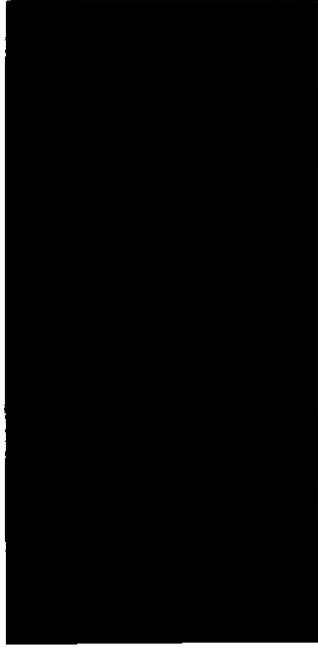


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Lewes District Local Plan
Site 19 : Land at Old Malling Farm,
Lewes
ALC Map and Report
May 1995

AGRICULTURAL LAND CLASSIFICATION REPORT

LEWES DISTRICT LOCAL PLAN

SITE 19: LAND AT OLD MALLING FARM, LEWES

1. Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in the Lewes District of East Sussex. The work forms part of MAFF's statutory input to the preparation of the Lewes District Local Plan.
- 1.2 The site comprises approximately 11.3 hectares of land at Old Malling Farm on the northern side of Lewes. An Agricultural Land Classification (ALC) survey was carried out in May 1995. The survey was undertaken at a detailed level of approximately one boring per hectare of agricultural land surveyed. A total of 13 auger 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 a long term limitation on its use for agriculture.
- 1.3 The survey work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of survey all of the agricultural land was under winter wheat. Included within the site is an area of young woodland around the northern end, and a tarmac road crossing the middle of the site from east to west.
- 1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	7.9	69.9	83.1
3a	0.7	6.2	7.4
3b	0.9	8.0	<u>9.5</u>
Non agricultural	0.3	2.6	100.0 (9.5 ha)
Woodland	<u>1.5</u>	<u>13.3</u>	
Total area of site	11.3	100.0	

- 1.6 Appendix 1 gives a general description of the grades, subgrades and land use categories identified in this survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and expected level and consistency of yield.

1.7 The majority of the agricultural land has been classified as Grade 2, very good quality agricultural land. A narrow band along the eastern edge of the site has been mapped as Subgrade 3a, good quality agricultural land, whilst a former pit at the southern end has been classified as moderate quality land, Subgrade 3b. The soils on the site are typically free draining, fine loamy deposits overlying chalk at depth. The depth to the underlying chalk is variable, being very shallow in the area of the former pit at the southern end of the site, moderately deep alongside the old railway line and generally deep over the remainder of the site. The major limitation therefore over the whole site is soil droughtiness, with the severity of the restriction controlled by the depth to the underlying chalk.

2. Climate

2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe climatic limitations will restrict land to low grades irrespective of favourable site or soil conditions.

2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km grid point dataset (Met. Office, 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site.

2.4 However, climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. The climate at this location is relatively warm and moist in a regional context and therefore the likelihood of a wetness or droughtiness limitation may be enhanced depending on the soil conditions.

2.4 No local climatic factors such as exposure or frost risk are believed to affect the site significantly.

Table 2 : Climatic Interpolations

Grid Reference	TQ 410 115
Altitude (m)	15
Accumulated Temperature (Day °C, Jan-June)	1517
Average Annual Rainfall (mm)	841
Field Capacity (days)	177
Moisture Deficit, Wheat (mm)	111
Moisture Deficit, Potatoes (mm)	105
Overall Climatic Grade	1

3. Relief

3.1 The site is located on a river terrace associated with the River Ouse and falls gently from south to north with altitude ranging from 15 m AOD in the south to approximately 4 m AOD at the northern end. Gradients of between 1-5° have been

measured on the site, which are not considered to be limiting to agricultural operations.

