Cursneh Hill, Leominster

Agricultural Land Classification

May 1999

Resource Planning Team
Bristol
FRCA Western Region

Job Number 29/99

MAFF ref 01725A

CURSNEH HILL, LEOMINSTER

AGRICULTURAL LAND CLASSIFICATION SURVEY

CONTENTS

CURSNEH HILL, LEOMINSTER

AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 58 ha of land at Cursneh Hill Leominster Field survey was based on 52 auger borings and 3 soil profile pits, and was completed in June 1999 During the survey 7 samples were analysed for particle size distribution (PSD)

2 The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in the preparation of Herefordshire Local Plan

3 Information on climate geology and soils and from previous ALC surveys was considered and is presented in the relevant section The published regional ALC map (MAFF 1977) shows the site at a reconnaissance scale as mainly Grade 3 with some Grade 2 on the eastern side and Grade 4 on the northern edge The current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988) and supersedes any previous ALC survey Grade descriptions are summarised in Appendix I

4 Two areas adjacent to the current survey area were surveyed in 1995 and 1996 to the revised guidelines (Barons Cross ADAS 1995 & Ginhall Lane ADAS 1996) The Barons Cross survey found mainly Grade 2 in the east of the site adjacent to the current survey with a small area of Subgrade 3b to the north of this and a small area of Subgrade 3a to the south The Ginhall Lane survey was mapped as mainly Subgrade 3a with some Grade 2 A pre-revision survey (ADAS 1985) east of the current site showed a mixture of Grade 2 and Subgrades 3a and 3c

5 At the time of survey land cover was mainly permanent pasture although there was also a substantial area of field beans Non agricultural land which was not surveyed included an electricity sub station, farm buildings and residential areas

SUMMARY

6 The distribution of ALC grades is shown on the accompanying 1 10 000 scale ALC map The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas Areas are summarised in the Table 1

Table 1 Distribution of ALC grades Cursneh Hill, Leominster

Grade	Area (ha)	% Surveyed Area (44 ha)
1	24	55
3a	1	2
3b	17	39
4	1	2
5	1	2
Other land	14	
Total site area	58	100

7 This survey shows that the majority of the area surveyed was found to be best and most versatile mainly Grade 1 with a small area of Subgrade 3a limited by wetness The rest of the land has been graded as Subgrade 3b limited mainly by wetness and Grades 4 and 5 limited by gradient

CLIMATE

8 Estimates of climatic variables for this site were derived from the published agricultural climate dataset Climatological Data for Agricultural Land Classification (Meteorological Office 1989) using standard interpolation procedures Data for key points around the site are given in Table 2 below

9 Since the ALC grade of land is determined by the most limiting factor present overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions Parameters used for assessing overall climate are accumulated temperature a measure of relative warmth and average annual rainfall a measure of overall wetness The results shown in Table 2 indicate that there is no overall climatic limitation

10 Climatic variables also affect the ALC grade through interactions with soil conditions The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes which are compared with the moisture available in each profile in assessing soil droughtiness limitations These are described in later sections

Table 2 Climatic Interpolations Cursneh Hill

Grid Reference		SO 473 592	SO 476 593
Altitude (m)		80	108
Accumulated Temperature (day °C)		1423	1391
Average Annual Rainfall (mm)		741	754
Overall Climatic Grade		1	1
Field Capacity Days		169	171
Moisture deficit (mm)	Wheat	100	96
	Potatoes	90	85

RELIEF

11 Altitude ranges from 75 metres at Wegnalls Farm to 108 metres at Cursneh Hill with moderate to steep slopes which in places limits the ALC grade to Subgrade 3b Grade 4 or Grade 5

