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M40 Motorway Service Areas
Site 9 Mount Hill Farm Hedgerley
Agricultural Land Classification
ALC Map and Report
October 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

M40 MOTORWAY SERVICE AREAS
WYCOMBE DISTRICT COUNCIL MOUNT HILL FARM, HEDGERLEY 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 at Mount Hill Farm Hedgerley This work was in connection with proposed M40 motorway service areas

1 2 Approximately 24 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 20 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 Laboratory measured stone contents assisted the assessment of profile stone

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 includes three small disused quarries and two small areas of woodland while the area of Urban includes an M40 embankment Mount Hill Lane and a concrete storage area

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

Grade	Area (ha)	% of Site	% of Agricultural Area
3a	13 3	56 3	72 3
3b	5 1	21 6	27 7
Non Agricultural	0 5	2 1	
Woodland	1 1	4 7	
Urban	3 6	15 3	
Total	**23 6 ha**	**100%**	**100% (18 4ha)**

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 3a with smaller areas of subgrade 3b (good and moderate quality land respectively) as a result of moderate or significant droughtiness imperfections A small area of land is graded 3b in the north west of the site because gradients of 9° were recorded

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	SU983875
Altitude (m AOD)	55
Accumulated Temperature (days Jan June)	1448
Average Annual Rainfall (mm)	699
Field Capacity Days	146
Moisture Deficit wheat (mm)	108
Moisture Deficit potatoes (mm)	101
Overall Climatic Grade	1

3 0 Relief

3 1 Much of the site is gently undulating with a maximum altitude of 79 m AOD in the north west falling to a minimum altitude of 50 m in the south east adjacent to Mount Hill Lane In the north west corner of the site slopes were measured at 9° using a hand held clinometer Only in this area does gradient impose a limitation on the ALC grade

4 0 Geology and Soils

4 1 The published geology map for the site area (BGS Sheet 255 1948 Beaconsfield 1 63 360) shows the site to be underlain by River Terrace Deposits in centre the of the site Upper Chalk on either side and a small area to the north comprising Reading Beds

4 2 The published soils information for the area (SSEW 1983 Sheet 6 1 250 000) shows the site to comprise in the north the Sonning 2 Association described as well drained flinty coarse loamy and gravelly soils associated with slowly permeable fine loamy over clayey soils and coarse loamy over clayey soils with slowly permeable subsoils In the south of the site soils are mapped as the Frilsham Association described as well drained mainly fine loamy soils over chalk some calcareous shallow calcareous fine loamy and fine silty soils in places

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 over the majority of the site Soils typically comprise non calcareous very slightly or slightly stony medium clay loam or sandy clay loam topsoils to 20 25 cm depth Upper subsoils comprise medium clay loam or sandy clay loams with between approximately 10 and 30% stones to 50 60 cm Lower subsoils are typically very stony (50%) sandy clay loams or medium clay loams which merge into gravel below 90 cms (75% stones) Subsoil stoniness and rooting restrictions in the subsoil (approximate rooting to a maximum of 90 cm) reduce the available water for crop growth Consequently this results in moderate droughtiness restrictions which limit the land to subgrade 3a (good quality agricultural land)

5 4 Within this area individual less droughty borings graded 2 were encountered particularly in the south west However these borings occur sporadically and therefore it is not possible to delineate a separate area of grade 2

Subgrade 3b

5 5 Profiles in the south east of the site typically comprise non calcareous slightly stony medium clay loam topsoils to 20 25 cm over moderately stony (20 30%) medium clay loam upper subsoils Lower subsoils (typically below 30/40 cm) comprise very stony (50 65%) medium clay loam or sandy clay loams Gravel occurs at depths of 65 75 cm which is exploited by roots to a maximum depth of 90 cm The abundance of stones and rooting restrictions in the subsoils significantly reduce the available water for crop growth Consequently significant droughtiness imperfections occur which limit the land to subgrade 3b (moderate quality agricultural land)

