AGRICULTURAL LAND CLASSIFICATION REPORT

SWALE BOROUGH LOCAL PLAN

LAND AT MURSTON, SITE BB

AGRICULTURAL LAND CLASSIFICATION REPORT

SWALE BOROUGH LOCAL PLAN
LAND AT MURSTON, SITE BB
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 Murston, Site BB. This work was in connection with the Swale Borough Local Plan.

1.2 Approximately 66.5 hectares of land relating to this area was surveyed in July 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 76 borings, 5 soil inspection pits and 9 riddle location points 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 comprised cereals, potatoes and grass. The Non-agricultural area comprised areas of scrub and a golf course, while the area of Urban included East Hall and the golf course buildings at West Tonge Farm. Farm buildings at East Hall are included in the Agricultural Buildings category, while scattered woodland has been included in the woodland class.

1.5 Previous ALC field survey work has been carried out nearby at sites 18 and 20, Swale Borough Local Plan (Ref No. 2011/127/92) and sites B and C, Swale Local Plan (Ref No. 2011/047/94).

1.6 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
2	32.3	48.6	55.5
3a	15.7	23.6	27.0
3b	10.2	15.3	17.5
Non Agricultural	3.8	5.7	
Agricultural Bldgs	0.5	0.8	
Woodland	3.1	4.7	
Urban	0.9	1.3	
Total	**66.5**	**100%**	**100% (58.2 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 a mix of grades 2, 3a and 3b (very good to moderate quality land). Land graded 2 is restricted by minor droughtiness imperfections, while land graded 3a is subjected to moderate droughtiness or wetness/workability limitations depending on location. Subgrade 3b land is precluded from a higher grade due to significant wetness/workability constraints.

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 means an overall climatic grade of 1.

Table 2 : Climatic Interpolation

Grid Reference	TQ 928 645
Altitude (m, AOD)	5
Accumulated Temperature (° days, Jan-June)	1494
Average Annual Rainfall (mm)	606
Field Capacity Days	119
Moisture Deficit, wheat (mm)	122
Moisture Deficit, potatoes (mm)	119
Overall Climatic Grade	1

3.0 Relief

3.1 The majority of the site lies at around 5 m AOD. To the south of the track joining East Hall and Lomas Road, a pit face shows one edge of the brickearth extraction area and leads to land lying 14 m AOD. However, neither gradient nor altitude restrict land quality on this site.

4.0 Geology and Soils

4.1 The published geology map for the site area, (BGS Sheet 272, Chatham, 1977) shows the site to be underlain by Thanet Bed Sands, which outcrop to the south. These are overlain in part by alluvium in the north, Head gravel and Brickearth in the central and southern parts of the site.

4.2 The published soils information for the area (SSEW 1983, Sheet 6, 1:250,000) shows the site to comprise the Hamble 1 association, described as deep, well drained, often stoneless silty soils.

4.3 However, the current more detailed survey of soils indicates that because the majority of the site has been worked for brickearth extraction and cement quarrying in the past (c.1930-1960), deep silty soils do not now exist throughout the site.

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.

Irrigation

5.3 Irrigation is available on site and is extracted from the lakes to the north. However, it has not been taken into account when assigning an ALC grade because there is insufficient water available over the site to warrant an upgrade.

Grade 2

5.4 Land graded 2 is associated with profiles comprising very slightly or slightly stony silt loams or medium silty clay loams which overlie gravel deposits at depths below 70/100 cms, occasionally 60 cms. The gravel typically comprises 50% flints in a sandy clay loam matrix and the depth at which it is encountered (70-100 cm) varies with location. The gravel at depth slightly reduces the available profile water for crop growth consequently minor droughtiness imperfections restrict this land to grade 2. Occasional topsoil stone contents between 6 and 10% flints >2 cm impose a minor limitation on the successful establishment of seedlings, thus excluding the land from grade 1. Although land of grade 1 quality occurs within this area, where gravel is not encountered until at least 80 cms, it forms too small an area to delineate separately.

Grade 3a

Land graded 3a occurs in two situations.

5.5 Firstly, on droughtier land than that graded 2, where gravel is encountered at shallower depths within the profile and/or topsoil stone contents of between 11 and 15% flints >2 cm in size occur. The presence of gravel at moderate depths in the profile reduces the available water for crop growth consequently, resulting in droughtiness imperfections. Where topsoils contain stones >2 cm in size in the abundance range 11-15% cultivation and harvesting equipment and seedling germination is hindered slightly due to the presence of these stones. As a result land is excluded from a higher grade. Locally, less droughty profiles occur but cover too small an area to delineate separately.

