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WEST SUSSEX MINERALS PLAN
SITE 29 : COPSE FARM
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
SEPTEMBER 1993

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1.0 Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on a number of sites in West Sussex. The work forms part of MAFF's statutory input to the preparation of the West Sussex Minerals Plan.

1.2 Approximately 32 hectares of land relating to Site 29, north of Tangmere Road at Tangmere, in West Sussex was surveyed during September 1993. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 36 soil auger borings and 2 soil inspection pits were assessed 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.

1.3 Work was conducted by members of the Resource Planning Team in the Guildford Statutory Group. At the time of the survey the land use in the southern field was cereal stubbler and in the northern field was cabbages.

1.4 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 1:5000. It is accurate at this scale, but any enlargement would be misleading. This map supercedes any previous information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Agricultural Area
2	17.3	53.6
3b	15.0	46.4
Total area of site	32.3	100

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

1.6 The site has been classified as a mixture of Grade 2 and Subgrade 3b, due to varying degrees of soil droughtiness. In the north of the site, deep slightly stony clay loams are underlain by very stony clay loams. In the south of the site the slightly stony clay loams extend to depth. Land with such characteristics is classed as Grade 2, very good quality agricultural land, due to a slight droughtiness limitation. Subgrade 3b, moderate quality agricultural land, has been mapped where the soils suffer a significant droughtiness limitation. The available water for crops is severely restricted by limited rooting depths into very stony subsoils.

2.0 Climate

2.1 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.

2.2 The main parameters used in the assessment of the 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 gridpoint 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. However, climatic factors do interact with soil factors to influence soil wetness and soil droughtiness limitations.

2.4 No local climatic factors such as exposure or frost risk affect the site.

Table 2 : Climatic Interpolations

Grid Reference :	SU 892 058
Altitude (m) :	15
Accumulated Temperature (days) :	1532
Average Annual Rainfall (mm) :	789
Field Capacity (days) :	162
Moisture Deficit, Wheat (mm) :	115
Moisture Deficit, Potatoes (mm) :	111
Overall Climatic Grade :	1

3.0 Relief

3.1 The site is flat and lies at approximately 15m AOD.

4.0 Geology and Soil

4.1 BGS Sheet 317, Chichester (1957) shows the entire survey area to be underlain by Valley Gravel.

4.2 The soils for the site, as shown on the Soil Survey map of South East England (SSEW, 1983, 1:250,000) comprises two soil types. The centre of the site is shown as the Frome Association. These soils are described as 'shallow, calcareous and non-calcareous loamy soils over flint gravel affected by groundwater' (SSEW, 1983). Along the edges of the site, the soil type shown is the Hamble 2 Association. These are described as 'deep, stoneless well drained silty soils and similar soils affected by groundwater; over gravel locally' (SSEW, 1983).

5.0 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 Grade 2 land corresponds to soils with a slight droughtiness limitation. Topsoils comprise medium silty clay loams or medium clay loams over similar textured subsoils which become heavier with depth. In the south of the site, topsoils and subsoils are very slightly stony (2% total hard rock by volume) to a depth of approximately 80cm. Below this profiles become slightly stony (7% total hard rock by volume) and are gleyed. Despite this very slight drainage impedance these profiles are still eligible for Wetness Class I. All subsoils have moderately developed coarse sub-angular blocky structures, giving rise to moderate substructural conditions. The combination of soil textures, profile stone contents and the local climatic regime means the available water in the profile is slightly reduced. This restricts the range of crops which can be grown, and gives rise to a slight risk of drought stress for the crops which are grown. The soil inspection pit dug within this mapping unit, Pit 1, is atypical. Within this profile, the depth to clay subsoils was generally deeper than that in surrounding auger borings. Consequently, this profile has slightly more available water for extraction by roots, thus lessening the risk of drought. Generally, however the soil borings in this area show a slight drought risk, and land is assigned to Grade 2.

