

**A1**  
**M40 Motorway Service Areas**  
**Site 2, Hill Farm, Stokenchurch**  
**Agricultural Land Classification**  
**ALC Map and Report**  
**October 1994**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## M40 MOTORWAY SERVICE AREAS

### WYCOMBE DISTRICT COUNCIL, HILL FARM, STOKENCHURCH, BUCKS

#### AGRICULTURAL LAND CLASSIFICATION

##### Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on land near Stokenchurch. This work was in connection with proposed M40 motorway service areas.
- 1.2 Approximately 39 hectares of land relating to this area was surveyed in September 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 22 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 The work was carried out by members of the Resource Planning Team in the Huntingdon Statutory Group of ADAS.
- 1.4 At the time of survey, the agricultural land use was partly under permanent pasture, partly ploughed and to the south of the M40 under a new grass ley. There are 3 small areas of woodland and the area of Urban includes the M40, A40 and associated embankments.
- 1.5 The distribution of the 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. This map supersedes any previous survey information for this site.

**Table 1 : Distribution of Grades and Subgrades**

<b>Grade</b>	<b>Area (ha)</b>	<b>% of Site</b>	<b>% of Agricultural Area</b>
3a	5.5	14.2	27.8
3b	14.3	36.9	72.2
Woodland	0.6	1.5	
Urban	18.4	47.4	
<b>Total</b>	<b>38.8 ha</b>	<b>100%</b>	<b>100% (19.8 ha)</b>

- 1.6 A general description of the grades, subgrades and land use categories is provided in Appendix 1. 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.
- 1.7 The agricultural land quality on the site has been classified as predominantly subgrade 3b, with a smaller area of subgrade 3a (moderate and good quality land) respectively. Subgrade 3a land has been mapped in association with imperfectly drained fine silty soils which are typically slightly stony. Subgrade 3b relates to land comprising poorly drained fine loamy soils with slightly to moderately stony topsoils.
- 1.8 Nearly half of the site is taken up by the existing M40 and A40 roads and associated embankments and has been mapped as urban. There are also three small copses mapped as woodland within the site.

## 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 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. The combination of rainfall and temperature at this site mean an overall climatic grade of 2.

**Table 2 : Climatic Interpolation**

Grid Reference	SU743967
Altitude (m, AOD)	235
Accumulated Temperature (° days, Jan-June)	1245
Average Annual Rainfall (mm)	803
Field Capacity Days	173
Moisture Deficit, wheat (mm)	82
Moisture Deficit, potatoes (mm)	65
Overall Climatic Grade	2

## 3.0 Relief

- 3.1 Much of the site occupies a gently undulating ridge with the highest area (242 m AOD) lying just to the south of the Stokenchurch Radio Station. The land falls gently to the west and east with the former containing a shallow dry valley running south west (minimum altitude 225 m AOD). The site is dissected by the M40 which runs across the south of the site.

#### 4.0 **Geology and Soils**

- 4.1 The published geology map for the site area, (BGS Sheet 254, 1980, Henley-on-Thames, 1:50,000) shows the site to be underlain by Upper Chalk with the vast majority covered with clay and flints deposits.
- 4.2 The published soils information for the area (SSEW 1983, Sheet 6, 1:250,000) shows the site to comprise largely the Batcombe Association, with a small area of Andover 1 Association in the south and far west corner. The Batcombe Association comprises fine silty over clayey and fine loamy over clayey soils with slowly permeable subsoils. Also some well drained clayey soils over chalk, variably flinty. Andover 1 Association is described as shallow well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non-calcareous fine silty soils in valley bottoms.

#### 5.0 **Agricultural land Classification**

- 5.1 The ALC classification of the site is shown on the attached ALC map.
- 5.2 The location of the soil observation points is shown on the attached sample point map.

##### **Subgrade 3a**

- 5.3 Subgrade 3a land has been mapped to the west and south of Kiln Farm. Soils typically comprise slightly stony, non calcareous medium silty clay loam topsoils over similar or medium/heavy clay loam upper subsoils. These overlie slowly permeable clays (at a depth between 45-55 cm) which contain stones ranging from 3-30% in abundance; in addition, profiles occasionally become calcareous at depth. Wetness class has been assessed as III, and this combines with the fine topsoil textures to limit the land to subgrade 3a due to moderate wetness and workability imperfections.