5.6 Secondly, 3a land has been mapped adjacent to the boundary with the 3b land, and to the extreme south of the site. Profiles typically comprise very slightly stony medium silty clay loam topsoils which directly overlie slowly permeable clays. The wetness class (assessed as III) combines with the fine textured, non calcareous topsoils to impose moderate wetness and workability imperfections which exclude the land from a higher grade.

Subgrade 3b

5.7 Land graded 3b occurs in two areas on site; on low lying land in the north east corner and in a smaller area near the south of the site. Soils typically comprise heavy silty clay loam or silty clay topsoils over slowly permeable clays. The heavy textured topsoils combine with the wetness class (assessed as III) to impose significant wetness and workability imperfections which restrict the land to subgrade 3b. Locally, moderately droughty profiles graded 3a occur on slightly raised ground, but form an area too small to delineate seperately.

Non Agricultural

5.8 The golf course in the east of the site at West Tonge Farm and areas of scrub in the north east are classed as non-agricultural.

Agricultural Buildings

5.9 The farm buildings at East Hall have been included in this category.

Woodland

5.10 Small areas of woodland and scrub woodland are scattered over the site.

Urban

5.11 East Hall and the golf club house at West Tonge Farm are classed as urban.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1977. Sheet 272 Chatham, 1:50,000 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. Published climatic data extracted from the agroclimatic dataset compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES 1983. Soils of South East England, Sheet 6, 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[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

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	TQ92606480	WHT	S		000		1	1	119	-3	106	-13	3A				DR	3A	
2	TQ92706480	BAR	S		000		1	1	150	28	135	16	2				DR	2	
4	TQ92906480	SCR	S		025	025	3	3B	127	5	102	-17	3A				WC	3B	3A on drought
5	TQ93006480	PGR	S		025	025	3	3B	122	0	97	-22	3A				W	3B	
6	TQ93106480	PGR	S		025	025	3	3B	122	0	100	-19	3A				W	3B	
7	TQ93206480	RGR	S		000		1	1	160	38	124	5	2				DR	2	
8	TQ92606470	WHT	S		000		1	1	155	33	121	2	2				DR	2	
9	TQ92706470	BAR	S		000		1	1	142	20	126	7	2				DR	2	
10	TQ92806470	CER	S		000		1	1	151	29	136	17	2				DR	2	
10P	TQ92806470	BAR			000		1	1	155	33	140	21	1					1	
11	TQ92906470	CER	S		000		1	1	149	27	134	15	2				ST	3A	2 on drought
11A	TQ92956465	RGR			055	055	2	2	125	3	111	-8	3A				DR	3A	
12	TQ93006470	PGR			025	025	3	3B	127	5	104	-15	3A				W	3B	
12P	TQ93006470	PGR			015	015	3	3B	118	-4	94	-25	3A				W	3B	
13	TQ93106470	RGR	S		025	025	3	3B	124	2	100	-19	3A				W	3B	
14	TQ93206470	RGR	S		025	025	3	3B	124	2	100	-19	3A				W	3B	
15	TQ92506460	CER	S		000		1	1	193	71	155	36	1					1	
16	TQ92606460	BAR	S		000		1	1	143	21	130	11	2				DR	2	
17	TQ92706460	BAR	S		000		1	1	157	35	142	23	1					1	
18	TQ92806460	CER	S		000		1	1	159	37	143	24	1					1	
19	TQ92906460	POT	S		000			1	134	12	126	7	2				ST	3A	2 on drought
20	TQ93006460	RGR	S		025	025	3	3A	125	3	101	-18	3A				WC	3A	3A on drought also
21	TQ93106460	RGR			035	035	3	3B	131	9	109	-10	2				W	3B	
22	TQ93206460	RGR			000		1	1	181	59	138	19	1					1	?Disturbed profile
23	TQ92406450	CER	S		000		1	1	150	28	140	21	2				DR	2	
24	TQ92506450	CER	S		000		1	1	174	52	138	19	1					1	
25	TQ92606450	BAR	S	01	000		1	1	142	20	121	2	2				DR	2	
26	TQ92706450	BAR	S		000		1	1	155	33	127	8	2				DR	2	
27	TQ92806450	POT	S		000		1	1	119	-3	106	-13	3A				DR	3A	3a on t/s stone also
28	TQ92906450	POT	S		000		1	1	127	5	107	-12	3A				DR	3A	3a on t/s stone also
29	TQ93006450	PLO			060		2	2	144	22	130	11	2				DR	2	2 on wc?
30	TQ93106450	PGR			025	025	3	3A	110	-12	100	-19	3A				W	3B	
31	TQ93206450	RGR			035	035	3	3B	132	10	110	-9	2				W	3B	
33	TQ92406440	CER	S		000		1	1	186	64	153	34	1					1	
34	TQ92506440	CER	S		000		1	1	160	38	140	21	1					1	
35	TQ92606440	BAR	S		000		1	1	133	11	117	-2	2				DR	2	
36	TQ92706440	CER	S		000			1	165	43	145	26	1					1	
37	TQ92806440	POT	S		000		1	1	143	21	128	9	2				DR	2	
37P	TQ92806440	POT			000		1	1	121	-1	110	-9	3A				DR	3A	
38	TQ92906440	POT	S		000		1	1	170	48	150	31	1				ST	2	1 on drought
39	TQ93006440	POT	S		000		1	1	128	6	117	-2	2				DR	2	
40	TQ93106440	PGR	S		000		1	1	152	30	137	18	1					1	