GEOLOGY AND SOILS

12 The underlying geology of the southern half of the site is shown on the published 1 50 000 geology map Sheet 198 (BGS 1989) as mainly Silurian Raglan Mudstone Formation interspersed with beds of brown or greenish grey calcareous sandstone To the west of this is a band of Quaternary Till To the west and east of the site there are also smaller areas of Quaternary Head material No information at 1 50 000 scale is available for the northern half of the site However the smaller scale BGS Mid Wales-Marches Sheet 52°N 04°W 1 250 000 solid geology 1990 shows the whole area as Silurian Downtonian Formations such as Raglan Mudstone Formation therefore it is assumed that this dominates the solid geology across the whole site

13 The Silurian Raglan Mudstone Formation geology was especially evident on the better drained soils with mudstone like material at depth being a feature of some of the soil profiles

14 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) The majority of the site is shown as Escrick 1 soil association, although there is a substantial area of the Conway soil association sandwiched between Wegnalls Farm and Cursneh Hill To the south east of Ginhall Lane is a small area of the Bromyard soil association

15 The Conway association soils are described as deep stoneless fine silty and clayey soils variably affected by groundwater Published brief descriptions of typical soil profiles show that these soils can have slowly permeable characteristics In addition to this they are often associated with the clayey Fladbury series in the Welsh Borderland Soils of the Escrick 1 association are summarised as deep well drained reddish coarse loamy soils with some similar soils having slowly permeable subsoils and slight seasonal waterlogging Bromyard association soils are described as deep well drained reddish fine silty soils over shale and siltstone although these soils are also associated with soils which have slowly permeable subsoils and slight seasonal waterlogging These soils are also associated with some well drained coarse loamy soils over sandstone

16 The distribution of the Conway soil association roughly follows the distribution of ALC Subgrade 3b soils found in the current survey matching the description of the slowly permeable soils found in this mapping unit Nonetheless the distribution of the Escrick 1 soil association roughly matches the Grade 1 soils which match the description of the Escrick 1 soil association in that they are deep and well drained reddish loamy soils Although small areas to the west and east were found to have slowly permeable subsoils and slight seasonal waterlogging, represented by the Subgrade 3a and 3b mapping units

AGRICULTURAL LAND CLASSIFICATION

17 The distribution of ALC grades found by the current survey is shown on the accompanying 1 10 000 scale map and areas are summarised in Table 1 The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas

Grade 1

18 The majority of the site has been mapped as Grade 1 The soils examined are deep and well drained being assessed as Wetness Class 1 with no droughtiness limitation Pits 1 and 2 are characteristic of this mapping unit

19 Pit 1 represents soil profiles that typically comprise medium silty clay loam or medium clay loam topsoils over medium to heavy clay loam upper subsoils over clay lower subsoils Dry clayey weathering mudstone was found at depth in some places, however this material was thought to be rootable and therefore not limiting so these profiles were still assessed as Grade 1

20 Pit 2 represents soil profiles that typically comprise silty loam topsoils over silty loam and fine sandy silt loam subsoils

21 Within the Grade 1 mapping unit a few isolated Grade 2 borings were found with a minor workability limitation due to a heavy clay loam topsoil texture In addition to this a minor wetness limitation was found at Boring 2 and a minor drought limitation was found at Boring 8

Subgrade 3a

22 In addition to this there is a small area of Subgrade 3a south east of the electricity sub-station This has a moderate wetness limitation

Subgrade 3b

23 Most of the area mapped as Subgrade 3b was found to be limited by wetness Typically the profiles examined had heavy clay loam or medium clay loam topsoils over clay subsoils The clay subsoils were found to be gleyed above 40 cm and slowly permeable starting above 45 cm and therefore assessed as Wetness Class IV Pit 3 represents this mapping unit

25 The main area of Subgrade 3b was to the east Nonetheless to the far west of the site a distinct area with a moderate wetness limitation was found Although a mixture of grades was found in three borings it was thought appropriate to map the area as Subgrade3b Two of the three borings (27 & 28) displayed slowly permeable clay subsoil characteristics as well as gleying, placing them in Wetness Class IV and III respectively however it was thought that although Boring 26 displayed gleying it did not have a slowly permeable layer This area tied in with the Subgrade 3b area on the Barons Cross survey

