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**ASHFORD BOROUGH LOCAL PLAN  
Objector Sites 1155 and 133 -  
Challock, Ashford, Kent.**

**Agricultural Land Classification  
ALC Map and Report**

**October 1997**

**Resource Planning Team  
Eastern Region  
FRCA Reading**

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# AGRICULTURAL LAND CLASSIFICATION REPORT

## ASHFORD BOROUGH LOCAL PLAN OBJECTOR SITES 1155 AND 133 CHALLOCK, KENT

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 5.8 ha of land to the east of Church Lane, south of Challock in Kent. The survey was carried out during October 1997.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)<sup>1</sup> on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Ashford Borough Local Plan. This survey supersedes any previous ALC information for this land.
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 land use on the site was mainly arable (oilseed rape). The small enclosed fields in the east of the site were in permanent pasture. The areas mapped as 'Other land' include a small recreational area and an agricultural building.

### 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
2	5.7	100	98.3
Other land	0.1	N/A	1.7
Total surveyed area	5.7	100	98.3
Total site area	5.8	-	100

<sup>1</sup> FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. Six borings and one soil pit were described.

8. All of the agricultural land on this site has been classified as Grade 2 (very good quality). The site is situated on the North Downs in a comparatively upland location. The ensuing low average temperature and relatively high rainfall means that there is an overall climatic limitation of Grade 2. This is likely to result in a slow start to the growing season which may slightly reduce crop yields and restrict the range of crops which could be grown.

9. In addition, parts of the site are also equally limited by minor soil wetness. Profiles typically comprise medium silty topsoils and upper subsoils which pass into clay lower subsoils. The latter act to impede soil drainage, which in combination with the medium topsoils and relatively wet climate may impose minor restrictions on the flexibility of cropping, stocking and cultivations.

## 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	
		TR 008 502	TR 007 503
Grid reference	N/A	TR 008 502	TR 007 503
Altitude	m, AOD	160	155
Accumulated Temperature	day°C (Jan-June)	1322	1327
Average Annual Rainfall	mm	789	786
Field Capacity Days	days	163	163
Moisture Deficit, Wheat	mm	100	100
Moisture Deficit, Potatoes	mm	89	90
Overall climatic grade	N/A	Grade 2	Grade 2

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 temperature at this site mean there is an overall climatic limitation restricting the land to Grade 2. The site is located in a relatively upland area on the North Downs, where the climate is moist and cool. This has the effect of reducing the length of the growing season for crops. In addition, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. At this locality, the climate is relatively moist, in national terms. The likelihood of soil wetness problems may therefore be enhanced. Local climatic factors, such as exposure or frost risk, do not affect land quality at this location.

#### Site

15. The site is relatively flat and ranges from an altitude of 155m to 160m. There is no limitation due to gradient, microrelief or flooding.

#### Geology and soils

16. The most detailed published geological information (BGS, 1982) maps the site as clay-with-flints in the south and east of the site, with head brickearth deposits in the northern half of the site. These are both drift deposits of the pleistocene and recent.

17. The most detailed published soils information covering the area (SSEW, 1983) shows the whole site as Batcombe association. This association is described as 'Fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk. Variably flinty.' (SSEW, 1983). These soils are similarly described in *Soils of Kent* (1980). Soils consistent with this description were observed on the site; fine silty or coarse silty soils overlie similar and clayey subsoils. Soils are typically very slightly to moderately stony.

#### 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.

#### Grade 2

20. This site is mapped as Grade 2 (very good quality) agricultural land. The whole site is subject to a slight climatic limitation, although parts of the land are also equally limited by soil wetness.

21. Across most of the site, soils typically comprise medium silty clay loam or silt loam topsoils, which are very slightly stony (2-5% total flints, 1-3% >2cm). These overlie similar or heavy silty clay loam upper subsoils, which may be stoneless to moderately stony (up to 20% total flints). Upper subsoils pass to heavy silty clay loam or clay lower subsoils, which may contain up to 15% total flints. Soils may be impenetrable to the auger, because of these stone contents. Lower subsoils are typically gleyed, showing evidence of a fluctuating water

table at depth. The depth to gleying (between 42 and 90cm) results in soils being assigned to Wetness Class I. However, it is the location of these soils within this locally wet and moist climate which causes the land to be classified as Grade 2. The climate may have the effect of slightly reducing crop yields and restricting the range of crops which may be grown.

