Mendip District Local Plan

Beckington

Agricultural Land Classification
July 1996

Resource Planning Team
Taunton Statutory Group
ADAS Bristol

Job Number 8/96
Commission 1020
MAFF Reference EL 548

Ministry of Agriculture Fisheries and Food
Land Use Planning Unit

MENDIP LOCAL PLAN BECKINGTON

AGRICULTURAL LAND CLASSIFICATION SURVEY

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MENDIP LOCAL PLAN BECKINGTON

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

1 This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey of 190 2ha of land at Beckington, near Frome Field survey was based on 107 auger borings and 4 soil profile pits and was completed in June 1996

2 The survey was conducted by the Resource Planning Team of ADAS Taunton Statutory Group on behalf of MAFF Land Use Planning Unit in its statutory role in the preparation of Mendip 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 but with large areas of Grade 1 around the north side of the village and in a strip along the Frome Road to the south west of the village The site was previously surveyed in 1984 at a scale of 1 10 000 (ADAS 1984) This was based on a free survey of approximately semi detailed intensity and shows a complete variety of ALC grades with Grades 1 and 2 in areas more or less as previously described for Grade 1 above and a mixture of Subgrades 3a, 3b and 3c over the rest of the site It should be noted that this survey used the previous guidelines for ALC classification, whereas 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 1

4 At the time of survey land cover was mainly grass with some cereals and maize and a small area of brashy ground used for outdoor pigs Other land which was not surveyed was mainly urban residential roads open spaces and the sewage works

5 The distribution of ALC grades is shown on the accompanying 1 20 000 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 Beckington

Grade	Area (ha)	% Surveyed Area (145 4ha)
1	9 2	6 3
3a	23 2	16 0
3b	57 6	39 6
4	55 4	38 1
Other land	44 8	
Total site area	190 2	

6 22 3% of the surveyed area was found to be best and most versatile The best of this was a distinctive deep sandy soil assessed as Grade 1 although the area was considerably less than found in previous surveys A rather larger area around both sides of the village was found to be Subgrade 3a with moderate limitations mainly due to wetness Unlike the 1984 survey the current survey found no extensive area of Grade 2 though isolated borings and others borderline to Grades 1 and 3a may be present

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7 Much of the rest of the survey area was found to be Grade 4 with severe limitations mainly due to wetness and Subgrade 3b with more serious moderate limitations due to wetness and workability Short steep slopes on the western side of the village give rise to small but significant areas of land severely limited by gradient and classified as mainly Grade 4

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 Beckington

Grid Reference		ST 814512	ST 795518	ST 803520
Altitude (m)		95	50	75
Accumulated Temperature (day °C)		1445	1497	1468
Average Annual Rainfall (mm)		816	775	795
Overall Climatic Grade		1	1	1
Field Capacity Days		181	177	178
Moisture deficit (mm)	Wheat	94	100	97
	Potatoes	83	92	87

RELIEF

11 Altitude ranges from around 50 metres along the River Frome to almost 100 metres at Bonnyleigh Hill with mainly gentle and moderate slopes which are not limiting However a more or less continuous area on the valley sides of the River Frome was found to be moderately steeply to steeply sloping, (12 18°) and was assessed as mainly Grade 4

GEOLOGY AND SOILS

12 The underlying geology of the site is shown on the published geology map (IGS 1965) as mainly Forest Marble with small areas of limestone Cornbrash at Bonnyleigh Hill and to the north of the village and narrow deposits of alluvium along the River Frome The current ALC survey found the Forest Marble to be highly variable ranging from the restricted areas of deep sands to extensive areas of plastic calcareous clay

13 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) as mainly Evesham 1 Association with a patch of Bursledon Association centred on the village and small pockets of Wickham 2 Association in the east and Elmton 1 Association in the north

14 Evesham 1 Association is described as slowly permeable calcareous clayey soils associated with shallow well-drained brashy calcareous soils over limestone Elmton 1 Association is described as shallow well-drained brashy calcareous fine loamy soils over limestone Teme Association, found in the flood plain of the River Frome is described as deep stoneless permeable silty soils