26 Other land shown as Subgrade 3b was found to be limited by gradient with slopes between 7° and 11°

27 It should be noted that a small area around the electricity sub-station was found to be marshy However this is reported to be a recent problem caused by the building of houses south of Ginhall lane and the landowner is about to undertake a drainage project that should relieve the problem

Grade 4

28 The area shown as Grade 4 was found to be limited by gradient with slopes between 11° and 18°

Grade 5

29 The area shown as Grade 5 was found to be limited by gradient with slopes greater than 18°

Edge mapping

30 The previous survey at Barons Cross (ADAS 1995) has graded the land as Grade 2 Subgrade 3a and 3b opposite Cholstrey road The small area of Subgrade 3b is downgraded due to a moderate wetness limitation The current survey also found a moderate wetness limitation of Subgrade 3a on the current survey which ties in well with the previous survey Grade 2 and Subgrade 3a land was limited by soil droughtiness however such droughtiness problems were not experienced in the current survey with deep soil profiles and few stones

31 The previous survey at Ginhall Lane (ADAS 1996) has graded the land as Subgrade 3a and Grade 2 The adjacent area of the current survey experiences no drought or wetness limitations and therefore forms a distinct area of Grade 1 Nonetheless to the east of the current survey site the previous survey has Pit 1 which was graded as Subgrade 3a This ties in well with Boring 37 which is also Subgrade 3a, therefore a distinct area of Subgrade 3a was mapped on the current survey In addition to this the boundaries of the Subgrade 3a, Subgrade 3b and Grade 1 land roughly follow the distribution of the soils map

Geoffrey Newman
Resource Planning Team
FRCA Bristol
23 June 1999

REFERENCES

ADAS RESOURCE PLANNING TEAM, (1996) Agricultural Land Classification Survey of Ginhall Lane Scale 1 10 000 Reference 58/96 ADAS Bristol

ADAS RESOURCE PLANNING TEAM, (1995) Agricultural Land Classification Survey of Barons Cross Scale 1 10 000 Reference 42/95 ADAS Bristol

ADAS RESOURCE PLANNING TEAM, (1985) Agricultural Land Classification Survey of Site 2 Leominster Local Plan Scale 1 10 000 Reference HW/F35 ADAS Bristol

BRITISH GEOLOGICAL SURVEY (1989) Sheet 198 Hereford 1 50 000 series Solid and Drift edition BGS London

BRITISH GEOLOGICAL SURVEY (1990) Sheet 52°N-04°W Mid Wales-Marches 1 250 000 series, Solid Geology BGS London

HODGSON J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

MAFF (1977) 1 250 000 series Agricultural Land Classification, Midland & West Region MAFF Publications Alnwick

MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for grading the quality of agricultural land MAFF Publications Alnwick

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification Meteorological Office Bracknell

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 3 Soils of Midland and Western England 1 250 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in Midland and Western England Bulletin No 14 SSEW Harpenden

APPENDIX I

DESCRIPTION OF GRADES AND SUBGRADES

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 root crops The level of yield is generally high but may be lower or more variable than Grade 1

Grade 3 good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops timing and type of cultivation, harvesting or the level of yield 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 level of yields It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable In 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

Source MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land, MAFF Publications, Alnwick

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile

Wetness Class I

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

Wetness Class 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

Wetness Class 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

Wetness Class 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

Wetness Class V

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

Wetness Class VI

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

Notes The number of days specified is not necessarily a continuous period

In most years is defined as more than 10 out of 20 years

Source Hodgson, J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report Terms used and abbreviations are set out below These conform to definitions contained in the Soil Survey Field Handbook (Hodgson, 1997)