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
41	TQ93206440	FLW	S		030	045	3	3B	128	6	103	-16	3A				W	3B	
41A	TQ93156440	FLW	S		030	030	3	3B	110	-12	96	-23	3A				W	3B	
43	TQ92406430	FRT	S		000		1	1	139	17	126	7	2				DR	2	
44	TQ92506430	FRT	S		000		1	1	132	10	120	1	2				DR	2	
45	TQ92606430	FRT	S		000		1	1	135	13	120	1	2				DR	2	
46	TQ92706430	POT	S		000		1	1	160	38	141	22	1					1	
46P	TQ92706430	POT			000		1	1	112	-10	97	-22	3A				DR	3A	
47	TQ92806430	POT	S		000		1	1	150	28	136	17	2				DR	2	
48	TQ92906430	POT	S		000		1	1	165	43	150	31	1					1	
49	TQ93006430	POT	S		000		1	1	117	-5	105	-14	3A				DR	3A	
50	TQ93106430	FLW	S		000		1	1	125	3	111	-8	3A				DR	3A	
51	TQ93206430	FLW	S		000		1	1	182	60	154	35	1					1	
52	TQ92706420	POT	S		000		1	1	196	74	149	30	1					1	
53	TQ92806420	POT	S		000		1	1	177	55	134	15	1					1	
54	TQ92906420	POT	S		000		1	1	146	24	131	12	2				DR	2	
55	TQ93006420	FLW	S		000		1	1	130	8	122	3	2				DR	2	
56	TQ93106420	FLW	S		000		1	1	141	19	134	15	2				DR	2	
57	TQ93206420	CER	S		000		1	1	159	37	123	4	2				DR	2	
58	TQ92806410	POT	S		000		1	1	140	18	127	8	2				DR	2	
59	TQ92906410	POT	S		000		1	1	156	34	145	26	1					1	
60	TQ93006410	PLO	S		000		1	1	183	61	141	22	1					1	
61	TQ93106410	PLO	S		000		1	1	148	26	137	18	2				DR	2	
62A	TQ93006405	WHE	N	04	040	040	3	3B	140	18	117	-2	2				W	3B	
62B	TQ93006400	WHE	N	04	000		1	1	157	35	141	22	1					1	
63	TQ93106400	WHE	S		055	055	2	2	129	7	112	-7	2				W	2	
64	TQ93006390	WHE	N	04	000		1	1	177	55	144	25	1					1	
65	TQ93106390	WHT	E	02	000		1	1	181	59	146	27	1					1	
66	TQ93006380	PLO	N	04	040	040	3	3A	133	11	109	-10	2				W	3A	3AONDR
66P	TQ93006380	PLO			035	035	3	3A	136	14	112	-7	2				W	3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	CALC
1	0-35	mzcl	10YR32 00						2	1	HR	3						Y
	35-60	mcl	10YR56 00						0	0	HR	15		M				Y
	60-120	scl	10YR56 00						0	0	HR	50		P				Y
2	0-30	zl	10YR43 00						5	3	HR	8						Y
	30-80	zl	10YR54 56						0	0	HR	20		M				Y
	80-120	scl	10YR56 00						0	0	HR	50		P				Y
4	0-25	mzcl	10YR43 00						0	0		0						
	25-120	zc	10YR41 00	10YR56	61	C		Y	0	0		0		P	Y		Y	
5	0-25	zc	10YR32 00						0	0		0						
	25-120	zc	10YR51 41	10YR56	00	C		Y	0	0		0		P	Y		Y	
6	0-25	c	10YR42 00						0	0		0						
	25-120	c	10YR51 00	10YR56	61	C		Y	0	0	HR	2		P	Y		Y	
7	0-25	hzcl	10YR42 00						0	0		0						Y
	25-40	hzcl	10YR42 00	10YR56	00	C			0	0		0		M				Y
	40-50	hzcl	10YR54 00						0	0		0		M				Y
	50-120	mzcl	10YR54 00						0	0		0		M				Y
8	0-40	mzcl	10YR43 00						4	0	HR	4						Y
	40-85	mzcl	10YR43 54						0	0	HR	7		M				Y
	85-120	mzcl	10YR56 63	10YR58	00	F			0	0	HR	5		M				Y
9	0-25	mzcl	10YR43 00						5	0	HR	5						Y
	25-35	zl	10YR54 00						0	0	HR	15		M				Y
	35-80	zl	10YR54 00						0	0	HR	20		M				
	80-120	scl	10YR54 00						0	0	HR	50		P				Y
10	0-30	zl	10YR43 00						6	1	HR	7						Y
	30-80	zl	10YR43 00						0	0	HR	20		M				Y
	80-120	scl	10YR43 00						0	0	HR	50		P				Y
10P	0-35	zl	10YR43 00						3	0	HR	4						Y
	35-80	zl	10YR64 62						0	0	HR	20	MDCSAB FR	M	Y			Y
	80-120	scl	10YR64 62						0	0	HR	50		P				Y
11	0-30	zl	10YR43 00						4	6	HR	10						Y
	30-80	zl	10YR54 00						0	0	HR	20		M				Y
	80-120	scl	10YR54 00						0	0	HR	50		P				Y
11A	0-25	mzcl	10YR43 00						2	0	HR	2						
	25-55	mzcl	10YR54 00						0	0	HR	8		M				
	55-80	zc	10YR54 53	10YR52	66	C		Y	0	0	HR	2		P	Y		Y	
	80-120	scl	10YR53 00					Y	0	0	HR	50		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
12	0-25	hzcl	10YR42 00						1	1	HR	2						
	25-120	c	10YR51 00	10YR68 00	C			Y	0	0	HR	2		P	Y		Y	
12P	0-15	hzcl	10YR32 00						1	0	HR	1						
	15-120	zc	10YR51 00	10YR56 00	M			Y	0	0	HR	1	MDCAB FM	P	Y		Y	
13	0-25	hzcl	10YR32 00						0	0		0						
	25-120	zc	10YR41 00	10YR51 58	C			Y	0	0	HR	4		P			Y	Y
14	0-25	hzcl	10YR32 00						0	0		0						
	25-120	zc	10YR41 00	10YR56 61	C			Y	0	0	HR	4		P			Y	Y
15	0-35	zl	10YR32 00						0	0		0						Y
	35-80	zl	10YR54 00						0	0	HR	3		M				Y
	80-120	mzcl	10YR54 00						0	0		0		M				Y
16	0-30	mzcl	10YR44 00						3	0	HR	3						Y
	30-60	zl	10YR56 00						0	0	HR	10		M				Y
	60-80	mzcl	10YR56 00						0	0	HR	10		M				Y
	80-120	scl	10YR56 00						0	0	HR	50		P				Y
17	0-25	zl	10YR42 00						7	3	HR	10						Y
	25-80	zl	10YR54 00						0	0	HR	10		M				Y
	80-120	scl	10YR54 00						0	0	HR	50		P				Y
18	0-30	zl	10YR43 00						8	0	HR	8						Y
	30-50	zl	10YR44 00						0	0		0		M				Y
	50-80	zl	10YR44 00						0	0	HR	20		M				Y
	80-120	scl	10YR44 00						0	0	HR	50		P				Y
19	0-30	mzcl	10YR43 00						11	2	HR	13						
	30-70	zl	10YR54 00						0	0	HR	14		M				
	70-120	scl	10YR54 00						0	0	HR	50		P				
20	0-25	mzcl	10YR43 00						0	0		0						
	25-120	zc	10YR41 00	10YR56 00	C			Y	0	0	HR	2		P	Y		Y	
21	0-35	hzcl	10YR42 00						2	0	HR	2						
	35-120	c	10YR53 00	10YR68 62	C			Y	0	0	HR	5		P	Y		Y	
22	0-30	zl	10YR53 63			F			4	0	HR	4						Y
	30-120	zl	10YR53 00						0	0	HR	20		M				Y
23	0-30	zl	10YR43 00						0	0		0						Y
	30-40	zl	10YR54 00						0	0		0		M				Y
	40-75	mzcl	10YR54 00						0	0	HR	5		M				Y
	75-120	scl	10YR54 00						0	0	HR	50		P				