5.4 In the north of the site, these very slightly stony soils become very stony (55% total hard rock by volume) at approximately 80cm depth. These soils also give rise to very good quality Grade 2 land because of a slight droughtiness risk.

Subgrade 3b

5.5 Subgrade 3b land experiences a significant soil droughtiness limitation. Topsoils comprise slightly stony (14% total hard rock by volume) medium clay loams or medium silty clay loams. As shown by Pit 2, these are underlain by very stony (55% total hard rock by volume) heavy clay loam upper subsoils, which proved impenetrable to an auger. The lower subsoil comprises a very stony (60% total hard rock by volume) medium clay loam, which extends to depth. For both the upper and lower subsoil it is assumed that moderate substructural conditions exist. The combination of soil textures, profile stone contents and the local climate means the available water in the profile is insufficient. This restricts the range of crops which can be grown, and gives rise to a significant risk of drought stress for those crops which are grown.

APPENDIX III

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for 31-90 days in most years.

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

(The number of days is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.)

APPENDIX IV

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 database. This has commonly used notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF** : national 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 **HRT** : Horticultural Crops **PGR** : Permanent Pasture **LEY** : Ley Grass **RGR** : Rough Grazing
SCR : Scrub **CFW** : Coniferous Woodland **DCW** : Deciduous Woodland **HTH** : Heathland **BOG** : Bog or Marsh
FLW : Fallow **PLO** : Ploughed **SAS** : Set aside **OTH** : Other

3. **GRDNT** : Gradient as measured by a hand-held optical clinometer.

4. **GLEY/SPL** : Depth in cm to gleying or slowly permeable layers.

5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS)** : Moisture Balance.

7. **DRT** : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, an entry of 'Y' will be entered in the relevant column.

MREL : Microrelief limitation **FLOOD** : Flood risk **EROSN** : Soil erosion risk **EXP** : Exposure limitation **FROST** : Frost
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** : Soil Erosion Risk **WD** : Combined 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
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 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

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

6. STONE LITH : One of the following is used.

HR : all hard rocks and stones MSST : soft, medium or coarse grained sandstone
SI : soft weathered igneous or metamorphic SLST : soft oolitic or dolimitic limestone
FSST : soft, fine grained sandstone ZR : soft, argillaceous, or silty rocks CH : chalk
GH : gravel with non-porous (hard) stones GS :gravel with porous (soft) stones

Stone contents (> 2cm, > 6cm and total) are given in percentages (by volume).

7. 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

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 appropiate 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

SOIL PIT DESCRIPTION

Site Name : W.SSX MINS COPSE FARM,29 Pit Number : 1P

Grid Reference: SU89350570 Average Annual Rainfall : 789 mm
Accumulated Temperature : 1532 degree days
Field Capacity Level : 162 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 37	MZCL	10YR43 00	0	1		WDCSAB
37- 57	HCL	10YR44 00	0	2		MDCSAB
57- 80	C	10YR44 00	0	2		MDCSAB
80-120	C	10YR52 00	0	7	C	MDCSAB

Wetness Grade : 1 Wetness Class : I
Gleying :080 cm
SPL : No SPL

Drought Grade : 1 APW : 145mm MBW : 30 mm
APP : 121mm MBP : 10 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : W.SSX MINS COPSE FARM,29 Pit Number : 2P

Grid Reference: SU89300590 Average Annual Rainfall : 789 mm
Accumulated Temperature : 1532 degree days
Field Capacity Level : 162 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MZCL	10YR32 00	7	14		
25- 35	HCL	10YR53 00	0	55		
35-120	MCL	10YR72 00	0	60		