##### **Subgrade 3b**

- 5.4 Land graded 3b predominates and occurs over the western half of the site and over a small area at the eastern end. Soils typically comprise medium or heavy clay loam topsoils (occasionally medium silty clay loam) which contain stones ranging from 5-20% in abundance. Occasionally topsoils are calcareous. Upper subsoils, where they exist comprise similar or slightly heavier textured soils which overlie slowly permeable clays from 25-35 or occasionally 45 cms. These clays contain stones ranging from 2-30% in abundance and are occasionally calcareous. On the western slope of the dry valley, weathered chalk is encountered below the clay at depths of 45-55 cms. Wetness class has been assessed as III or IV depending on the depth to the slowly permeable clay. Together with the fine topsoil textures the poor drainage status precludes the land from a higher grade.

- 5.5 Topsoil stone content may be an equally limiting factor where flints exceeding 2 cm account for 15-17% of soil volume. Within the area graded 3b occasional 3a borings occurred where lighter topsoils were located, however they cover too small an area to delineate separately.

**Woodland**

- 5.6 Three small areas of woodland have been mapped.

**Urban**

- 5.7 Areas mapped as urban include, the M40, A40 and other roads together with associated embankments.

ADAS Reference: 0305/206/94  
MAFF Reference : EL03/923

Resource Planning Team  
Huntingdon Statutory Group  
ADAS Cambridge

## REFERENCES

- GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1980, Sheet 254, Henley-on-Thames, 1:50,000 scale.
- MAFF, 1971. Agricultural Land Classification map sheet 159 Provisional 1:63,360 scale.
- MAFF, 1988. Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land). Alnwick.
- METEOROLOGICAL OFFICE, 1989. Data extracted from the published agroclimatic dataset.
- SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 6, South East England. 1:250,000 scale.
- SOIL SURVEY OF ENGLAND AND WALES, 1984. Soils and their use in South East England by M G Jarvis *et al.* Harpenden.

## Appendix 1

### **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 of 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 in 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 farmland predominates. The remainder is very poor quality land in Grade 5, which most occurs in the uplands.

#### **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 include 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 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 levels of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yield of which are variable. In most 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 (e.g. polythene tunnels erected for lambing) may be ignored.

### **Open water**

Includes lakes, ponds and rivers as map scale permits.

### **Land not surveyed**

Where the land use includes more than one of the above land cover types, e.g. 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 2

### FIELD ASSESSMENT OF SOIL WETNESS CLASS

#### 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 <i>or</i> , if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years <i>or</i> , if there is no slowly permeable layer 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 and 90 days in most years.
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 <i>or</i> , 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.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

<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.

Appendix 3

**SOIL BORING AND SOIL PIT DESCRIPTIONS**

Contents:

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

SAMPLE	GRID REF	ASPECT USE	--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	SU74209680	PGR S	03		050	3	3A	117	35	102	37	1			WE	3A	SL. GLEY 50
2	SU74309680	PGR S	01		035	3	3A	116	34	96	31	1			WE	3A	SL. GLEY 35
3	SU74409680	PGR S	02	045	045	3	3B	118	36	99	34	1			WE	3B	
4	SU74509680	PLO S			045	3	3A	115	33	96	31	1			WE	3A	SL. GLEY 45
5	SU74109670	PGR SE	05		040	3	3A	123	41	95	30	1			WE	3A	SL. GLEY 40
6	SU74209670	PGR SE	03		025	4	3B	113	31	84	19	1			WE	3B	SL. GLEY 25
7	SU74309670	PGR SW	02		025	4	3B	111	29	85	20	2			WE	3B	SL. GLEY 25
8	SU74409670	PGR NW	03		045	3	3A	113	31	96	31	1			ST	3B	SL. GLEY 45
9	SU74509670	PLO NW	02		040	3	3A	112	30	98	33	1			WE	3A	SL. GLEY 40
10	SU74609670	PLO E	01		065	2	2	139	57	118	53	1			WE	2	SL. GLEY 65
10P	SU74609670	PLO NE	01		045	3	3A	120	38	98	33	1			WE	3A	SL. GLEY 45
11	SU74209660	PGR SW	04		040	3	3B	122	40	96	31	1			WE	3B	SL. GLEY 40
12	SU74309660	PGR W	05		025	3	3B	112	30	96	31	1			WE	3B	SL. GLEY 25
13	SU74409660	PGR W	03		040	3	3A	115	33	100	35	1			WE	3A	SL. GLEY 40
14	SU74509660	PLO NW	01		030	3	3A	122	40	102	37	1			WE	3A	SL. GLEY 30
14P	SU74509660	PLO NW	01	030	030	4	3B	120	38	99	34	1			WE	3B	
15	SU74609660	PLO NE	01	055	055	3	3A	122	40	104	39	1			WE	3A	
16	SU74709660	PLO NE	02	040	055	3	3A	130	48	108	43	1			WE	3A	
17	SU74809660	PLO NE	02		025	3	3A	108	26	93	28	2			WE	3A	SL. GLEY 25
18	SU74909660	PLO NE	02	060	030	3	3A	117	35	97	32	1			WE	3A	DISTURBED
20	SU74409647	LEY SW	03		025	3	3A	114	32	93	28	1			WE	3A	SL. GLEY 25
21	SU74559647	LEY NE		045	045	3	3A	126	44	104	39	1			WE	3A	
22	SU74759647	LEY NE	02		045	3	3A	117	35	102	37	1			WE	3A	SL. GLEY 45
24	SU74909650	PLO NE	02	055		1	1	129	47	105	40	1			ST	2	DISTURBED