1 Terms used on computer database, in order of occurrence.

GRID REF National 100 km grid square and 8 figure grid reference

LAND USE At the time of survey

WHT	Wheat	**SBT**	Sugar Beet	**HTH**	Heathland
BAR.	Barley	**BRA**	Brassicas	**BOG**	Bog or Marsh
OAT	Oats	**FCD**	Fodder Crops	**DCW**	Deciduous Wood
CER	Cereals	**FRT**	Soft and Top Fruit	**CFW**	Coniferous Woodland
MZE	Maize	**HRT**	Horticultural Crops	**PLO**	Ploughed
OSR.	Oilseed Rape	**LEY**	Ley Grass	**FLW**	Fallow (inc Set aside)
POT	Potatoes	**PGR**	Permanent Pasture	**SAS**	Set Aside (where known)
LIN	Linseed	**RGR**	Rough Grazing	**OTH**	Other
BEN	Field Beans	**SCR**	Scrub		

GRDNT Gradient as estimated or measured by hand held optical clinometer

GLEY SPL Depth in centimetres to gleying or slowly permeable layer

AP (WHEAT/POTS) Crop adjusted available water capacity

MB (WHEAT/POTS) Moisture Balance (Crop adjusted AP crop potential MD)

DRT Best grade according to soil droughtiness

If any of the following factors are considered significant Y will be entered in the relevant column

MREL	Microrelief limitation	**FLOOD**	Flood risk	**EROSN**	Soil erosion risk
EXP	Exposure limitation	**FROST**	Frost prone	**DIST**	Disturbed land
CHEM	Chemical limitation				

LIMIT The main limitation to land quality The following abbreviations are used

OC	Overall Climate	**AE**	Aspect	**EX**	Exposure
FR	Frost Risk	**GR**	Gradient	**MR**	Microrelief
FL	Flood Risk	**TX**	Topsoil Texture	**DP**	Soil Depth

CH	Chemical	**WE**	Wetness	**WK**	Workability
DR.	Drought	**ER.**	Erosion Risk	**WD**	Soil Wetness/Droughtiness
ST	Topsoil Stoniness				

TEXTURE Soil texture classes are denoted by the following abbreviations

S	Sand	**LS**	Loamy Sand	**SL**	Sandy Loam
SZL	Sandy Silt Loam	**CL**	Clay Loam	**ZCL**	Silty Clay Loam
ZL	Silt Loam	**SCL**	Sandy Clay Loam	**C**	Clay
SC	Sandy clay	**ZC**	Silty clay	**OL**	Organic Loam
P	Peat	**SP**	Sandy Peat	**LP**	Loamy Peat
PL	Peaty Loam	**PS**	Peaty Sand	**MZ**	Marine Light Silts

For the sand loamy sand sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes

F Fine (more than 66% of the sand less than 0 2mm)
M Medium (less than 66% fine sand and less than 33% coarse sand)
C Coarse (more than 33% of the sand larger than 0 6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content **M** Medium (< 27% clay) **H** heavy (27 35% clay)

MOTTLE COL Mottle colour using Munsell notation

MOTTLE ABUN Mottle abundance expressed as a percentage of the matrix or surface described

F few <2% **C** common 2 20% **M** many 20 40% **VM** very many 40%+

MOTTLE CONT Mottle contrast

F faint indistinct mottles evident only on close inspection
D distinct mottles are readily seen
P Prominent mottling is conspicuous and one of the outstanding features of the horizon

PED COL Ped face colour using Munsell notation

GLEY If the soil horizon is gleyed a Y will appear in this column If slightly gleyed an S will appear

STONE LITH Stone Lithology One of the following is used

HR	All hard rocks and stones	**SLST**	Soft oolitic or dolimitic limestone
CH	Chalk	**FSST**	Soft fine grained sandstone
ZR	Soft argillaceous or silty rocks	**GH**	Gravel with non porous (hard) stones
MSST	Soft medium grained sandstone	**GS**	Gravel with porous (soft) stones

