Lower Cam

Agricultural Land Classification

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Resource Planning Team
Bristol
FRCA Western Region

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LOWER CAM

AGRICULTURAL LAND CLASSIFICATION SURVEY

CONTENTS

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SUMMARY

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of 146 4 ha of land around Lower Cam Gloucestershire Field survey was based on 63 auger borings and 4 soil profile pits and was completed in March 1998 During the survey 2 soils 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 the Stroud District Local Plan

3 Information on climate geology and soils and from previous ALC surveys was considered and is presented in the relevant section Apart from the published regional ALC map (MAFF 1977) which shows the site at a reconnaissance scale as being Grade 3 except for areas of Grade 2 to the north of Draycott and to the north of Woodend Green Farm the site had not been surveyed previously However 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 Previously land behind Draycott Crescent was surveyed in 1997 (FRCA 1997) and was shown to be mainly Subgrade 3a due to moderate wetness limitations A small area of disturbed land was mapped as Subgrade 3b also due to wetness

5 At the time of survey land cover was mainly permanent grassland for grazing with a few fields of winter wheat on the higher ground near Elstub Lane Land which was not surveyed includes built up areas and sports fields to the north of Woodend Green Farm

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 Lower Cam

Grade	Area (ha)	% Surveyed Area (119 1 ha)
2	26 8	22
3a	36 0	30
3b	29 3	25
4	27 0	23
Other land	27 3	
Total site area	146 4	

7 This shows that 52% of the site has been mapped a best and most versatile with 22% being Grade 2 The Grade 2 land has a minor workability limitation, while the Subgrade 3a

7 This shows that 52% of the site has been mapped a best and most versatile with 22% being Grade 2 The Grade 2 land has a minor workability limitation while the Subgrade 3a land has a combination of moderate wetness workability and drought limitations Strongly sloping land has been mapped as Subgrade 3b with a moderate limitation due to gradient while others areas of Subgrade 3b have a wetness limitation The northern area of Grade 4 consists of disturbed land where motorway spoil has been spread whereas the southern mapping unit of Grade 4 has a severe drought limitation Some small areas of better quality land are included in this southern Grade 4 mapping unit as they could not be mapped individually at this level of detail

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 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 Lower Cam

Grid Reference		SO 741 009	SO 739 002	SO 745 020
Altitude (m)		52	100	30
Accumulated Temperature (day C)		1474	1420	1499
Average Annual Rainfall (mm)		819	840	801
Overall Climatic Grade		1	1	1
Field Capacity Days		180	183	177
Moisture deficit (mm)	Wheat	96	89	99
	Potatoes	86	78	91

RELIEF

11 Altitude ranges from 29 metres on the A4135 in the northern part of the site to 101 metres near Elstub Lane in the southern part of the site Most of the land around Draycott and near the primary school on the southern edge of the site is either level or gently sloping with moderately sloping land on the northern side of Woodend Lane giving no agricultural

limitation To the south of Woodend Lane the land is strongly sloping and is limited to Subgrade 3b due to gradient

GEOLOGY AND SOILS

13 The underlying geology of the site is shown on the published geology maps (IGS 1970 1975) as a complex pattern of Jurassic clay and rock and more recent drift material Bands of Lower Lias clay and river terrace gravels are mapped to the north of Woodend Lane while to the south Lower Jurassic Middle Lias Dyrham Silts are mapped with outcrops of Middle Lias Marlstone Rock Beds within it Although the distribution of some geology types as indicated by the soils was not as expected the geology in general was borne out by the current survey

14 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) This shows soils from the Martock Association along Woodend Lane with Oxpasture soils to the north and Badsey 1 soils in the northern corner of the site To the south of Woodend Lane the soils are mapped as mainly belonging to the Elmton 1 Association with a small area of Curtisden soils around Fieldlane Farm

15 Martock soils are described as being slowly permeable seasonally waterlogged stoneless silty over clayey or clayey soils over siltstone or shale with similar soils having slowly permeable subsoils and slight waterlogging Oxpasture and Curtisden soils are also slowly permeable Oxpasture soils are described as fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging and some slowly permeable seasonally waterlogged soils Curtisden soils are described as silty soils over siltstone with slowly permeable subsoils and slight seasonal waterlogging and some similar well drained soils and some well drained coarse loamy soils developed over sandstone

16 The Elmton 1 soils developed over the Marlstone Rock are described as being shallow well drained brashy calcareous fine loamy soils with some similar deeper soils and some non calcareous and calcareous clayey soils The river gravels in the northern part of the site have Badsey 1 soils which are described as being well drained calcareous and non calcareous fine loamy soils over limestone gravel Some deep fine loamy soils and fine loamy soils over gravel and similar but shallower soils affected by groundwater may also be found

17 The general distribution of the soils was largely borne out by the current survey although the area of Elmton 1 soils was not as large as was expected and soils from the Curtisden Association were difficult to distinguish from the Martock Association