5 6 As mentioned in paragraph 3 1 a small area of land in the north west of the site is limited to subgrade 3b because gradients of 9 were measured These will act to restrict the safe and efficient use of farm machinery

Non Agricultural

5 7 Three small disused quarries or pits are mapped on the site together with two small areas of woodland one in the north east and one in the centre

Urban

5 8 A concrete storage area, Mount Hill Lane and an M40 embankment are mapped as urban

ADAS Reference 0302/213/94
MAFF Reference EL03/933

Resource Planning Team
Huntingdon Statutory Group
ADAS Cambridge

REFERENCES

BRITISH GEOLOGICAL SURVEY 1948 Drift Edition 1 63 360 scale Beaconsfield Sheet 255

MAFF 1971 Agricultural Land Classification 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 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

				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 25	mcl	10YR43 00						8	0	HR	12						
	25 45	hcl	10YR56 00						0	0	HR	15		M				
	45 65	mcl	10YR66 00						0	0	HR	7		M				
	65 100	scl	10YR73 00						0	0	HR	50		M				
2	0 25	scl	10YR43 00						2	0	HR	8						
	25 40	scl	10YR56 00						0	0	HR	5		M				
	40 65	mcl	10YR66 00						0	0	HR	12		M				
	65 75	mcl	10YR56 00						0	0	HR	10		M				
	75 105	scl	10YR73 00						0	0	HR	50		M				
3	0 20	mcl	10YR43 00						5	0	HR	10						
	20 30	mcl	10YR56 00						0	0	HR	5		M				
	30 50	msl	10YR58 00						0	0	HR	5		M				
	50 75	mcl	10YR66 00						0	0	HR	5		M				
	75 120	msl	10YR58 00						0	0	HR	5		M				
4	0 20	mcl	10YR44 00						5	0	HR	10						
	20 70	scl	75YR56 00						0	0	HR	15		M				
	70 120	sc	10YR56 00	10YR58 00	C		10YR72 00	S	0	0	HR	5		P			Y	
5	0 25	scl	10YR43 00						2	0	HR	5						
	25 45	scl	10YR55 00						0	0	HR	15		M				
	45 65	msl	10YR55 00						0	0	HR	10		M				
	65 75	cl	10YR55 00						0	0	HR	10		M				
	75 85	c	05YR54 00						0	0	HR	2		M				
	85 120	hcl	10YR55 00						0	0	CH	10		M				Y
6	0 20	mcl	10YR43 00						2	0	HR	10						
	20 45	mcl	10YR54 00						0	0	HR	10		M				
	45 80	scl	10YR73 00						0	0	HR	50		M				
	80 90	gh	10YR54 00						0	0		0		M				
6A	0 20	mcl	10YR43 00						5	0	HR	15						
	20 50	mcl	10YR56 00						0	0	HR	15		M				
	50 85	scl	10YR73 00						0	0	HR	50		M				
	85 90	gh	10YR54 00						0	0		0		M				
7	0 20	mcl	10YR43 00						8	0	HR	12						
	20 45	mcl	10YR54 00						0	0	HR	12		M				
	45 50	mcl	10YR66 00						0	0	HR	30		M				
	50 85	scl	10YR73 00						0	0	HR	50		M				
	85 90	gh	10YR73 00						0	0		0		M				
8	0 25	mcl	10YR43 00						4	0	HR	8						
	25 35	scl	10YR55 00						0	0	HR	10		M				
	35 50	mcl	10YR55 00						0	0	HR	15		M				
	50 85	cl	10YR34 00						0	0	HR	50		M				
	85 90	gh	10YR54 00						0	0		0		M				