Wetness Grade : 1 Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 3B APW : 90 mm MBW : -25 mm
APP : 73 mm MBP : -38 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU89100610	CAB			000		1	1	124	9	120	9	2				DR	2	IMPEN 90- GR2
1P	SU89350570	STB			080		1	1	145	30	121	10	1				DR	2	
2	SU89100620	CAB			000		1	1	110	-5	120	9	3A				DR	3A	IMPEN 75- GR2
2P	SU89300590	CAB			000		1	1	90	-25	73	-38	3B				DR	3B	PIT DUG TO 52
3	SU89100630	CAB			000		1	1	58	-57	58	-53	4				DR	4	IMPEN 35- PIT2
4	SU89000600	PLO			000		1	1	111	-4	115	4	3A				DR	3A	IMPEN 80- GR2
5	SU89100600	PLO			055	055	3	3A	134	19	111	0	2				WE	3A	POSS SPL
6	SU89200600	CAB			000		1	1	114	-1	113	2	3A				DR	3A	IMPEN 95- GR2
7	SU89300600	CAB			033		2	2	99	-16	103	-8	3A				DR	3A	IF SPL 3B
8	SU89400600	CAB			000		1	1	50	-65	50	-61	4				DR	4	IMPEN 28- PIT2
9	SU89500600	CAB			000		1	1	49	-66	49	-62	4				DR	4	IMPEN 30- PIT2
10	SU89600600	CAB			000		1	1	40	-75	40	-71	4				DR	4	IMPEN 25 -PIT2
11	SU89100590	CAB			000		1	1	134	19	117	6	2				DR	2	
12	SU89200590	CAB			000		1	1	69	-46	69	-42	3B				DR	3B	IMPEN 40 -PIT2
13	SU89300590	CAB			000		1	1	72	-43	72	-39	3B				DR	3B	IMPEN 45 -PIT2
14	SU89400590	CAB			000		1	1	43	-72	43	-68	4				DR	4	IMPEN 25 -PIT2
15	SU89500590	CAB			000		1	1	53	-62	53	-58	4				DR	4	IMPEN 30 -PIT2
16	SU89600590	CAB			000		1	1	46	-69	46	-65	4				DR	4	IMPEN 30 -PIT2
17	SU89100580	CAB	N	01	000		1	1	50	-65	50	-61	4				DR	4	IMPEN 28 -PIT2
18	SU89200580	STB			000		1	1	45	-70	45	-66	4				DR	4	IMPEN 25 -PIT2
19	SU89300580	STB			000		1	1	73	-42	73	-38	3B				DR	3B	IMPEN 45 -PIT2
20	SU89400580	STB			000		1	1	113	-2	120	9	3A				DR	3A	IMPEN 78 -GR2
21	SU89500580	STB			000		1	1	61	-54	61	-50	4				DR	4	IMPEN 38 -PIT2
22	SU89200570	STB			000		1	1	69	-46	69	-42	3B				DR	3B	IMPEN 40 -PIT2
23	SU89300570	STB			000		1	1	101	-14	115	4	3A				DR	3A	IMPEN 68 -GR2
24	SU89400570	STB			000		1	1	101	-14	113	2	3A				DR	3A	IMPEN 65 -GR2
25	SU89500570	STB			000		1	1	96	-19	106	-5	3A				DR	3A	IMPEN 70 -GR2
26	SU89600570	STB			000		1	1	50	-65	50	-61	4				DR	4	IMPEN 26 -PIT2
27	SU89200560	STB			000		1	1	78	-37	79	-32	3B				DR	3B	IMPEN 52 -GR2
28	SU89300560	STB			060		1	1	122	7	118	7	2				DR	2	IMPEN 95 -GR2
29	SU89400560	STB			045		1	1	141	26	117	6	2				DR	2	
30	SU89500560	STB			000		1	1	92	-23	100	-11	3B				DR	3B	IMPEN 65 -GR2
31	SU89600560	STB			000		1	1	75	-40	75	-36	3B				DR	3B	IMPEN 50 -PIT2
32	SU89300550	STB			000		1	1	149	34	121	10	1					1	
33	SU89400550	STB			000		1	1	109	-6	120	9	3A				DR	3A	IMPEN 75 -GR2
34	SU89500550	STB			000		1	1	72	-43	72	-39	3B				DR	3B	IMPEN 40 -PIT2
35	SU89300540	STB			000		1	1	111	-4	116	5	3A				DR	3A	IMPEN 80 -GR2
36	SU89100585	CAB			000		1	1	108	-7	120	9	3A				DR	3A	IMPEN 70 -GR2