AGRICULTURAL LAND CLASSIFICATION

18 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 2

19 Soils developed over the Dyrham Silts to the south of Woodend Lane are mapped as Grade 2 with a minor workability limitation The profiles mainly have medium clay loam topsoils over heavy clay loam subsoils which with no evidence of wetness were assessed as Wetness Class I (see Appendix II) Pit 3 illustrates this mapping unit and shows that although 50% hard rock and 36% soft rock by volume was found in Horizons 2 and 3 respectively there is no drought limitation

Subgrade 3a

20 The level Subgrade 3a land in the northern part of the site has a combination of moderate drought workability and wetness limitations To the north of Draycott the underlying geology is limestone river gravel which is found at depths of 37 cm to 65 cm and causes a moderate drought limitation Topsoil textures in this area were shown by PSD analysis to be clay although they hand textured lighter in the field This implies a moderate workability limitation at Wetness Class I Although this area has a high groundwater level in winter this would not lead to a lower grade than Subgrade 3a

21 The area of gently sloping Subgrade 3a land to the east and south of Draycott has a moderate wetness limitation The profiles developed over Lower Lias clay tend to have heavy clay loam and heavy silty clay loam topsoils which with the profiles being assessed as Wetness Class II impart a moderate wetness limitation Pit 4 is an example of this mapping unit showing the clay lower subsoils to be gleyed with slowly permeable layers starting below 72 cm This mapping unit is a continuation of the Subgrade 3a land mapped during the adjacent survey (FRCA, 1977)

22 A small number of profiles around Draycott were found to have slowly permeable layers starting higher up the profile and they were assessed as Wetness Classes III and IV giving moderate and severe wetness limitations at Subgrade 3b and Grade 4 respectively These profiles did not form a robust mapping unit on their own and they are included in the Subgrade 3a unit

Subgrade 3b

23 Most of this mapping unit to the south of Woodend Lane has strongly sloping gradients which impart a moderate limitation to its agricultural use

24 The Subgrade 3b land to the north of Woodend Lane has a moderate wetness limitation The profiles tend to have medium clay loam topsoils over clay subsoils With gleying being present below the topsoil and slowly permeable layers starting below 35 cm to 40 cm they were assessed as Wetness Class IV which together with the topsoil texture implies the moderate wetness limitation

Grade 4

25 The northern Grade 4 mapping unit is on disturbed ground where spoil from the M5 motorway cutting has been spread This material is clayey and the resulting profiles are gleyed from the surface with slowly permeable layers starting below the topsoil They were assessed

as Wetness Class IV which with the clay topsoil imparts a severe wetness limitation Part of the adjacent site has slightly lighter topsoil textures and was mapped as Subgrade 3b but this mapping unit would have been included in the larger Grade 4 unit if they had been surveyed together

26 The Grade 4 land near Elstub Lane in the southern part of the site is developed over Marlstone Rock leading to shallow profiles Pit 2 found 80% hard rock from 27 cm which gives a severe drought limitation These profiles also have a moderate limitation due to soil depth and the high stone content of the top 25 cm of the profile 17% hard rock stones larger than 2 cm Within the mapping unit there are isolated profiles of Subgrades 3a and 3b due to drought where the fractured bed rock was found further down the profile These could not be mapped as separate units at this scale This mapping unit is shown to be developed over similar geology to the adjacent Grade 2 land but there was a clear difference in the depth to the fractured bedrock between the profiles in the two mapping units

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April 1998

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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 (e g 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 (In preparation) Soil Survey Field Handbook Revised Edition

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 1974)

1 **Terms used on computer database in order of occurrence**

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

USE 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		

ASPECT The aspect of the land

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

M REL	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 and 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	**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

VIS	Visual	**S**	Sieve	**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 should also be noted

MANGANESE CONCRETIONS Assessed by volume

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

STRUCTURE Ped Development *

WA	Weakly adherent	**M**	Moderately developed
W	Weakly developed	**S**	Strongly developed

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 1974) for details

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Lower Cam	Pit 1 (Asp 7)	Level	Permanent Grass	Av Rainfall 819 mm ATO 1474 day C	Limestone River Gravel
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days 180 Climatic Grade 1 Exposure Grade 1	SOIL SAMPLE REFERENCES
87/97	15/1/98	SO 7463 0174	PRW HLJ		T/S 0 25cm C (S 13 Z 42 C 45 /)

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	22	C	10YR44	1 / HR (Vis)	None	None					MF & VF		Abrupt Smooth
2	37	C	10YR53	2% HR (s&d)	None	None	MDM/CSAB	Friable	Moderate	Good	CF & VF		Abrupt Smooth
3	80 +	C	25Y54	5 / >2cm (s) 65 / <2cm (s&d) 70 / HR Total	None	None	WKSAB (C M & F)	Very Friable	Moderate	Good	FVF		