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	CALC
24	0-35	zl	10YR32 00						0	0		0						Y
	35-60	mzcl	10YR53 00						0	0	HR	5		M				Y
	60-120	mzcl	10YR53 00						0	0		0		M				Y
25	0-30	zl	10YR33 00						4	0	HR	4						Y
	30-40	zl	10YR56 00						0	0	HR	6		M				Y
	40-50	zl	10YR56 00						0	0	HR	20		M				Y
	50-120	scl	10YR56 00						0	0	HR	50		M				Y
26	0-30	zl	10YR42 00						5	0	HR	5						Y
	30-45	zl	10YR43 00						0	0	HR	10		M				Y
	45-120	zl	10YR43 00						0	0	HR	17		P				Y
27	0-30	mzcl	10YR32 00						12	0	HR	12						Y
	30-80	mzcl	10YR32 00						0	0	HR	20		M				Y
	80-120	scl	10YR32 00						0	0	HR	50		P				Y
28	0-30	mszl	10YR43 00						11	0	HR	11						
	30-40	mszl	10YR44 00						0	0	HR	15		M				
	40-80	mszl	10YR44 00						0	0	HR	20		M				
	80-120	scl	10YR44 00						0	0	HR	50		M				
29	0-35	zl	10YU43 00						10	0	HR	10						Y
	35-60	zl	10YR54 00	10YR66 00	C				0	0	HR	15		M				Y
	60-120	mzcl	10YR54 00	10YR58 00	C			Y	0	0	HR	15		P				Y
30	0-25	mzcl	10YR43 00						2	0	HR	2						
	25-45	c	10YR53 00	10YR62 68	C			Y	0	0	HR	2		P	Y		Y	
	45-55	c	10YR53 00	10YR62 68	C			Y	0	0	HR	10		P	Y		Y	
	55-90	mzcl	10YR53 00	10YR62 68	C			Y	0	0	HR	10		P	Y		Y	
	90-120	mzcl	10YR53 00	10YR62 68	C			Y	0	0	HR	50		P			Y	
31	0-35	hzcl	10YR42 00						2	0	HR	2						
	35-120	c	10YR53 00	10YR62 68	M			Y	0	0	HR	2		P	Y		Y	
33	0-30	zl	10YR43 00						0	0		0						Y
	30-65	zl	10YR53 00						0	0	CH	2		M				Y
	65-120	mzcl	10YR53 00						0	0	HR	5		M				Y
34	0-30	zl	10YR32 00						0	0		0						Y
	30-80	zl	10YR53 00						0	0	HR	20		M				Y
	80-120	scl	10YR53 00						0	0	HR	50		M				Y
35	0-35	zl	10YR32 00						5	0	HR	5						Y
	35-50	zl	10YR43 00						0	0	HR	20		M				Y
	50-120	scl	10YR56 00						0	0	HR	50		P				Y
36	0-30	zl	10YR32 00						5	0	HR	5						Y
	30-80	zl	10YR54 00						0	0	HR	10		M				Y
	80-90	mzcl	10YR54 00						0	0	HR	10		M				Y
	90-120	scl	10YR54 00						0	0	HR	50		P				Y