SI Soft weathered igneous or metamorphic rock

Stone contents are given in % by volume for sizes >2cm, >6cm and total stone >2mm

STRUCT The degree of development size and shape of soil peds are described using the following notation

Degree of development	**WA**	Weakly developed Adherent	**WK**	Weakly developed
	MD	Moderately developed	**ST**	Strongly developed
Ped size	**F**	Fine	**M**	Medium
	C	Coarse	**VC**	Very coarse
Ped Shape	**S**	Single grain	**M**	Massive
	GR	Granular	**AB**	Angular blocky
	SAB	Sub-angular blocky	**PR**	Prismatic
	PL	Platy		

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		

SUBS STR. Subsoil structural condition recorded for the purpose of calculating profile droughtiness **G** Good **M** Moderate **P** Poor

POR Soil porosity If a soil horizon has poor porosity with less than 0 5% biopores >0 5mm, a Y will appear in this column

IMP If the profile is impenetrable to rooting a Y will appear in this column at the appropriate horizon

SPL Slowly permeable layer If the soil horizon is slowly permeable a Y will appear in this column

CALC If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a Y will appear this column

2 Additional terms and abbreviations used mainly in soil pit descriptions

STONE ASSESSMENT

V	Visual	**S**	Sieved	**D**	Displacement

MOTTLE SIZE

EF	Extremely fine <1mm	**M**	Medium 5 15mm
VF	Very fine 1 2mm>	**C**	Coarse >15mm
F	Fine 2 5mm		

MOTTLE COLOUR. May be described by Munsell notation or as ochreous (OM) or grey (GM)

ROOT CHANNELS In topsoil the presence of rusty root channels might be noted as RRC

MANGANESE CONCRETIONS Assessed by volume

N	None		**M**	Many	20-40%
F	Few	<2%	**VM**	Very Many	>40%
C	Common	2 20%			

POROSITY

P	Poor	less than 0 5% biopores at least 0 5mm in diameter
G	Good	more than 0 5% biopores at least 0 5mm in diameter

ROOT ABUNDANCE

The number of roots per 100cm^2		Very Fine and Fine	Medium and Coarse
F	Few	1 10	1 or 2
C	Common	10 25	2 5
M	Many	25 200	>5
A	Abundant	>200	

ROOT SIZE

VF	Very fine	<1mm	**M**	Medium	2 5mm
F	Fine	1 2mm	**C**	Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS

Sharp	<0 5cm	**Gradual**	6 13cm
Abrupt	0 5 2 5cm	**Diffuse**	>13cm
Clear	2 5 6cm		

HORIZON BOUNDARY FORM Smooth, wavy irregular or broken *

* See Soil Survey Field Handbook (Hodgson, 1997) for details

THE REPORT FOR THIS SITE WAS COMBINED WITH 34/99

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Cursneh Hill, Leominster	Pit 1 (ASP 40)	0°	PGR	Av Rainfall: 741 mm ATO: 1423 day °C FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	Raglan Mudstone Formation
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		PSD SAMPLES TAKEN
29.99	10/6/99	SO 4740 5910	GN		Topsoil 0-25 cm MZCL (S:17 Z:63 C:20%)

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	20	MZCL	5YR4/3	5% HR (vis)	None	None	-	-	-	-	MF,VF	-	Clear Smooth
2	50	MCL	5YR5/4	10% HR (vis)	None	None	MDCSAB	FR	M	Good	MF,VF	-	Clear Smooth
3	98	C	2.5YR4/4 4/6 (2.5YR5/4)	2%HR (vis)	CFGM 2.5YR4/3 4/2 FDGM 5GY7/1	None	MDVCSAB	FM	M	Good (Borderline Poor)	FF, VF	-	Clear Smooth
4	120	C*	2.5YR5/4 5/6	None	CDGM 5GY 7/1	None	MD CGr	FR/FM	G	Good (Borderline Poor)	None seen	-	-

