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M40 Motorway Service Areas
Site 6 Tetsworth, Oxon
Agricultural Land Classification
ALC Map and Report
October 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

M40 MOTORWAY SERVICE AREAS
SOUTH OXFORDSHIRE DISTRICT COUNCIL MANOR FARM TETSWORTH
AGRICULTURAL LAND CLASSIFICATION

Summary

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on land quality on land at Manor Farm Tetsworth This work was in connection with proposed M40 motorway service areas

1 2 Approximately 39 3 hectares of land relating to this area was surveyed in September 1994 The survey was undertaken at a density of less than one boring per hectare* A total of 23 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 permanent pasture The Non agricultural area comprises a small area of scrub adjacent to the road and the area of Urban comprises the M40 and the road to Manor Farm

1 5 A previous ALC survey was carried out as part of the 1988 Stone Bassett New Country Town proposal (Ref 3302/22/88) This shows the site to comprise areas of subgrades 3b and 3c Since the revised ALC system was introduced in 1989 the current survey was carried out at a semi detailed level to validate the 1988 grading Land graded 3c has been incorporated into 3b in the Revised ALC System and the 1994 field work confirms that agricultural land graded 3b covers the whole site

1 6 The distribution of the grades and subgrades is shown on the attached ALC map and the areas are given in the table overleaf 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

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* Refer to paragraph 1 5

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
3b	32 9	83 7	100
Non Agricultural	0 2	0 5	
Open Water	0 1	0 2	
Urban	6 1	15 5	
Total	**39 3 ha**	**100%**	**100% (32 9 ha)**

1 7 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 8 The land quality on the site has been classified as 3b (moderate quality land) as a result of significant wetness and workability limitations

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 1

Table 2 Climatic Interpolation

Grid Reference	SP677024
Altitude (m AOD)	78
Accumulated Temperature (° days Jan June)	1422
Average Annual Rainfall (mm)	648
Field Capacity Days	135
Moisture Deficit wheat (mm)	107
Moisture Deficit potatoes (mm)	100
Overall Climatic Grade	1

3 0 **Relief**

3 1 The site falls gently from a maximum height of 95 m AOD in the extreme south east to 75 m AOD in the north west Neither gradient nor relief impose a limitation on ALC grade

4 0 **Geology and Soils**

4 1 The published geology map for the site area (BGS Ten Mile to 1 inch (1968) South Sheet) shows the site to be underlain by Upper Greensand with Gault Clay

4 2 A detailed soil map (SSEW 1980 Sheet SP60) indicates the presence of the Rowsham and Lawford Series with a smaller area of the Evesham Series to the southeast These soils comprise fine loams over clays which are gleyed at various depths

4 3 The more recent but less detailed published soil map for the area (SSEW 1983 Sheet 6 1 250 000) shows the site to comprise the Denchworth Association* and broadly concurs with the earlier map

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 3b

5 3 Subgrade 3b has been mapped over all of the agricultural land due to significant wetness and workability constraints which affect the flexibility of the land Soils typically comprise non calcareous very slightly stony or stoneless heavy clay loam topsoils (occasionally medium clay loams) which directly overlie very slightly stony or stoneless slowly permeable clay from 25 30 cms Occasionally profiles comprise upper subsoils of gleyed heavy clay loams while lenses of sand were encountered in some profiles The wetness class has typically been assessed as IV due to the presence of impeded drainage layers directly below the surface This factor combines with the relatively heavy topsoils to restrict the land to subgrade 3b due to significant wetness and workability limitations

5 4 A few profiles of subgrade 3a quality were encountered at the peripheries of the site due to a combination of medium clay loam topsoils and the presence of better drained subsoils where the slowly permeable clay is lower in the profile These profiles are assessed as wetness class III but they are of insufficient quantity to delineate separately However surveys of adjacent land may identify mappable units of this better quality land

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* Denchworth Association These soils are slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils Some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils

Non Agricultural

5 5 The non agricultural land comprises a small area of scrub near the bridge over the M40

Urban

5 6 This category comprises the M40 and the road to Manor Farm

Open Water

5 7 This category comprises a pond

ADAS Reference 3303/210/94
MAFF Reference EL33/902

Resource Planning Team
Huntingdon Statutory Group
ADAS Cambridge

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1979 Ten Mile to 1 inch *South Sheet*

MAFF 1971 Agricultural Land Classification map sheet 159 Provisional 1 63 360 scale

METEOROLOGICAL OFFICE 1989 Data extracted from the published agroclimatic dataset

SOIL SURVEY OF ENGLAND AND WALES 1980 Sheet SP60 Tiddington Soils in Oxfordshire II 1 25 000 scale

SOIL SURVEY OF ENGLAND AND WALES 1983 Sheet 6 South East England 1 250 000 scale

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[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 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 *or*, 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 *or*, 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

[1] The 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 3

SOIL BORING AND SOIL PIT DESCRIPTIONS

Contents

* Soil boring descriptions
* Soil pit descriptions
* Soil Abbreviations Explanatory Note