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
37	0-30	mszl	10YR32 00						12	0	HR	12						
	30-60	zl	10YR43 00						0	0	HR	10		M				
	60-80	zl	10YR43 00						0	0	HR	20		M				
	80-120	scl	10YR43 00						0	0	HR	50		P				
37P	0-35	mzcl	10YR42 00						12	0	HR	17						Y
	35-75	mzcl	10YR54 00						0	0	HR	10	MDCSAB FR	M	Y			Y
	75-120	scl	10YR54 00						0	0	HR	50		P				Y
38	0-30	zl	10YR43 00						8	0	HR	8						
	30-85	zl	10YR53 00						0	0	HR	2		M				
	85-120	scl	10YR53 00						0	0	HR	50		P				
39	0-30	mzcl	10YR32 00						8	0	HR	8						Y
	30-75	mzcl	10YR54 00						0	0	HR	5		M				Y
	75-120	scl	10YR54 00						0	0	HR	50		P				Y
40	0-25	zl	10YR43 00						1	0	HR	1						
	25-80	zl	10YR54 00						0	0	HR	20		M				
	80-120	scl	10YR54 00						0	0	HR	50		P				
41	0-30	hzcl	10YR42 00						12	4	HR	16						Y
	30-45	hzcl	10YR41 51	10YR56 00	C			Y	0	0		0		M				
	45-120	zc	10YR51 61	10YR56 00	C			Y	0	0	HR	2		P	Y		Y	
41A	0-30	hzcl	10YR42 00						6	3	HR	9						
	30-50	zc	10YR51 00	10YR61 00	C			Y	0	0		0		P	Y		Y	
	50-120	mzcl	10YR51 61	10YR41 58	C			Y	0	0	HR	20		P	Y		Y	
43	0-25	zl	10YR32 00						0	0		0						Y
	25-35	zl	10YR53 00						0	0	HR	5		M				Y
	35-60	mszl	10YR53 00						0	0	HR	5		M				Y
	60-120	scl	10YR53 00						0	0	HR	50		P				Y
44	0-15	zl	10YR32 00						10	0	HR	10						Y
	15-30	zl	10YR43 00						0	0	HR	15		M				Y
	30-60	zl	10YR54 00						0	0	HR	20		M				Y
	60-120	scl	10YR54 00						0	0	HR	50		P	Y			Y
45	0-30	zl	10YR32 00						5	0	HR	5						
	30-50	zl	10YR56 00						0	0	HR	10		M				Y
	50-120	scl	10YR56 00						0	0	HR	50		P				Y
46	0-35	zl	10YR43 00						7	3	HR	10						Y
	35-90	zl	10YR56 00						0	0	HR	12		M				Y
	90-120	scl	10YR56 00						0	0	HR	70		P				Y
46P	0-35	mszl	10YR32 00						4	0	HR	9						Y
	35-50	mzcl	10YR44 00						0	0	HR	14	[illegible]	FR M	Y			Y
	50-120	scl	10YR44 00						0	0	HR	51		P				Y