4. Geology and Soil

- 4.1 The published geological map (BGS, 1979) shows the entire site to be underlain by second terrace deposits.
- 4.2 The published Soil Survey map (SSEW, 1983) shows the soils on the site to belong to the Fladbury 3 association, which are clayey alluvial soils. However due to the proximity of the site to the built up area of Lewes and the scale of the map it is clearly not possible to distinguish small areas and the area has been included within the alluvial soils of the river valley.
- 4.3 Detailed field examination showed the area to comprise slightly stony, fine loamy soils over chalk. A typical soil profile has a medium clay loam topsoil over a heavy clay loam subsoil with an occasional clay layer at depth with few manganiferous concretions. The soils have been assessed as Wetness Class I. In some profiles chalk was encountered at depth and on the eastern side of the site adjacent to the old railway line, the soils were considerably shallower over the chalk. At the extreme southern end of the site the map indicates the site of a disused pit and a soil observation found chalk immediately below the topsoil horizon.

5. Agricultural Land Classification

- 5.1 The location of the soil observation points are shown on the attached sample point map.

Grade 2

- 5.2 The majority of the site has been classified as Grade 2 due to a minor droughtiness limitation. Moisture balance calculations indicate that under the prevailing climatic conditions these fine loamy soils are slightly droughty for potatoes restricting the land to Grade 2. In addition due to the relatively moist conditions that occur in this area, the land is also restricted to Grade 2 due to the presence of a medium clay loam topsoil, which restricts its workability during the wetter periods of the year.

Subgrade 3a

- 5.3 A small area of Subgrade 3a has been identified along the eastern side of the site where shallow soils overlying chalk have been mapped. The presence of the underlying chalk restricts the rooting depth of the crops and results in a reduction of the plant available water. Moisture balance calculations indicate that these soils are moderately droughty especially for deeper rooting crops such as wheat restricting the land to this subgrade.

Subgrade 3b

- 5.4 The small area of the former pit has been classified as Subgrade 3b. The soils in this area are very shallow over chalk and although roots will penetrate the chalk available water capacities in this area will be considerably restricted. Droughtiness will therefore be a moderately severe limitation to the agricultural use of this area restricting the land to Subgrade 3b.

ADAS Ref: 4105/036/95
MAFF Ref: EL41/00232

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1979), Sheet No 319, Lewes, 1:50,000 Series (solid and drift edition)

MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

Soil Survey of England and Wales (1983), Sheet 6, Soils of South East England, 1:250,000 and accompanying legend.

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 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.

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.

¹The number of days specified is not necessarily a continuous period.

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

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

Soil Abbreviations - Explanatory Note

Soil Pit Descriptions

Database Printout - Boring Level Information

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).

SOIL PIT DESCRIPTION

Site Name : LEWES LP, SITE 19 Pit Number : 1P

Grid Reference: TQ41001160 Average Annual Rainfall : 841 mm
 Accumulated Temperature : 1529 degree days
 Field Capacity Level : 177 days
 Land Use : Cereals
 Slope and Aspect : 04 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 32	MCL	10YR43 00	2	4	HR			FM		
32- 60	HCL	10YR45 00	0	3	HR		MDCSB	FM	M	
60-120	C	10YR46 00	0	5	HR	F	MDVCSB	VM	M	