Profile Gleyed From Not gleyed

Slowly Permeable Horizon From No Spl

Wetness Class I

Wetness Grade 3a

Available Water	Wheat	87 mm
	Potatoes	79 mm
Moisture Deficit	Wheat	96 mm
	Potatoes	86 mm
Moisture Balance	Wheat	9 mm
	Potatoes	7 mm

Droughtiness Grade 3a (Calculated to 120 cm)

Final ALC Grade 3a

Main Limiting Factor(s) Drought and Workability

Remarks Large stones increasing with depth
Groundwater at 25 cm
Coarse medium and fine structure in H3

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Lower Cam	Pit 2 (Asp 72)	2 South East	Ploughed	Av Rainfall 819 mm ATO 1474 day C	Marlstone Rock Bed
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days 180 Climatic Grade 1 Exposure Grade 1	SOIL SAMPLE REFERENCES
87/97	16/1/98	SO 7420 0006	HLJ PRW		None

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	27	MZCL	10YR44	17 / >2cm (s) 16 / <2cm (s&d) 33 / HR Total	None	None					CF & VF		Abrupt Smooth
2	65 +	HZCL	10YR56	65 / >2cm (s) 15 / <2cm (s&d) 80 / HR Total	None	None	MDFSAB	Friable	Moderate	Good	FF & VF		

Profile Gleyed From Not gleyed

Slowly Permeable Horizon From No Spl

Wetness Class I

Wetness Grade 2a

Available Water Wheat 42 mm

Potatoes 40 mm

Moisture Deficit Wheat 96 mm

Potatoes 86 mm

Moisture Balance Wheat 54 mm

Potatoes -46 mm

Droughtiness Grade 4 (Calculated to 120 cm)

Final ALC Grade 4

Main Limiting Factor(s) Drought

Remarks Horizon 2 impenetrable to implements
3b on soil depth

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Lower Cam	Pit 3 (Asp 50)	4 North	Permanent Grass	Av Rainfall 819 mm ATO 1474 day C	Dyrham Silts
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days 180 Climatic Grade 1 Exposure Grade 1	SOIL SAMPLE REFERENCES
87/97	16/1/98	SO 7400 0065	PRW HLJ		None

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	33	MCL	10YR34	2 / HR (Vis)	None	None					MF & VF		Gradual Smooth
2	52	HCL	10YR46	25 / >2cm (s) 25 / <2cm (s&d) 50 / HR Total	None	None	MDMSAB (& F)	Friable	Moderate	Good	CF & VF		Gradual Smooth
3	110 +	HCL	10YR44	20 / >2cm (s) 16 / <2cm (s&d) 36 / ZR Total	None	None	MDMSAB	Friable	Moderate	Good	FF & VF		

Profile Gleyed From Not Gleyed

Slowly Permeable Horizon From No spl

Wetness Class I

Wetness Grade 2

Available Water	Wheat	130 mm
	Potatoes	98 mm
Moisture Deficit	Wheat	96 mm
	Potatoes	86 mm
Moisture Balance	Wheat	34 mm
	Potatoes	12 mm

Droughtiness Grade 1 (Calculated to 120 cm)

Final ALC Grade 2

Main Limiting Factor(s) Workability

Remarks Colour variation within soft stones in H3
Platy tendencies in H3 and deposition layers within stones

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Lower Cam	Pit 4 (Asp 15)	3 East	Permanent Grass	Av Rainfall 819 mm ATO 1474 day C	Lower Lias Clay
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days 180 Climatic Grade 1 Exposure Grade 1	SOIL SAMPLE REFERENCES
87/97	16/1/98	SO 7438 0145	HLJ PRW		T/S 0 25cm HZCL (S 17 Z 50 C 33 /)

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	27	HZCL	10YR43	0 / (Vis)	None	None					MF & VF		Gradual Smooth
2	52	HCL	10YR44	0 / (Vis)	None	None	MDCSAB*[1]	Friable	Moderate	Good	CF & VF		Clear Smooth
3	73	C	10YR53	0 / (Vis)	CDFO (10YR56)	Common	MDCSAB*[2]	Friable	Moderate	Good (low)	CF & VF		Clear Smooth
4	90 +	C	10YR53	0 / (Vis)	CDFO (10YR56)	Common	MDCPR	Friable	Moderate	Poor	FF & VF		

Profile Gleyed From 52 cm

Slowly Permeable Horizon From 73 cm

Wetness Class II

Wetness Grade 3a

Available Water	Wheat	145 mm
	Potatoes	120 mm
Moisture Deficit	Wheat	96 mm
	Potatoes	86 mm
Moisture Balance	Wheat	49 mm
	Potatoes	34 mm
Droughtiness Grade	1	(Calculated to 120 cm)

Final ALC Grade 3a

Main Limiting Factor(s) Wetness

Remarks *[1] tending to MDCPR
*[2] slightly angular
Few large worm channels into the top of H4