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
47	0-35	zl	10YR43 00						4	0	HR	4						Y
	35-45	zl	10YR53 43						0	0	HR	4		M				Y
	45-80	mzcl	10YR56 00						0	0	HR	12		M				Y
	80-120	scl	10YR56 00						0	0	HR	50		P				Y
48	0-40	zl	10YR43 00						4	0	HR	4						Y
	40-70	zl	10YR54 43						0	0	HR	7		M				Y
	70-80	zl	10YR54 00						0	0	HR	12		M				Y
	80-120	scl	10YR54 00						0	0	HR	50		P				Y
49	0-30	mcl	10YR43 00						8	0	HR	8						Y
	30-50	mzcl	10YR43 00						0	0	HR	5		M				Y
	50-60	mzcl	10YR54 00						0	0	HR	10		M				Y
	60-120	scl	10YR54 00						0	0	HR	50		P				Y
50	0-35	mzcl	10YR43 00						5	3	HR	8						
	35-45	mzcl	10YR54 53						0	0	HR	10		M				
	45-80	mzcl	10YR54 53						0	0	HR	20		M				Y
	80-120	scl	10YR54 53						0	0	HR	50		P				Y
51	0-33	zl	10YR43 00						2	1	HR	3						Y
	33-80	zl	10YR54 53						0	0	HR	2		M				Y
	80-120	scl	10YR54 00						0	0	HR	5		P				Y
52	0-35	zl	10YR43 00						4	0	HR	4						Y
	35-55	zl	10YR56 00						0	0	HR	4		M				Y
	55-120	zl	10YR56 00						0	0	HR	12		M				Y
53	0-45	mzcl	10YR43 00						2	0	HR	2						Y
	45-50	zl	10YR64 00						0	0	HR	2		M				Y
	50-75	zl	10YR64 00						0	0	HR	12		M				Y
	75-85	c	10YR62 68						0	0		0		M				Y
	85-120	zl	10YR66 00						0	0	HR	12		M				Y
54	0-35	mzcl	10YR43 00						2	1	HR	3						Y
	35-80	zl	10YR56 00						0	0	HR	15		M				Y
	80-120	scl	10YR56 00						0	0	HR	50		P				Y
55	0-30	mzcl	10YR43 00						3	0	HR	3						Y
	30-70	mzcl	10YR54 53						0	0	HR	2		M	Y			Y
	70-120	scl	10YR54 53						0	0	HR	50		P				Y
56	0-30	zl	10YR43 00						3	0	HR	3						Y
	30-70	mzcl	10YR54 00						0	0	HR	2		M	Y			Y
	70-120	scl	10YR54 00						0	0	HR	50		P				Y
57	0-30	mzcl	10YR43 00						3	0	HR	3						Y
	30-120	mzcl	10YR54 00						0	0		0		M				Y