Profile Gleyed From: Not gleyed

Slowly Permeable Horizon From: No SPL

Wetness Class: I

Wetness Grade: 1

Available Water Wheat: 148 mm

Potatoes: 109 mm

Moisture Deficit Wheat: 100 mm

Potatoes: 90 mm

Final ALC Grade: 1

Main Limiting Factor(s): -

RPT287DJ

Moisture Balance	Wheat:	+48 mm
	Potatoes:	+19 mm
Droughtiness Grade: 1		(Calculated to 120 cm)

Remarks: * H4 Dry clay like material possibly weathering mudstone material.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Cursneh Hill Leominster	Pit 2 (ASP 21)	0°	Ben	Av Rainfall: 741 mm ATO: 1423 day °C	Raglan Mudstone Formation
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 119 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
29.99	14/6/99	SO 4790 5930	GN		Topsoil 0-25 cm ZL (S:19 Z:24 C:17%) Subsoil 50-70 cm ZL (S:17 z:69 C:14%) Subsoil 90-110 cm FSZL (S:21 Z:66 C:13%)

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	28	ZL	5YR4/3	1% HR	None	None	-	-	-	-	CF,VF	-	Clear Smooth
2	47	ZL	5YR5/4 (5YR5/3)	1% HR	None	Few*	MDCSAB	FR	M	Good	F,F	-	Clear Smooth
3	70	ZL	2.5YR 5/4 -5YR5/4 (5YR 5/3)	1% HR	None	None	MDCSAB (tending towards MDCAB)	FR	M	Good	F,VF	-	Clear Wavy
4	120	FSZL	5YR54 (5YR53)	2% HR	FDOM 5YR56	Few Distinct	MDCSAB (tending towards MDCAB)	FR	M	Good	F,VF	-	-

Profile Gleyed From:	Not gleyed	Available Water	Wheat: 213 mm	Final ALC Grade: 1
Slowly Permeable Horizon From:	No SPL		Potatoes: 155 mm	Main Limiting Factor(s): -
Wetness Class:	I	Moisture Deficit	Wheat: 100 mm	
Wetness Grade:	1		Potatoes: 90 mm	

Moisture Balance	Wheat:	113 mm
	Potatoes:	65 mm
Droughtiness Grade: 1	(Calculated to 120 cm)	

Remarks: * probably charcoal staining

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Cursneh Hill Leominster	Pit 3 (Asp 14)	0 °	PGR	Av Rainfall: 741 mm ATO: 1423 day °C	Raglan Mudstone Formation
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
29.99	14/6/99	SO 4820 5940	GN		Topsoil 0-25 cm C (S:4 Z:25 C:71%)

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	17	C	7.5YR4/3,4/2	0%	None	None	-	-	-	-	MF,VF	-	Clear Smooth
2	27	C	5YR 5/3	0%	CDMO 7.5YR5/6 CFGM 10YR6/1,6/2	Few	MDCSAB Tending to CPr	FM	M	Borderline Good	CF, VF	-	Clear Smooth
3	65	C	2.5Y6/2,6/1	2% HR (vis)	MDMO 10YR5/6	Common	SDCPr	FM	P	Poor (approaching 0.4% but overall less)	C, VF	-	-

Profile Gleyed From:	17 cm	Available Water	Wheat:	124 mm	Final ALC Grade: 3b
Slowly Permeable Horizon From:	27 cm		Potatoes:	101 mm	Main Limiting Factor(s): Wetness
Wetness Class:	IV	Moisture Deficit	Wheat:	100 mm	
Wetness Grade:	3b		Potatoes:	90 mm	

Moisture Balance	Wheat:	+24 mm	Remarks:
	Potatoes:	+11 mm	
Droughtiness Grade: 2		(Calculated to 120 cm)	