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
1	0-35	mzcl	10YR43 00						1	0	HR	3						
	35-70	hcl	10YR56 00						0	0	HR	1		M				
	70-90	c	10YR56 00						0	0	HR	1		M				
1P	0-37	mzcl	10YR43 00						0	0	HR	1	WDCSAB	FR		Y		
	37-57	hcl	10YR44 00						0	0	HR	2	MDCSAB	FR	M			
	57-80	c	10YR44 00						0	0	HR	2	MDCSAB	FR	M			
	80-120	c	10YR52 00	10YR58 61 C			00MN00 00	Y	0	0	HR	7	MDCSAB	FM	M		Y	
2	0-25	mzcl	10YR43 00						1	0	HR	4						
	25-70	hzcl	25Y 44 00						0	0	HR	3		M				
	70-75	mcl	25Y 54 00						0	0	HR	25		M				
2P	0-25	mzcl	10YR32 00						7	0	HR	14						
	25-35	hcl	10YR53 00						0	0	HR	55		M				
	35-120	mcl	10YR72 00						0	0	HR	60		M				
3	0-35	mzcl	10YR32 00						7	0	HR	14						
4	0-25	mcl	10YR43 00						0	0	HR	5						
	25-55	mcl	10YR44 00						0	0		0		M				
	55-70	hcl	10YR54 56						0	0		0		M				
	70-75	hcl	10YR54 56						0	0	HR	5		M				
	75-80	hcl	10YR54 56						0	0	HR	25		M				
5	0-25	mcl	10YR43 00						0	0	HR	3						
	25-55	mcl	10YR54 00						0	0		0		M				
	55-120	c	10YR53 00	10YR56 00 C			00MN00 00	Y	0	0		0		P	Y		Y	
6	0-25	mcl	10YR43 00						0	0	HR	5						
	25-80	c	10YR56 00						0	0	HR	3		M				
	80-95	hcl	10YR54 00						0	0	HR	40		M				
7	0-33	hcl	10YR42 00						0	0	HR	5						
	33-55	c	25Y 63 73	10YR68 78 C				Y	0	0	HR	5		M				
	55-80	hcl	25Y 62 00	10YR68 00 C				Y	0	0	HR	50		M				
8	0-25	mzcl	25Y 43 00						1	0	HR	3						
	25-28	mcl	10YR54 00						0	0	HR	25		M				
9	0-30	mzcl	10YR32 00						7	0	HR	14						
10	0-25	mzcl	10YR32 00						9	0	HR	16						
11	0-30	mzcl	10YR43 00						0	0	HR	8						
	30-55	hcl	10YR56 00						0	0		0		M				
	55-110	c	10YR58 00	00MN00 00 F					0	0		0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
12	0-30	mzcl	10YR42 00						0	0	HR	8						
	30-40	hcl	10YR43 00						0	0		0		M				
13	0-35	mcl	10YR42 00						0	0	HR	8						
	35-45	mcl	10YR54 00						0	0	HR	12		M				
14	0-25	mzcl	10YR42 00						0	0	HR	9						
15	0-27	mzcl	25Y 43 00						1	0	HR	4						
	27-30	mcl	10YR54 00						0	0	HR	25		M				
16	0-25	mzcl	10YR32 00						9	0	HR	16						
	25-30	hcl	10YR32 00						0	0	HR	30		M				
17	0-25	mzcl	10YR42 00						1	0	HR	4						
	25-28	hcl	10YR53 00						0	0	HR	20		M				
18	0-23	mzcl	10YR42 00						1	0	HR	4						
	23-25	hcl	10YR53 00						0	0	HR	20		M				
19	0-25	mcl	10YR42 00						1	0	HR	4						
	25-40	hcl	10YR53 00						0	0	HR	2		M				
	40-45	hcl	10YR44 00						0	0	HR	20		M				
20	0-28	mzcl	10YR43 00						1	0	HR	2						
	28-72	hzcl	25Y 43 00						0	0	HR	5		M				
	72-78	mcl	10YR53 00						0	0	HR	30		M				
21	0-30	mcl	10YR32 00						2	0	HR	6						
	30-38	hcl	10YR41 00						0	0	HR	20		M				