22. Soil wetness may also be equally limiting in some parts of the site. Soils are similar to those described above in paragraph 21. However, in these soils the lower subsoil of clay is poorly structured and impedes drainage, which causes seasonal waterlogging. This is evidenced by the soils being gleyed or slightly gleyed from a depth between 49 and 75cm. The depth to the slowly permeable clay subsoils (between 60 and 75cm) results in soils being assigned to Wetness Class II. Soil pit 1 (see Appendix II) is typical of these soils. The combination of imperfect soil drainage, topsoil texture and climatic factors, gives rise to a land classification of Grade 2. This minor soil wetness may adversely affect crop growth and development, as well as slightly limiting the flexibility of the land due to the reduction in the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

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## SOURCES OF REFERENCE

British Geological Survey (1982) *Sheet No. 289, Canterbury*. BGS: London.

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Met. Office (1989) *Climatological Data for Agricultural Land Classification*.  
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Soil Survey of England and Wales (1980) *Soils of Kent*. SSEW: Harpenden.

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

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

**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. **GLE Y:** 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>FM</b> : firm	<b>EH</b> : extremely hard
<b>VF</b> : very friable	<b>VM</b> : very firm	
<b>FR</b> : friable	<b>EM</b> : extremely firm	

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

SAMPLE NO.	GRID REF	USE	ASPECT		--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST		CHEM	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1	TR00705030	OSR		60		1	1	104	4	114	24	3A				CL	2	See 1P
2	TR00805030	OSR	S	90	1		1	157	57	121	31	1				CL	2	
3	TR00605020	OSR				1	1	92	-8	99	9	3A				CL	2	
4	TR00705020	OSR				1	1	110	10	119	29	2				CL	2	
5	TR00805020	PGR		75	75	2	2	150	50	129	39	1				WE	2	See 1P
6	TR00705040	OSR		42		1	1	96	-4	103	13	3A				CL	2	
1P	TR00705030	OSR		60	60	2	2	135	35	112	22	1				WE	2	ClimateGrade2

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT		GLEY	>2	>6		LITH	TOT	STR		POR
1	0-30	MZCL	10YR4344					1	1	HR	3				+2% Chalk	
	30-45	MZCL	10YR44					0	0		0		M			
	45-60	MZCL	10YR54	10YR56	F	D		0	0		0		M			
	60-65	HZCL	10YR53	10YR56	C	D		Y	0	0	HR	5		M	Firm ImpFlints	
2	0-28	MZCL	10YR4344					2	0	HR	3				+2% Chalk	
	28-90	MZCL	10YR53	10YR56	F	D		0	0	HR	2		M			
	90-120	HZCL	10YR53	10YR56	C	D		Y	0	0		0		M	Powdery	
3	0-28	MZCL	10YR43					2	0	HR	5					
	28-38	MZCL	10YR44					0	0	HR	5		M			
	38-60	C	75YR56	00MNO0	C			0	0	HR	10		M		QSPL ImpFlinty	
4	0-28	ZL	10YR43					2	0	HR	5					
	28-65	MZCL	10YR44					0	0	HR	8		M		ImpFlinty	
5	0-30	ZL	10YR43	10YR56	F			2	0	HR	5					
	30-55	MZCL	10YR44	10YR56	F			0	0	HR	10		M			
	55-75	MZCL	10YR44					0	0	HR	5		M			
	75-120	C	10YR53	05YR58	M		00MNO0	Y	0	0	HR	5		P	Y	
6	0-20	MZCL	10YR4344					3	0	HR	4					
	20-42	MZCL	10YR43	10YR56	F	D		0	0		0		M			
	42-60	MZCL	10YR53	10YR56	C	D		Y	0	0	HR	5		M	Imp Flints	
1P	0-33	MZCL	10YR43					2	0	HR	5				Limed Topsoil	
	33-49	MZCL	10YR44					0	0	HR	5	MDCSAB	FR	M		
	49-60	HZCL	10YR54	75YR58	C	D	00MNO0	S	0	0	HR	20	MDCSAB	FR	M	
	60-80	C	10YR53	75YR58	C	D	00MNO0	Y	0	0	HR	15	WKDCAB	FM	P	Y
	80-120	C	10YR52	05YR56	M	D	00MNO0	Y	0	0		0	WKDCAB	FM	P	Y