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
58	0-35	zl	10YR32 00						5	2	HR	7						Y
	35-60	mzcl	10YR56 00						0	0	HR	12		M				Y
	60-80	mzcl	10YR56 00						0	0	HR	20		M				Y
	80-120	scl	10YR56 00						0	0	HR	50		P				Y
59	0-35	zl	10YR43 00						4	0	HR	4						Y
	35-45	mzcl	10YR52 00						0	0	CH	15		M				Y
	45-70	zl	10YR56 00						0	0	HR	6		M				Y
	70-75	scl	10YR56 00						0	0	HR	10		M				Y
	75-120	zl	10YR56 00						0	0	HR	50		P				Y
60	0-35	mzcl	10YR43 00						2	0	HR	2						Y
	35-75	zl	10YR56 00						0	0	HR	2		M				Y
	75-120	zl	10YR56 00						0	0	HR	20		M				Y
61	0-40	zl	10YR43 00						2	0	HR	2						Y
	40-50	zl	10YR56 00						0	0	HR	9		M				Y
	50-60	zl	10YR56 00						0	0	HR	13		M				Y
	60-120	scl	10YR56 00						0	0	HR	50		P				Y
62A	0-40	hzcl	10YR43 00						4	0	HR	4						Y
	40-60	hzcl	10YR53 00	10YR58	62	C		Y	0	0	HR	5		M	Y		Y	Y
	60-120	zc	10YR53 00	10YR58	62	C		Y	0	0	HR	3		P	Y		Y	Y
62B	0-35	zl	10YR44 00						5	0	HR	5						
	35-45	zl	10YR43 00						0	0	HR	8		M				
	45-80	zl	10YR56 00						0	0	HR	20		M				
	80-120	scl	10YR56 00						0	0	HR	50		P				
63	0-40	mzcl	10YR43 00						5	0	HR	5						Y
	40-55	hcl	25YR54 00	10YR68	00	C			0	0	HR	8		M				Y
	55-120	hzcl	10YR62 00	10YR68	00	C		Y	0	0	HR	5		P			Y	Y
64	0-35	zl	10YR43 00						4	0	HR	4						
	35-55	zl	10YR56 00						0	0	HR	5		M				
	55-95	hzcl	10YR56 00						0	0	HR	2		M				
	95-120	hzcl	10YR56 00						0	0	HR	10		M				
65	0-30	zl	10YR43 00						2	1	HR	3						
	30-55	zl	10YR56 00						0	0	HR	2		M				
	55-120	mzcl	10YR56 00						0	0	HR	2		M				
66	0-40	mzcl	10YR43 00						2	0	HR	2						Y
	40-120	zc	10YR53 54	10YR62	58	C		Y	0	0	HR	5		P	Y		Y	
66P	0-35	mzcl	10YR43 00						3	0	HR	3						
	35-55	zc	10YR53 00	10YR56	62	C		Y	0	0	HR	2	MDCAB FR	M	Y		Y	
	55-120	zc	10YR53 00	10YR56	62	C		Y	0	0	HR	1	WKCSAB FM	P	Y		Y	

SITE BB - QUALITY CONTROL
APPROXIMATE AUGER BORINGS LOCATIONS

Near 17. GRTQ 927 646 1° N Barley

0-25 cms 10YR4/3 and 6/4 ZL 6% flints (4% >2 cms) v. calc
25-50 cms 10YR5/4 and 6/4 mZCL 5% flint 5% chalk no mottles seen (NMS) calc
50-70 cms 10YR6/4 and 6/3 ZL 5-10% flint NMS v. calc
70-120 cms 10YR6/4 and 6/3 SCL 20% flint 5% weathered material NMS v.calc
(70-120 cms includes 5 cm thick lenses of 5YR6/2 FSL within it)

Near 18. GRTQ 928 646 1° NE Barley

0-30 cms 10YR4/3 ZL 5% flints (3% > 2 cms) calc
30-50 cms 10YR5/4 ZL 5% flint NMS few manganese concs calc
50-70 cms 10YR4/3 mZCL 15% flints NMS calc
70-120 cms 10YR4/3 and 5/4 SCL 50% pea gravel v.calc wet by 90 cms

20. GRTQ 930 646 Flat Grass

0-25 cms 10YR4/3 mZCL 5-10% flints non calc
25-40 cms 10YR6/3 & 6/2 C common distinct ochreous mottles (cdom) 10YR5/8 non calc
40-75 cms 10YR6/3 & 5/4 mZCL 10% flints cdom and cd grey m non calc sli moist
75-90 cms 10YR5/6 C stoneless cdgm. common manganese concs
90 + impenetrable stones

21. GRTQ 931 646 Flat Grass near scrub

0-20 cms 10YR4/2 hCL/C rusty root mottles non calc
20-45 cms 10YR5/1 C stoneless cdom 7.5YR5/8 non calc
45-80 cms + 10YR5/1 & 7.5YR5/2 C stoneless vcdom 7.5YR5/8 calc in patches moist

Near 26. GRTQ 929 645 Flat Barley

0-30 cms 10YR4/2 ZL 7% total flints 4% >2 cms v.calc
30-50 cms 10YR5/4 and 6/3 mZCL 15% flints calc dry and compact
50-75 cms 10YR5/4 and 6/3 mZCL 30% flints sli moist
75-120 cms 10YR6/3 & 6/4 SCL 30% pea gravel cdom 10YR6/6 v. calc

Near 37. GRTQ 928 644 ½° NW Potatoes

0-30 cms 10YR4/3 mCL 10% total flints 3% >2 cms non calc
30-80 cms 10YR5/4 mZCL 5% flints NMS
80-120 cms 2.5Y6/4 & 10YR5/4 hCL 30% pea gravel NMS non calc

60A GRTQ 930 641 3° N Wheat

0-30 cms 10YR4/3 hCL 5% flint calc

30 cms + 2.5Y6/2 and 6/3 C cdom 10YR5/8 v.calc

Near 61.GRTQ 931 641 Flat Set aside

0-30 cms 10YR4/3 ZL 2% total flints calc

30-50 cms 10YR5/4; 2.5Y5/3 and 5/4 mZCL 1% flints v.calc (mixed soil)