22	0-25	mzcl	10YR43 00						1	0	HR	6						
	25-40	hzcl	10YR44 00						0	0	HR	5		M				
23	0-29	mzcl	10YR43 00						0	0	HR	1						
	29-50	c	10YR44 00	00MN00 00	F				0	0		0		M				
	50-68	c	10YR56 00	00MN00 00	F				0	0	HR	8		M				
24	0-25	mzcl	10YR43 00						0	0	HR	1						
	25-50	hzcl	10YR44 00						0	0		0		M				
	50-65	c	10YR44 00	10YR58 00	F		00MN00 00		0	0	HR	2		M				
25	0-30	mcl	10YR42 00						1	0	HR	3						
	30-40	hcl	10YR43 00						0	0	HR	20		M				
	40-65	hcl	10YR53 00						0	0	HR	15		M				
	65-70	mcl	25Y 53 00						0	0	HR	30		M				
26	0-25	mzcl	10YR42 00						1	0	HR	5						
	25-29	hcl	10YR44 00						0	0	HR	20		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
27	0-30	mcl	10YR43 00						0	0	HR	10						
	30-50	c	10YR44 54						0	0	HR	15		M				
	50-52	c	10YR44 54						0	0	HR	30		M				
28	0-28	mcl	10YR43 00						0	0		0						
	28-45	hcl	10YR44 54						0	0		0		M				
	45-60	c	10YR46 00						0	0		0		M				
	60-95	c	10YR53 00	75YR56 00	C		00MN00 00	Y	0	0		0		M				
29	0-26	mcl	10YR43 00						0	0		0						
	26-45	mcl	10YR54 00						0	0		0		M				
	45-120	c	10YR53 52	75YR56 00	C		00MN00 00	Y	0	0		0		M				
30	0-33	mcl	10YR43 00						0	0	HR	5						
	33-63	hcl	10YR44 00						0	0	HR	15		M				
	63-65	c	10YR54 00						0	0	HR	50		M				
31	0-26	mcl	10YR43 00						0	0	HR	5						
	26-45	hcl	10YR54 00						0	0	HR	20		M				
	45-50	hcl	10YR54 00						0	0	HR	35		M				
32	0-30	mzcl	10YR43 00						0	0		0						
	30-50	mcl	10YR56 00						0	0		0		M				
	50-110	hcl	10YR58 00						0	0		0		M				
33	0-30	mzcl	10YR53 00						0	0	HR	2						
	30-55	hcl	10YR56 00						0	0		0		M				
	55-75	c	10YR58 00	00MN00 00	F				0	0		0		M				
34	0-30	mzcl	10YR42 00						0	0		0						
	30-40	mcl	10YR44 00						0	0	HR	9		M				
35	0-30	mcl	10YR52 00						0	0	HR	4						
	30-40	mcl	10YR44 00						0	0		0		M				
	40-65	hcl	10YR56 00						0	0		0		M				
	65-80	c	10YR58 00						0	0		0		M				
36	0-35	mzcl	10YR43 00						1	0	HR	3						
	35-70	hcl	10YR56 00						0	0	HR	1		M				

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 on 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. 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.

Sub-grade 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 very 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 : 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.

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

REFERENCES

* British Geological Survey (1957), Sheet No. 317, Chichester, 1:50,000

* 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 Sets for Agricultural Land Classification.

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