

**A1**  
**Swale Borough Local Plan (Faversham)**  
**Site 16 : Abbeyfields, Faversham**  
**Agricultural Land Classification**  
**ALC Map and Report**  
**June 1993**

## 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 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 (eg. 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.

## **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

## **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

## **Woodland**

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

## **Agricultural Buildings**

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

## **Open Water**

Includes lakes, ponds and rivers as map scale permits.

## **Land Not Surveyed**

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

## APPENDIX II

### FIELD ASSESSMENT OF SOIL WETNESS CLASS

#### SOIL WETNESS CLASSIFICATION

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.

#### Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. <sup>2</sup>
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.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

<sup>1</sup>The number of days specified is not necessarily a continuous period.

<sup>2</sup>'In most years' is defined as more than 10 out of 20 years.

**SWALE BOROUGH LOCAL PLAN (FAVERSHAM)  
 SITE 16 : ABBEYFIELDS  
 AGRICULTURAL LAND CLASSIFICATION REPORT**

**1. Summary**

1.1 In June 1993, a detailed Agricultural Land Classification, (ALC), survey was carried out on 0.83 hectares of land to the north-east of Faversham in Kent. ADAS was commissioned by MAFF's Land Use Planning Unit to determine the quality of agricultural land under consideration for inclusion in the Swale Borough Local Plan.

1.2 The survey was conducted by members of the Resource Planning Team, Guildford Statutory Group at an observation density of slightly greater than one boring per hectare. A total of 3 borings and one soil inspection pit were described in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land, (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on its use for agriculture.

At the time of survey, the site was under permanent grassland being grazed by sheep.

1.3 The distribution of grades and subgrades is shown on the attached ALC map and the area and extent are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement may be misleading. This map supersedes any previous ALC information for the site.

Table 1 : Distribution of Grades and Subgrades

	<u>Area (ha)</u>	<u>% of agricultural area</u>
<u>Grade 2</u>	0.58	70.0
3a	0.25	30.0
Total agricultural area	<u>0.83</u>	
Total area of site	0.83 ha	

1.4 A general description of the grades and land-use categories identified in this survey is provided as an appendix. The grades are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

1.5 The site has been assigned to grades 2 and 3a on the basis of soil wetness and/or droughtiness restrictions. All profiles exhibit signs of impeded drainage in the form of gleying at variable depths as a result of slowly permeable subsoil horizons. In addition, the interaction of soil textural and structural conditions with the warm, dry climatic regime at this locality, gives rise to a slight risk of soil droughtiness.

## 2. Climate

- 2.1 Estimates of climatic variables relevant to the assessment of agricultural land quality were obtained by interpolation from a 5 km grid point dataset (Met Office, 1989) for a representative location in the survey area.

Table 2 : Climatic Interpolation

Grid Reference	TQ023618
Altitude (m, AOD)	9
Accumulated Temperature (°days, Jan-June)	1488
Average Annual Rainfall (mm)	633
Field Capacity Days	127
Moisture deficit, wheat (mm)	125
Moisture deficit, potatoes (mm)	123

- 2.2 Climatic factors are considered first when classifying land since climate can be overriding in the sense that adverse climatic conditions may restrict land quality irrespective of favourable site and soil conditions. The details in the table above show that there is no overall climatic limitation affecting this site. In addition, no local climatic factors such as exposure or frost risk affect the site.
- 2.3 However, climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. At this locality, the climate is relatively warm and dry which means that soil droughtiness problems may be more likely to affect the agricultural use of the land, whilst soil wetness is less likely to influence land quality.

## 3. Relief

- 3.1 The site is flat and lies at an altitude of approximately 9m AOD. Nowhere on the site do gradient or microrelief affect agricultural land quality.

## 4. Geology and Soils

- 4.1 British Geological Survey, (1974) Sheet 273, Faversham shows the entire site to be underlain by Recent Head Brickearth deposits.
- 4.2 There is no published soils information relating to this site. Both soil maps covering the area, (ie, Soil Survey of England and Wales, 1980, Soils of Kent, and Soils of South-East England, 1983) identify the site as being non-agricultural. Although it is on the urban fringe of Faversham, at the time of survey the site was in agricultural use.
- 4.3 Detailed field examination of the soils on the site showed the presence of clay loams passing to clays at variable depths, affected by imperfect drainage to differing degrees.

## 5. Agricultural Land Classification

- 5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.
- 5.2 The location of the soil observation points are shown on the attached sample point map.