				MOTTLES			PED		STONES				STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1	0 15	mcl	10YR43 00						1	0	HR	1						
	15 35	hcl	10YR53 00	10YR58	62	M		Y	0	0	HR	1		M				
	35 120	c	10YR62 00	10YR58	00	M		Y	0	0	HR	1		P	Y		Y	
3	0 15	hcl	10YR42 00						1	0	HR	1						
	15 25	hcl	10YR52 68	10YR68	52	M		Y	0	0	HR	1		M				
	25 120	c	10YR62 00	10YR58	00	M		Y	0	0	HR	1		P	Y		Y	
5	0 25	hcl	10YR43 00						1	0	HR	1						
	25 50	hcl	10YR53 00	10YR58	62	C		Y	0	0	HR	2		M				
	50 120	c	10YR53 00	10YR58	62	M		Y	0	0	HR	2		P	Y		Y	
7	0 25	hcl	10YR43 00						1	0	HR	1						
	25 120	c	10YR53 00	10YR58	62	M		Y	0	0	HR	1		P	Y		Y	
9	0 30	hcl	10YR54 00						1	0	HR	1						
	30 45	hcl	10YR53 54	10YR58	62	C		Y	0	0	HR	5		M				
	45 120	c	10YR53 00	10YR58	62	M		Y	0	0	HR	2		P	Y		Y	
11	0 30	hcl	10YR42 00						1	0	HR	1						
	30 120	c	10YR53 00	10YR58	62	C		Y	0	0		0		P	Y		Y	
13	0 25	hcl	10YR43 00						1	0	HR	1						
	25 50	c	10YR53 00	10YR58	62	C		Y	2	0	HR	2		P	Y		Y	
	50 65	sc	10YR56 00	10YR68	62	C		S	0	0	HR	2		P	Y		Y	
	65 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	2		P	Y		Y	
15	0 25	mcl	10YR42 00						1	0	HR	1						
	25 45	hcl	10YR53 54	10YR58	62	C		Y	0	0	HR	2		M	Y			
	45 120	c	10YR53 00	10YR68	52	M		Y	0	0	HR	1		P	Y		Y	
15P	0 25	mcl	10YR43 00						3	0	HR	3						
	25 50	hcl	10YR53 00	10YR58	52	C		Y	0	0	HR	5	MDCSAB FM	M	Y			
	50 120	c	10YR53 00	10YR58	52	M		Y	0	0	HR	3	MDCAB FM	P	Y		Y	
16	0 35	mcl	10YR54 00						1	0	HR	1						
	35 55	hcl	10YR53 54	10YR58	62	C		Y	1	0	HR	1		M				
	55 120	c	10YR53 54	10YR58	62	C		Y	0	0	HR	1		P	Y		Y	
17	0 25	hcl	10YR43 00						1	0	HR	1						
	25 120	c	10YR53 54	10YR58	52	C		Y	0	0	HR	1		P	Y		Y	
18	0 30	hcl	10YR54 43						1	0	HR	1						
	30 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	2		P	Y		Y	
22	0 25	hcl	10YR42 00						4	0	HR	4						Y
	25 35	hcl	10YR54 00						0	0		0		M				Y
	35 120	c	10YR53 54	10YR58	62	C		Y	0	0	HR	3		P	Y		Y	Y

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
25	0 30	hcl	10YR42 00						1	0	HR	1						
	30 60	c	10YR53 00	10YR58	62	C		Y	0	0	HR	2		P	Y		Y	
	60 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	10		P	Y		Y	
27	0 30	hcl	10YR43 00						1	0	HR	1						
	30 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	1		P	Y		Y	
29	0 35	hcl	10YR43 00						1	0	HR	1						
	35 120	c	10YR53 00	10YR56	52	C		Y	0	0	HR	1		P	Y		Y	
31	0 30	hcl	10YR42 00						1	0	HR	1						
	30 120	c	10YR53 54	10YR58	62	C		Y	0	0	HR	3		P	Y		Y	
31P	0 25	hcl	10YR42 00						3	0	HR	3						
	25 120	c	10YR52 00	10YR58	00	M		Y	0	0	HR	5	MDCAB FM	P	Y		Y	
32	0 35	mcl	10YR43 00						1	0	HR	1						
	35 65	c	10YR53 54	10YR58	62	C		Y	0	0	HR	2		P	Y		Y	
	65 120	sc	10YR56 00	10YR58	00	C		S	0	0	HR	2		P	Y		Y	
33	0 30	mcl	10YR43 00						1	0	HR	1						
	30 45	hcl	10YR54 00	10YR58	62	C		S	0	0	HR	2		M				
	45 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	7		P	Y		Y	
35	0 25	hcl	10YR43 32						1	0	HR	1						
	25 50	c	10YR53 00	10YR58	62	C		Y	0	0	HR	1		P	Y		Y	
	50 120	c	10YR52 00	10YR52	00	M		Y	0	0	HR	1		P	Y		Y	Y
37	0 25	hcl	10YR43 00						1	0	HR	1						
	25 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	2		P	Y		Y	
38	0 30	hcl	10YR43 00						5	0	HR	5						
	30 40	hcl	10YR43 00	10YR58	62	C		S	0	0	HR	10		M				
	40 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	10		P	Y		Y	
39	0 30	hcl	10YR43 00						1	0	HR	1						
	30 120	c	10YR52 00	10YR66	00	M		Y	0	0	HR	5		P	Y		Y	
40	0 25	hcl	10YR43 00						1	0	HR	1						
	25 120	c	10YR53 00	10YR58	62	C		Y	0	0	HR	1		P	Y		Y	