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEYS	>2	>6		LITH	TOT	STR	POR	IMP	SPL
1	0-20	mc1	10YR43 00					6	0	HR	6						Y
	20-50	hc1	10YR44 00					0	0	HR	13	M					Y
	50-80	o	75YR56 00 10YR58 00 C					S	0	0	HR	2	P	Y			Y
	80-120	c	75YR56 00 75YR58 00 C					S	0	0	HR	30	P	Y			Y
2	0-25	mc1	10YR33 00					5	0	HR	5						
	25-35	hc1	10YR43 00					0	0	HR	8	M					
	35-45	c	10YR54 56 75YR58 00 C					S	0	0	HR	20	P	Y			Y Y
	45-120	c	10YR54 56 10YR56 00 C					S	0	0	HR	15	P	Y			Y
3	0-20	hc1	10YR44 00					5	0	HR	5						Y
	20-45	hc1	10YR43 00 75YR58 00 F					0	0	HR	10	M					Y
	45-120	c	10YR63 00 75YR58 62 C					Y	0	0	HR	15	P	Y			Y
4	0-30	mc1	10YR44 00					10	1	HR	15						
	30-45	hc1	10YR56 00 75YR58 00 F					0	0	HR	2	M					
	45-120	c	75YR56 00 75YR58 00 C					S	0	0	HR	20	P	Y			Y
5	0-25	mc1	10YR43 00					6	0	HR	7						Y
	25-35	hc1	10YR44 00					0	0	HR	11	M					Y
	35-40	hc1	75YR54 44					0	0	HR	20	M					Y
	40-55	c	75YR54 53 75YR58 00 C					75YR53 00 S	0	0	HR	13	P	Y			Y Y
	55-70	ch	10YR82 00					0	0		0	P					Y
	70-120	ch	10YR82 00					0	0		0	P					Y
6	0-15	mc1	10YR43 00					9	1	HR	10						
	15-25	mc1	10YR43 00					0	0	HR	17	M					Y
	25-45	c	75YR54 00 10YR56 00 C					S	0	0	HR	20	P	Y			Y Y
	45-60	ch	10YR82 00					0	0		0	P					Y
	60-120	ch	10YR82 00					0	0		0	P					Y
7	0-15	mc1	10YR43 00					15	1	HR	18						Y
	15-25	mc1	10YR43 00					0	0	HR	20	M					Y
	25-50	c	75YR54 00 10YR56 00 C					S	0	0	HR	20	P	Y			Y Y
	50-120	c	75YR54 00					0	0	CH	50	P					Y
8	0-25	z1	10YR43 00					16	5	HR	20						
	25-40	mzc1	10YR44 00					0	0	HR	25	M					
	40-45	mzc1	10YR44 00					0	0	HR	20	M					
	45-120	c	10YR56 00 10YR58 00 C					S	0	0	HR	30	P	Y			Y
9	0-25	mzc1	10YR43 00					10	0	HR	10						
	25-40	c	75YR56 55 10YR58 00 F					0	0	HR	20	M					
	40-70	c	75YR56 55 75YR58 00 C					S	0	0	HR	10	P	Y			Y
	70-120	c	75YR56 55 75YR55 56 C					S	0	0	HR	30	P	Y			Y
10	0-40	mzc1	10YR43 00					0	0	HR	7						
	40-55	mzc1	10YR54 00					0	0	HR	3	M					
	55-65	hzc1	10YR54 00					0	0	HR	7	M					
	65-120	c	10YR56 00 10YR58 00 C					S	0	0	HR	3	P	Y			Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES-----			STRUCT/ CONSIST	SUBS						
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	IMP	SPL	CALC	
10P	0-30	mzc1	10YR43 00						8	0	HR	11							
	30-45	mzc1	10YR44 00						0	0	HR	7	MDCSAB	FM	M				
	45-80	c	10YR54 00	10YR58 00 C					S	0	0	HR	30	MDCAB	FM	P	Y	Y	
	80-120	c	75YR54 56	10YR58 00 C					75YR53 00 S	0	0	HR	10			P	Y	Y	Y
11	0-20	hc1	10YR43 00						7	0	HR	8						Y	
	20-40	hc1	10YR44 00						0	0	HR	10			M			Y	
	40-60	c	10YR54 56	10YR58 00 C					10YR58 00 S	0	0	HR	10			P	Y	Y	Y
	60-120	ch	10YR82 00						0	0		0			P			Y	
12	0-25	hzc1	10YR43 00						8	0	HR	8							
	25-55	c	10YR56 00	10YR58 00 C					S	0	0	HR	3			P	Y	Y	
	55-120	c	10YR56 00	10YR56 00 C					S	0	0	HR	30			P	Y	Y	
13	0-35	mc1	10YR43 00						8	0	HR	8							
	35-40	c	10YR56 00						0	0	HR	3			M				
	40-60	c	10YR56 00	10YR58 00 C					S	0	0	HR	5			P	Y	Y	
	60-120	c	10YR56 00	10YR58- C					S	0	0	HR	30			P	Y	Y	
14	0-30	mzc1	10YR43 00						6	1	HR	9							
	30-80	c	75YR54 56	10YR58 00 C					S	0	0	HR	5			P	Y	Y	
	80-120	c	75YR54 56	10YR58 00 C					S	0	0	HR	10			P	Y	Y	
14P	0-30	mc1	10YR43 00						7	0	HR	10							
	30-120	c	10YR54 64	75YR58 00 C					Y	0	0	HR	5	WKCSAB	FM	P	Y	Y	
15	0-25	mzc1	10YR43 00						7	1	HR	9							
	25-35	mc1	10YR54 00						0	0	HR	5			M				
	35-55	hc1	10YR54 53	10YR58 00 F					0	0	HR	10			M				
	55-120	c	10YR54 53	75YR58 00 C					Y	0	0	HR	20			P	Y	Y	
16	0-25	mzc1	10YR43 00						6	1	HR	9							
	25-40	hc1	75YR55 00	75YR56 00 F					0	0	HR	5			M				
	40-55	hc1	75YR53 54	10YR58 00 C					Y	0	0	HR	3			M			
	55-120	c	75YR53 54	10YR58 00 C					Y	0	0	HR	5			P	Y	Y	
17	0-25	mzc1	10YR43 00						10	3	HR	15							
	25-65	c	75YR56 00	75YR58 00 C					S	0	0	HR	10			P	Y	Y	
	65-120	c	75YR56 00	05YR58 00 C					S	0	0	HR	30			P	Y	Y	
18	0-30	mc1	10YR43 00						6	0	HR	9							
	30-60	c	10YR54 00	75YR58 00 C					S	0	0	HR	5			P	Y	Y	
	60-120	hc1	10YR54 53	75YR58 56 C					Y	0	0	HR	15			P	Y	Y	Y
20	0-25	hc1	10YR43 00						9	2	HR	12						Y	
	25-120	c	10YR54 43	75YR58 00 C					S	0	0	HR	10			P	Y	Y	Y
21	0-30	mzc1	10YR43 00						5	8	HR	8							
	30-35	mzc1	10YR44 00						0	0	HR	5			M				
	35-45	c	10YR54 53	10YR56 00 F					S	0	0	HR	5			P			
	45-120	c	10YR54 53	10YR56 00 C					Y	0	0	HR	5			P	Y	Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEY	>2	>6		LITH	TOT	STR	POR	IMP	SPL
22	0-25	mzc1	10YR43 00					4	0	HR	6						
	25-45	hc1	10YR54 00	10YR58 00	F			0	0	HR	8		M				
	45-60	c	10YR54 00	75YR58 00	C		S	0	0	HR	10		P	Y		Y	
	60-120	c	10YR54 00	75YR58 00	C		S	0	0	HR	30		P	Y		Y	
24	0-25	mzc1	10YR43 00					9	1	HR	13						
	25-55	mc1	10YR53 54					0	0	HR	5		M				
	55-80	mc1	10YR53 00	10YR58 00	C		Y	0	0	HR	3		P				
	80-120	mc1	10YR54 00					0	0	HR	2		P				