				-MOTTLES			PED		STONES				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
8P	0 25	mcl	10YR44 00						8	0	HR	10						
	25 45	mcl	10YR66 00						0	0	HR	15		FR	M			
	45 50	mcl	10YR66 00						0	0	HR	30			M			
	50 85	scl	10YR73 00						0	0	HR	50			M			
	85 120	gh	10YR54 00						0	0		0			M			
10	0 20	mcl	10YR43 00						5	0	HR	10						
	20 50	mcl	10YR56 00						0	0	HR	15			M			
	50 60	mcl	10YR66 00						0	0	HR	30			M			
	60 90	scl	10YR73 00						0	0	HR	50			M			
11	0 25	mcl	10YR43 00						6	0	HR	8						
	25 50	mcl	10YR44 00						0	0	HR	20			M			
	50 85	scl	10YR73 00						0	0	HR	50			M			
	85 90	gh	10YR54 00						0	0		0			M			
12	0 25	mcl	10YR43 00						14	0	HR	17						
	25 35	mcl	10YR54 00						0	0	HR	20			M			
	35 60	mcl	10YR54 00						0	0	HR	55			M			
	60 70	mcl	10YR54 00						0	0	HR	65			M			
	70 90	gh	10YR54 00						0	0		0			M			
13	0 20	mcl	10YR43 00						2	0	HR	5						Y
	20 40	mcl	10YR73 00						0	0	CH	30			M			Y
	40 55	msl	10YR56 00						0	0	CH	30			M			Y
	55 85	ch	10YR81 00						0	0		0			P			Y
14	0 20	mcl	10YR43 00						2	0	HR	5						
	20 50	mcl	10YR54 00						0	0	HR	5			M			
	50 60	mcl	10YR54 00						0	0	HR	10			M			
	60 90	scl	10YR73 00						0	0	HR	50			M			
15	0 25	msl	10YR42 00						10	0	HR	15						
	25 30	mcl	10YR54 00						0	0	HR	25			M			
	30 55	mcl	10YR54 00						0	0	HR	55			M			
	55 65	mcl	10YR54 00						0	0	HR	65			M			
	65 90	gh	10YR54 00						0	0		0			M			
15P	0 20	msl	10YR42 00						14	2	HR	17						
	20 35	mcl	10YR54 00						0	0	HR	30		VM	M			
	35 60	mcl	10YR54 00						0	0	HR	55			M			
	60 70	mcl	10YR54 00						0	0	HR	65			M			
	70 90	gh	10YR54 00						0	0		0			M			
17	0 20	msl	10YR42 00						2	0	HR	10						
	20 50	msl	10YR56 00						0	0	HR	10			M			
	50 65	msl	10YR58 00						0	0	HR	5			M			
	65 120	scl	10YR58 00						0	0	HR	5			M			

				-MOTTLES			PED		STONES				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
18	0 20	mcl	10YR43 00						0	0	HR	10						
	20 35	mcl	10YR54 00						0	0	HR	10		M				
	35 50	msl	10YR56 00						0	0	HR	5		M				
	50 120	msl	10YR56 00						0	0	HR	2		M				
19	0 25	mcl	10YR43 00						2	0	HR	5						
	25 35	mcl	10YR55 00						0	0	HR	5		M				
	35 50	mzcl	10YR54 00						0	0	HR	2		M				
	50 80	mcl	10YR56 00	10YR56 00	F				0	0	HR	5		M				
	80 120	mcl	10YR56 00						0	0	HR	5		M				
20	0 20	mcl	10YR42 00						2	0	CH	10						Y
	20 45	mcl	10YR63 00						0	0	HR	5		M				Y
	45 55	msl	10YR52 00						0	0	HR	5		M				Y
	55 60	mcl	10YR54 00						0	0	HR	10		M				Y
	60 95	mcl	10YR54 00						0	0	HR	30		M				
	95 120	gh	10YR54 00						0	0		0		M				
21	0 20	mcl	10YR43 00						5	0	HR	10						
	20 40	mcl	10YR66 00						0	0	HR	30		M				Y
	40 75	scl	10YR73 00						0	0	HR	50		M				
	75 90	gh	10YR54 00						0	0		0		M				