### Grade 2

- 5.3 Land of this quality has been mapped across the eastern-most part of the site. It is slightly restricted in its agricultural use by minor soil wetness and/or droughtiness limitations. Profiles typically comprise calcareous medium clay loam topsoils overlying heavy clay loam upper subsoils and passing to clay at variable depths between 23 and 75 cm. Gleying was evident from 23-42 cm arising from slightly impeded drainage through the profile, this in turn being caused by slowly permeable clay horizons below about 50-75 cm depth. These drainage characteristics are consistent with a Wetness Class of II or III. When considered alongside medium textured calcareous topsoils, (calcium carbonate tends to improve soil structure) and the warm, dry climatic regime, these soil properties equate to Grade 2. The warm, dry climate also causes the land to be slightly limited by soil droughtiness. Moisture deficits are particularly high at this locality and even when profiles are deep and relatively stone free, there may be a slight risk of drought stress during the summer months.

### Subgrade 3a

- 5.4 A small unit of good quality land has been mapped in association with land similar to that described above in para 5.3, but which experiences slightly poorer drainage conditions. Profiles comprise calcareous heavy clay loam topsoils over similar upper subsoils and passing to gleyed and slowly permeable clay within 40 cm. A Wetness Class of III is appropriate given that drainage is slightly impeded by the slow permeability of the lower subsoil. The interaction of these soil properties with the local climatic regime gives rise to a slight risk of soil wetness problems such that Subgrade 3a is appropriate. Soil wetness may adversely affect crop establishment and growth and cause restrictions on cultivations and grazing by livestock.

ADAS Ref: 2011/99/93  
MAFF Ref: EL20/245

Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## SOURCES OF REFERENCE

- \* British Geological Survey (1974) Sheet 273, Faversham.
- \* MAFF (1988) Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.
- \* Meteorological Office (1989) Climatic datasets for Agricultural Land Classification.

## APPENDIX I

### DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

#### **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 and horticultural crops can usually be grown but on some land in the 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.

#### **Grade 3 - good to moderate quality agricultural land**

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 level of yields. It is mainly suited to grass with occasional arable crops (eg. 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

#### **Descriptions of other land categories used on ALC maps**

##### **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

##### **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

##### **Woodland**

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

##### **Agricultural buildings**

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

##### **Open water**

Includes lakes, ponds and rivers as map scale permits.

##### **Land not surveyed**

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

## APPENDIX II

### FIELD ASSESSMENT OF SOIL WETNESS CLASS

#### Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging <sup>1</sup>
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IV	The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years <u>or</u> , if there is no slowly permeable layer 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.
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<sup>1</sup> The number of days specified is not necessarily a continuous period.

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## APPENDIX III

### SOIL BORING AND SOIL PIT DESCRIPTIONS

#### Contents:

- \* Soil boring descriptions
- \* Soil pit descriptions
- \* Soil Abbreviations : Explanatory Note

## SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

Soil profile and pit information obtained during ALC surveys is held on a database. This has commonly used notations and abbreviations as set out below.

### BORING HEADERS

1. GRID REF : National grid square followed by 8 figure grid reference.

2. USE : Land-use at the time of survey.  
The following abbreviations are used.

ARA - arable	PAS/PGR - permanent pasture
WHT - wheat	RGR - rough grazing
BAR - barley	LEY - ley grassland
CER - cereals	CFW - coniferous woodland
OAT - oats	DCW - deciduous woodland
MZE - maize	SCR - scrub
OSR - oilseed rape	HTH - heathland
BEN - field beans	BOG - bog or marsh
BRA - brassicae	FLW - fallow
POT - potatoes	PLO - ploughed
SBT - sugarbeet	SAS - set-aside
FDC - fodder crops	OTH - other
FRT - soft and top fruit	LIN - linseed
HOR/HRT - horticultural crops	

3. GRDNT : Gradient as measured by optical reading clinometer.

4. GLEY/SPL : Depth in centimetres (cm) to gleyed and/or slowly permeable horizons.

5. AP (WHEAT/POTS) : Crop-adjusted available water capacity. The amount of soil water (in millimetres) held in the soil profile that is available to a growing crop (wheat and potatoes are used as reference crops).

6. MB (WHEAT/POTS) : The moisture balance for wheat and potatoes obtained by subtracting the soil moisture deficit from the crop-adjusted available water capacity.

7. DRT: Grade according to soil droughtiness assessed against soil moisture balances.

8. M REL : Micro-relief )  
FLOOD : Flood risk ) If any of these factors are considered  
EROSN : Soil erosion ) significant in terms of the assessment  
EXP : Exposure ) of agricultural land quality a 'y' will  
FROST : Frost prone ) be entered in the relevant column.  
DIST : Disturbed land )  
CHEM : Chemical limitation)

9. **LIMIT** : Principal limitation to agricultural land quality.