50-70 cms 10YR5/4; 2.5Y5/3 and 5/4 mSL 1% flints v.calc (mixed soil)

70 cms + 10YR5/4 C (fs) 5% flints v.calc

Near 62.GRTQ 930 640 Flat Wheat

0-30 cms 10YR4/3 ZL 2% total flints non calc

30-65 cms 10YR5/4 and 5/3 ZL 1% flint non calc

65-100 cms+ 10YR5/4 hZCL 1% flint few faint gm 10YR5/3 non calc

Near63.GRTQ 931 640 4° N Wheat

0-30 cms 10YR5/3 hZCL 2% total flints calc

30-60 cms+ 2.5Y6/2 and 6/3 C stoneless cdom 10YR5/8 v.calc

SOIL PIT DESCRIPTION

SITE BB : MURSTON PIT 1 (AB37)

G.R.	TQ 92806440	AAR	:	606 mm
		ATO	:	1494° days
		FCD	:	119
		Land Use	:	Potatoes
		Slope & Aspect	:	Flat

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-35	MZCL	10YR4/2	12%	17%	-	-
35-75	MZCL	10YR5/4	-	10%	None	MDCSAB
75-90+	SCL	10YR5/4	-	50%	None	Too stony to assess

Wetness Grade : 1	Wetness class	:	I	
	Gleying	:	None	
	SPL	:	None	
Drought Grade : 3a	APW = 102 mm		MDW = - 20 mm	
	APP = 110 mm		MDP = -9 mm	

Final ALC grade : 3a

Limitations : Droughtiness and topsoil stone content >2 cm in size

SOIL PIT DESCRIPTION

SITE BB : MURSTON PIT 2 (AB66)

G.R. TQ 93006380

AAR	:	606 mm
ATO	:	1494° days
FCD	:	119
Land Use	:	Bare ground
Slope & Aspect	:	Flat

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-35	MZCL	10YR4/3	4	4	-	-
35-55	ZC	10YR5/3	-	2	CDOM	MDCAB
55-120	ZC	10YR5/3	-	1	CDO+GM	WDCSAB

Wetness Grade : 3a

Wetness class	:	III
Gleying	:	35
SPL	:	35

Drought Grade : 2

APW = 136 mm	MDW = +14 mm
APP = 122 mm	MDP = -7 mm

Final ALC grade : 3a

Limitations : Wetness and workability

SOIL PIT DESCRIPTION

SITE BB : MURSTON PIT 3 (AB12)

G.R. TQ 93006470

AAR	:	606 mm
ATO	:	1494° days
FCD	:	119
Land Use	:	Permanent grass
Slope & Aspect	:	Flat

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-15	HZCL	10YR3/2	1	2	-	-
15-70	ZC	10YR5/1	-	1	MDOM	MDCAB

Wetness Grade : 3b

Wetness class	:	III
Gleying	:	15
SPL	:	35 (Plough depth)

Drought Grade : 3a

APW = 118 mm	MDW = - 4 mm
APP = 94 mm	MDP = -25 mm

Final ALC grade : 3b

Limitations : Wetness and workability

SOIL PIT DESCRIPTION

SITE BB : MURSTON PIT 4 (AB10)

G.R. TQ 92806470

AAR	:	606 mm
ATO	:	1494° days
FCD	:	119
Land Use	:	Barley
Slope & Aspect	:	Flat

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-35	ZL	10YR4/3	3%	4%	-	-
35-80	ZL	10YR6/4+ 10YR6/2	-	20%	--	MDCSAB
80-120	SCL	10YR6/4+ 10YR6/2	-	50%	--	Too stony to assess

Wetness Grade : 1

Wetness class	:	I
Gleying	:	None
SPL	:	None

Drought Grade : 1

APW = 155 mm MDW = 33 mm

APP = 140 mm MDP = 21 mm

Final ALC grade : 1

Limitations : None

SOIL PIT DESCRIPTION

SITE BB : MURSTON PIT 5 (AB46)

G.R.	TQ 92706430	AAR	:	606 mm
		ATO	:	1494° days
		FCD	:	119
		Land Use	:	Potatoes
		Slope & Aspect	:	Flat

Horizon	Texture	Colour	Stones >2	Tot Stone	Mottles	Structure
0-35	MSCL	10YR3/2	4	9	-	-
35-50	MZCL	10YR4/4	-	14	--	WDCSAB
50-120	SCL	10YR4/4	-	51	--	Too stony to assess

Wetness Grade : 1	Wetness class	:	I
	Gleying	:	None
	SPL	:	None

Drought Grade : 3a	APW = 112 mm	MDW = -10 mm
	APP = 97 mm	MDP = - 22 mm

Final ALC grade : 3a

Limitations : Droughtiness

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