SOIL PIT DESCRIPTION

Site Name : M40 MSA, STOKENCHURCH Pit Number : 10P

Grid Reference: SU74609670 Average Annual Rainfall : 803 mm  
 Accumulated Temperature : 1245 degree days  
 Field Capacity Level : 173 days  
 Land Use : Ploughed  
 Slope and Aspect : 01 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR43 00	8	11	HR					
30- 45	MZCL	10YR44 00	0	7	HR		MDCSAB	FM	M	
45- 80	C	10YR54 00	0	30	HR	C	MDCAB	FM	P	
80-120	C	75YR54 56	0	10	HR	C			P	Y

Wetness Grade : 3A Wetness Class : III  
 Gleying : cm  
 SPL : 045 cm

Drought Grade : 1 APW : 120mm MBW : 38 mm  
 APP : 98 mm MBP : 33 mm

FINAL ALC GRADE : 3A  
 MAIN LIMITATION : Wetness



SOIL PIT DESCRIPTION

Site Name : M40 MSA, STOKENCHURCH Pit Number : 14P

Grid Reference: SU74509660 Average Annual Rainfall : 803 mm  
 Accumulated Temperature : 1245 degree days  
 Field Capacity Level : 173 days  
 Land Use : Ploughed  
 Slope and Aspect : 01 degrees NW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MCL	10YR43 00	7	10	HR					
30-120	C	10YR54 64	0	5	HR	C	WKCSAB	FM	P	

Wetness Grade : 3B Wetness Class : IV  
 Gleying : 030 cm  
 SPL : 030 cm

Drought Grade : 1 APW : 120mm MBW : 38 mm  
 APP : 99 mm MBP : 34 mm

FINAL ALC GRADE : 3B  
 MAIN LIMITATION : Wetness

Appendix 3 (Cont)

**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 - sugar beet	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  
EROSN : Soil erosion ) considered significant in terms  
of  
EXP : Exposure ) the assessment of agricultural  
land  
FROST : Frost prone ) quality a 'y' will be entered in the  
DIST : Disturbed land ) relevant column.  
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
TX - soil texture	ST - topsoil stoniness
DP - soil depth	

## PROFILES AND 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)

Other possible texture classes include:

OL - organic loam

P - peat

SP - sandy peat

LP - loamy peat

PL - peaty loam

PS - peaty sand

MZ - marine light silts

2. MOTTLE COL : Mottle colour

3. MOTTLE ABUN : Mottle abundance

F - few - less than 2% of matrix or surface described

C - common - 2-20% of the matrix

M - many - 20-40% of the matrix

VM - very many - 40% + of the matrix

4. MOTTLE CONT : Mottle continuity

F - faint - indistinct mottles, evident only on close examination

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 : Stone lithology. One of the following is used.

HR - all hard rocks or stones

MSST - soft, medium or coarse grained sandstone

SI - soft weathered igneous or metamorphic

SLST - soft oolitic or dolomitic 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 (>2 cm, >6 cm 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 well developed

- 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