The following abbreviations are used:

OC - overall climate	CH - chemical limitations
AE - aspect	WE - wetness
EX - exposure	WK - workability
FR - frost	DR - drought
GR - gradient	ER - erosion
MR - micro-relief	WD - combined soil wetness/soil droughtiness
FL - flooding	ST - topsoil stoniness
TX - soil texture	
DP - soil depth	

**PROFILES & PITS**

1. **TEXTURE** : Soil texture classes are denoted by the following abbreviations:

S	- sand
LS	- loamy sand
SL	- sandy loam
SZL	- sandy silt loam
ZL	- silt loam
MZCL	- medium silty clay loam
MCL	- medium clay loam
SCL	- sandy clay loam
HZCL	- heavy silty clay loam
HCL	- heavy clay loam
SC	- sandy clay
ZC	- silty clay
C	- clay

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction may be indicated by the use of prefixes.

F	- fine (more than $\frac{2}{3}$ of the sand less than 0.2 mm)
C	- coarse (more than $\frac{1}{3}$ of sand greater than 0.6 mm)
M	- medium (less than $\frac{2}{3}$ fine sand and less than $\frac{1}{3}$ coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows:

M	- medium (less than 27% clay)
H	- heavy (27-35% clay)



- ped size

F - fine  
M - medium  
C - coarse  
VC - very coarse

- ped shape

S - single grain  
M - massive  
GR - granular  
SB/SAB - sub-angular blocky  
AB - angular blocky  
PR - prismatic  
PL - platy

8. **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

9. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G - good  
M - moderate  
P - poor

10. **POR** : Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'y' will appear in this column.

11. **IMP** : If the profile is impenetrable a 'y' will appear in this column at the appropriate horizon.

12. **SPL** : Slowly permeable layer. If the soil horizon is slowly permeable a 'y' will appear in this column.

13. **CALC** : If the soil horizon is calcareous, a 'y' will appear in this column.

14. 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	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES----			STRUCT/	SUBS	SPL	CALC			
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT				CONSIST	STR
1	0-30	mc1	10YR32 00					0	0	0					Y		
	30-42	hc1	25 Y52 00	10YR58 00	F			0	0	CH	2		M		Y	Few small chalk st.	
	42-75	hc1	10YR53 00	10YR58 00	C		10YR71 00	Y	0	0	CH	2		M	Y	Few small chalk st.	
	75-120	c	10YR53 00	75YR58 00	M		10YR61 71	Y	0	0		0		P	Y	Y	Few Mn concs.
1P	0-23	mc1	10YR32 00					0	0	0						Y	
	23-55	c	10YR53 00	10YR58 00	C			Y	0	0	0	MDCSAB	FM	M	Y	Y	
	55-120	c	10YR61 00	75YR58 00	M			Y	0	0	0	STCOAB	FM	P	Y	Y	Y
2	0-29	hc1	10YR32 00					0	0	0					Y	Few brick fragments	
	29-39	hc1	10YR53 00	10YR58 00	F			0	0	CH	2		M		Y	Few brick fragments	
	39-80	c	10YR53 52	75YR46 56	C			Y	0	0	0		P		Y	Y	
	80-120	c	05 Y61 00	75YR58 00	C			Y	0	0	0		P		Y	Y	Much fine sand
3	0-32	mc1	10YR32 00					0	0	0						Y	
	32-50	c	10YR53 00	10YR58 00	C		10YR61 00	Y	0	0	0		M		Y	Y	Few chalk stones
	50-120	c	05 Y62 00	75YR58 68	M			Y	0	0	0		P		Y	Y	

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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	
1	TR02316185	PAS W	1	42 75	2	2	142	17 118	-5	2			WD	2	
1P	TR02316178	PAS W	1	23 55	3	2	134	9 112	-11	3A			DR	3A	Almost 2 Dr
2	TR02286180	PAS W	1	39 39	3	3A	131	6 108	-15	3A			WD	3A	
3	TR02316178	PAS W	1	32 50	3	2	135	10 112	-11	3A			DR	3A	Almost 2 Dr

SOIL PIT DESCRIPTION

Site Name : SWALE LP(FAV) - SITE 16 Pit Number : 1P

Grid Reference: TR02316178 Average Annual Rainfall : 633 mm  
 Accumulated Temperature : 1488 degree days  
 Field Capacity Level : 127 days  
 Land Use :  
 Slope and Aspect : 1 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 23	MCL	10YR32 00	0	0		
23- 55	C	10YR53 00	0	0	C	MDCSAB
55-120	C	10YR61 00	0	0	M	STCOAB

Wetness Grade : 2 Wetness Class : III  
 Gleying : 23 cm  
 SPL : 55 cm

Drought Grade : 3A APW : 134mm MBW : 9 mm  
 APP : 112mm MBP : -11 mm

FINAL ALC GRADE : 3A  
 MAIN LIMITATION : Droughtiness