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WETNESS GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU98208760	PGR	S	02			1	1	107	1	101	0	3A				DR	3A	
2	SU98308760	PGR	S	02			1	1	113	5	104	3	2				DR	2	
3	SU98108750	PGR	SE	01			1	1	147	39	107	6	2				DR	2	
4	SU98208750	PGR	S	03	070		2	2	127	19	97	4	2				WD	2	SL GLEY 70
5	SU98308750	PGR	S	04			1	1	139	31	100	1	2				DR	2	
6	SU98108740	PGR	S	02			1	1	90	18	89	12	3A				DR	3A	GRAVEL
6A	SU98108735	PGR	S	02			1	1	91	17	88	13	3A				DR	3A	GRAVEL
7	SU98208740	PGR	SE	03			1	1	92	16	89	12	3A				DR	3A	GRAVEL
8	SU98308740	PGR	S	04			1	1	95	13	92	9	3A				DR	3A	GRAVEL
8P	SU98308740	PGR	S	04			1	1	96	12	90	11	3A				DR	3A	ROOTS TO 90
10	SU98208730	PGR	SE	02			1	1	97	11	93	8	3A				DR	3A	
11	SU98308730	PGR	NE	01				1	93	15	90	11	3A				DR	3A	GRAVEL
12	SU98408730	PGR	NW	02			1	1	73	35	76	25	3B				DR	3B	GRAVEL
13	SU98208720	PGR	S	02			1	1	102	6	98	3	3A				DR	3A	CHALK
14	SU98308720	PGR	E	04			1	1	105	3	103	2	3A				DR	3A	
15	SU98408720	PGR	E	01			1	1	67	41	69	32	3B				DR	3B	GRAVEL
15P	SU98408720	PGR	E	01			1	1	68	40	71	30	3B				DR	3B	GRAVEL
17	SU98208710	PGR	NE	03			1	1	140	32	100	1	2				DR	2	
18	SU98308710	PGR	E	03			1	1	151	43	105	4	2				DR	2	
19	SU98408710	PGR	NE	02			1	1	150	42	114	13	1					1	
20	SU98508710	PGR					1	1	117	9	106	5	2			Y	DR	2	
21	SU98408700	PGR	E	01			1	1	78	30	80	21	3B				DR	3B	GRAVEL

SOIL PIT DESCRIPTION

Site Name M40 MSA HEDGERLEY BUCKS P t N mber 8P

Grid Refere ce SU98308740 Ave ge Ann al Ra nfall 699 mm
Accumulated Temperat re 1448 degree days
F eld Capacity Le el 146 days
Land Use Perm nent Grass
Slope and Aspect 04 degrees S

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	MCL	10YR44 00	8	10	HR					
25 45	MCL	10YR66 00	0	15	HR			FR	M	
45 50	MCL	10YR66 00	0	30	HR				M	
50 85	SCL	10YR73 00	0	50	HR				M	
85 120	GH	10YR54 00	0	0					M	

Wetness Grade 1 Wetness Class I
Gley1 g cm
SPL No SPL

Dro ght Grade 3A APW 96 mm MBW 12 mm
APP 90 mm MBP 11 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Drought ness

SOIL PIT DESCRIPTION

Site Name M40 MSA HEDGERLEY BUCKS P t N mber 15P

Grid Ref rence SU98408720 A erage Ann al R f ll 699 mm
Accumulated Temperat re 1448 degree days
Field Capacity Le el 146 days
Land Use Permanent Grass
Slope and Aspect 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 20	MSL	10YR42 00	14	17	HR					
20 35	MCL	10YR54 00	0	30	HR			VM	M	
35 60	MCL	10YR54 00	0	55	HR				M	
60 70	MCL	10YR54 00	0	65	HR				M	
70 90	GH	10YR54 00	0	0					M	

Wet ess Grade 1 Wet ess Class I
Gley ng cm
SPL No SPL

D ought Grade 3B APW 68 mm MBW 40 mm
APP 71 mm MBP 30 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Drought e

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 ⅔ of the sand less than 0 2 mm)
C coarse (more than ⅓ of sand greater than 0 6 mm)
M medium (less than ⅔ fine sand and less than ⅓ 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