowly permeable from approximately 60 cm Wetness Class has been assessed as III thus limiting the land on wetness and workability constraints

22 Secondly soils comprise very slightly stony medium silty clay loams over slightly stony similarly textured upper subsoils Chalk rubble is encountered at depths between 30 35 cms with impenetrable chalk between 40 70 cms The profile textures and the presence of chalk rubble together with chalk at a relatively shallow depth combine to limit the available water for crop growth As a result moderate droughtiness restricts this land to Subgrade 3a

Subgrade 3b

23 Subgrade 3b land is mapped as a narrow strip across the centre of the site Gradients on the mid slope of the valley side were measured at 10° using a hand held clinometer thus excluding the land from a higher grade

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SOURCES OF REFERENCE

British Geological Survey (1974) *Sheet No 273 Faversham*
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 Description (from Objector Site FAV 2, ADAS Ref 2011\143\96)

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 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	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 **MD** moderately developed
 ST strongly developed

ped size **F** fine **M** medium
 C coarse **VC** very 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 **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 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 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

program ALC012

LIST OF BORINGS HEADERS 08/25/94 SWALE BLP FAVERSHAM 5

page 1

SAMPLE NO	GRID REF	ASPECT		--WEINNESS--		-WHEAT-		POTS		M REL		EROSN	FROST	CHEM	ALC	COMMENTS	
		USE		GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST		LIMIT
1	TR00506080	FRT	NW	04	035 100	3	3A	134	13 110	-8	2				WE	3A	BORDER 2
2	TR00406070	FRT	NW	03	000	1	1	136	15 108	-10	2				DR	3A	
3	TR00376074	FRT	NW	02	000	1	1	196	75 147	29	1					1	

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL	--- STONES---			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEYS	>2	>6		LITH	TOT	STR	FOR	IMP	SPL
1	0-25	mzcl	10YR43 00					2	0	HR	4						Y
	25-35	mzcl	10YR55 00					0	0		0		M				
	35-45	mzcl	10YR54 64	10YR66	00	C		Y	0	0	0		M				
	45-60	hzcl	10YR54 64	10YR66	62	C		Y	0	0	0		P				Y
	60-100	hcl	10YR54 64	10YR61	00	C		Y	0	0	0		P				Y
	100-120	c	10YR54 64	10YR61	56	C		Y	0	0	0		P	Y			Y
2	0-30	mzcl	10YR43 00					3	0	HR	3						Y
	30-55	mcl	10YR55 00					0	0	HR	8		M				Y
	55-70	mzcl	10YR71 55					0	0	CH	90		M				Y
	70-120	mzcl	10YR71 00					0	0	CH	95		M				Y
3	0-25	zl	10YR43 00					2	0	HR	5						
	25-40	zl	10YR44 00					0	0	HR	4		M				
	40-60	zl	10YR54 00					0	0	CH	2		M				Y
	60-85	mzcl	10YR55 00					0	0	CH	5		M				Y
	85-120	zl	10YR55 00					0	0		0		M				