Wetness Grade : 2 Wetness Class : I
 Gleying : cm
 SPL : No SPL

Drought Grade : 2 APW : 139mm MBW : 27 mm
 APP : 114mm MBP : 8 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Soil Wetness/Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	SPL	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
					CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1P	TQ41001160	CER NE	04		1	2	139	27	114	8	2				WD	2	
2	TQ41001160	CER NE	04		1	2	145	33	113	7	2				WD	2	
3	TQ41101160	CER NE	05		1	2	157	45	111	5	2				WD	2	
4	TQ41001150	CER W	01		1	3A	138	26	110	4	2				WK	3A	FCD177
5	TQ41101150	CER NE	03		1	2	116	4	111	5	3A				WD	2	
6	TQ41201150	CER NE	04		1	2	089	-23	093	-13	3B				DR	3B	
7	TQ41001140	CER W	02		1	2	148	36	112	6	2				WD	2	
8	TQ41101140	CER NE	01		1	2	134	22	110	4	2				WD	2	
9	TQ41201140	CER NE	02		1	2	095	-17	101	-5	3A				DR	3A	
10	TQ41101130	CER NW	02		1	2	141	29	113	7	2				WD	2	
11	TQ41201130	CER W	01		1	2	126	14	113	7	2				WD	2	IMP 95
12	TQ41201120	CER SW	03		1	2	094	-18	098	-8	3A				DR	3A	
13	TQ41291110	CER NW	03		1	2	150	38	113	7	2				WD	2	
14	TQ41181111	CER S	05		1	2	063	-49	063	-43	3B				DR	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED	----STONES----			STRUCT/	SUBS						
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1P	0-32	mc1	10YR43 00					2	0	HR	4		FM					
	32-60	hc1	10YR45 00					0	0	HR	3	MDCSB	FM	M	Y			
	60-120	c	10YR46 00	00MN00	00	F		0	0	HR	5	MDVCSB	VM	M	Y			
2	0-33	mc1	10YR43 00					2	0	HR	4							
	33-55	hc1	75YR46 00					0	0	HR	5			M				
	55-80	c	75YR46 00	00MN00	00	F		0	0	HR	7			M				
	80-120	hc1	10YR55 00					0	0	CH	10			M				Y
3	0-32	mc1	10YR43 00					1	0	HR	3							
	32-50	sc1	75YR46 00					0	0	HR	4			M				
	50-120	ms1	10YR55 00					0	0	HR	2			M				
4	0-30	hc1	10YR43 00					3	0	HR	6							
	30-85	hc1	10YR46 00	00MN00	00	F		0	0	HR	8			M				
	85-120	c	10YR46 00	00MN00	00	F		0	0	HR	12			M				
5	0-30	mc1	10YR43 00					2	0	HR	4							
	30-55	hc1	10YR46 00					0	0	HR	6			M				
	55-95	c	75YR46 00					0	0	HR	10			M				
	95-115	ch	10YR81 00					0	0		0			P				Y
6	0-30	mc1	10YR43 00					2	0	HR	4							Y
	30-45	mc1	10YR55 00					0	0	CH	20			M				Y
	45-65	ch	10YR71 00					0	0	HR	5			P				Y
7	0-30	mc1	10YR43 00					4	0	HR	6							
	30-60	mc1	10YR46 00					0	0	HR	5			M				
	60-120	hc1	10YR56 00					0	0	HR	5			M				
8	0-30	mc1	10YR43 00					2	0	HR	5							
	30-65	hc1	10YR46 00					0	0	HR	8			M				
	65-120	c	75YR46 00	00MN00	00	F		0	0	HR	12			M				
9	0-30	mc1	10YR43 00					2	0	HR	5							
	30-50	mc1	10YR46 00					0	0	HR	5			M				
	50-70	ch	10YR71 00					0	0	HR	5			P				Y
10	0-30	mc1	10YR43 00					2	0	HR	4							
	30-65	hc1	10YR45 00					0	0	HR	6			M				
	65-90	hc1	10YR56 00					0	0	HR	3			M				
	90-120	c	75YR46 00					0	0	HR	15			M				
11	0-30	mc1	10YR43 00					2	0	HR	4							
	30-55	hc1	10YR46 00					0	0	HR	6			M				
	55-95	hc1	10YR56 00					0	0	HR	3			M				IMP FLINTS
12	0-30	mc1	10YR43 00					2	0	HR	5							Y
	30-35	mc1	10YR46 00					0	0	HR	9			M				Y
	35-65	mzc1	75YR56 00					0	0	CH	80			M				Y
	65-75	ch	10YR71 00					0	0	HR	5			P				Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES----			STRUCT/	SUBS	CALC				
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT		CONSIST	STR	POR	IMP
13	0-35	mc1	10YR33 00					2	0	HR	5						Y
	35-80	hc1	10YR45 00					0	0	HR	5		M				
	80-120	hc1	10YR56 00	00MNO0	00	F		0	0	HR	5		M				
14	0-30	mzc1	10YR43 00					2	0	HR	6						Y
	30-40	ch	10YR71 00					0	0	HR	5		P				Y