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY SPL	WETNESS CLASS	WHEAT GRADE	POTS AP	POTS MB	M REL AP	M REL MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SP67300260	PGR			015 035	4	3B	126	19	104	5	2				WE	3B	
3	SP67500260	PGR			015 025	4	3B	123	16	101	2	2				WE	3B	
5	SP67400250	PGR			025 050	3	3B	132	25	109	10	2				WE	3B	
7	SP67600250	PGR			025 025	4	3B	125	18	103	4	2				WE	3B	
9	SP67300240	PGR			030 045	3	3B	131	24	108	9	2				WE	3B	
11	SP67500240	PGR			030 030	4	3B	128	21	105	6	2				WE	3B	
13	SP67700240	PGR	NW	01	025 025	4	3B	124	17	98	1	2				WE	3B	
15	SP67900240	PGR	N	01	025 045	3	3A	131	24	108	9	2				WE	3A	
15P	SP67900240	PGR	N	01	025 050	3	3A	129	22	107	8	2				WE	3A	
16	SP67200230	PGR			035 055	3	3A	136	29	113	14	2				WE	3A	
17	SP67300230	PGR			025 025	4	3B	125	18	103	4	2				WE	3B	
18	SP67400230	PGR			030 030	4	3B	127	20	105	6	2				WE	3B	
22	SP67800230	PGR			035 035	4	3B	126	19	104	5	2				WE	3B	
25	SP67300220	PGR	N	01	030 030	4	3B	124	17	104	5	2				WE	3B	
27	SP67500220	PGR			030 030	4	3B	128	21	105	6	2				WE	3B	
29	SP67700220	PGR			035 035	4	3B	130	23	107	8	2				WE	3B	
31	SP67900220	PGR	N	02	030 030	4	3B	126	19	104	5	2				WE	3B	
31P	SP67900220	PGR	N	02	025 025	4	3B	121	14	100	1	2				WE	3B	
32	SP67600210	PGR			035 035	4	3B	135	28	107	8	2				WE	3B	
33	SP67700210	PGR	W	04	045 045	3	3A	129	22	107	8	2				WE	3A	SL GLEY 30
35	SP67900210	PGR	NW	02	025 025	4	3B	125	18	103	4	2				WE	3B	
37	SP67800200	PGR	W	03	025 025	4	3B	125	18	102	3	2				WE	3B	
38	SP67900200	PGR	W	04	040 040	3	3B	122	15	101	2	2				WE	3B	SL GLEY 30
39	SP68000200	PGR	N	03	030 030	4	3B	125	18	103	4	2				WE	3B	
40	SP68000190	PGR	W	04	025 025	4	3B	125	18	103	4	2				WE	3B	

SOIL PIT DESCRIPTION

S t Name M40 MSA TETSWORTH OXON P t N mbe 15P

G id Refe e SP67900240 A erage A n al Rai fall 654 mm
Acc mulated Temperat re 1416 degree days
F ld C p ty Level 136 days
Land Use Perm e t G
Slope and Aspect 01 degrees N

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	MCL	10YR43 00	3	3	HR					
25 50	HCL	10YR53 00	0	5	HR	C	MDCSAB	FM	M	
50 120	C	10YR53 00	0	3	HR	M	MDCAB	FM	P	

Wetness G ade 3A Wetness Class III
Gley g 025 cm
SPL 050 cm

D ght G de 2 APW 129mm MBW 22 mm
APP 107mm MBP 8 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name M40 MSA TETSWORTH OXON P t N mber 31P

G d R fer ce SP67900220 A erage Ann al Rainfall 654 mm
Acc mulated Tempe at e 1416 degree days
F eld Capac ty Le el 136 days
L nd Use Permanent Grass
Slope d A pect 02 degrees N

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	HCL	10YR42 00	3	3	HR					
25 120	C	10YR52 00	0	5	HR	M	MDCAB	FM	P	

Wetness Grade 3B Wetness Class IV
Gleying 025 cm
SPL 025 cm

Drought Grade 2 APW 121mm MBW 14 mm
APP 100mm MBP 1 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
WHT wheat
BAR barley
CER cereals
OAT oats
MZE maize
OSR oilseed rape
BEN field beans
BRA brassicae
POT potatoes
SBT sugar beet
FDC fodder crops
FRT soft and top fruit
HOR/HRT horticultural crops
PAS/PGR permanent pasture
RGR rough grazing
LEY ley grassland
CFW coniferous woodland
DCW deciduous woodland
SCR scrub
HTH heathland
BOG bog or marsh
FLW fallow
PLO ploughed
SAS set aside
OTH other
LIN linseed

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 2/3 of the sand less than 0 2 mm)
C coarse (more than 1/3 of sand greater than 0 6 mm)
M medium (less than 2/3 fine sand and less than 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 in 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