15 The published reconnaissance scale soils information does not predict the occurrence of the small areas of deep sandy soils found to the west and southwest of the village which are highly significant to Agricultural Land Classification

AGRICULTURAL LAND CLASSIFICATION

16 The distribution of ALC grades found by the current survey is shown on the accompanying 1 20 000 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

17 The two areas shown as Grade 1 each have three distinctive borings of deep fine sandy loam, possibly becoming loamy sand in the deeper subsoil Although ochreous mottles occur sporadically and at various depths below the topsoil, the profiles are not gleyed and are assessed as Wetness Class I This mapping unit is illustrated by Pit 3 at which point a subsoil sample was taken and analysed as fine sandy loam, similar to the topsoil

18 An isolated boring at ASP101 was found to be Grade 1 similar to that described above, but was included in a Subgrade 3a mapping unit This area to the north of the village had been shown in previous surveys as Grade 1 or Grade 2 but the evidence of the borings taken in the current survey could not substantiate this grading

Subgrade 3a

19 This is a rather variable mapping unit typically with medium clay loam or sandy clay loam topsoil textures and Wetness Class II as illustrated by Pit 2 However this grade also had Wetness Class III borings with a slowly permeable layer starting below around 40-45cm. The mapping unit also contains isolated borings of other grades This is a consequence of slight variation in topsoil texture and also fluctuation in the depth to slowly permeable layer even within a limited range

Subgrade 3b

20 The areas shown as Subgrade 3b have more serious moderate limitations, mainly due to wetness although other borings are limited by gradient or workability The latter is illustrated by Pit 4 which although deeply rootable shows stone contents assessed by sieving of 40 60+% below the topsoil Despite being selected as a relatively stony profile, droughtiness calculation at this point indicates that droughtiness is not the primary limitation, which in this case remains as workability due to the clay topsoil at Wetness Class I

21 Other profiles within this mapping unit show Wetness Class III or even IV with slowly permeable layers evident in the upper subsoil

22 Short convex slopes to the west of the village were frequently found to be strongly sloping (8 11°) and assessed as Subgrade 3b limited primarily by gradient

Grade 4

23 Large tracts of the survey area, particularly south of the village were found to be Grade 4 typically with clay topsoil and Wetness Class IV with a slowly permeable layer starting in the upper subsoil This is illustrated by Pit 1

24 Short steep slopes on the valley sides of the River Frome were found to be mainly Grade 4 with a severe gradient limitation

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29 July 1996

REFERENCES

ADAS RESOURCE PLANNING TEAM, (1984) Agricultural Land Classification Survey of Beckington Scale 1 10 000 Reference 3 ADAS Bristol

INSTITUTE OF GEOLOGICAL SCIENCES (1965) Sheet 281 Frome 1 63 360 series Solid and Drift edition, IGS London

HODGSON J M (Ed) (1974) Soil Survey Field Handbook, Technical Monograph No 5 Soil Survey of England and Wales, Harpenden

HODGSON J M (In preparation) Soil Survey Field Handbook, Revised edition

MAFF (1977) 1 250 000 series Agricultural Land Classification, South 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 5 Soils of South West England, 1 250 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in South West 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 (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

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 dolomitic 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
Beckington	Pt 1 (Asp 69)	3 S	Ley	Av Rainfall 811 mm ATO 1451 day C FC Days 178 Climatic Grade 1 Exposure Grade	Forest Marble
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
8 96	11 06 96	ST 79955105	PB		PB 375

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	19	C	10YR42	1% HR VIS	None	None					MF VF	Y	Abrupt Smooth
2	28	C	2 5Y63	2%SLST*	CDFO 10YR58	None	MMPr	Vm	P	P*	CF VF	Y	Clear Smooth
3	60+	C	2 5Y62	2% SLST* 1% HR	CDMO 7,5YR58	None	MCPr	Vm	P	P	FF VF Mainly ex-ped	Y	-

Profile Gleyed From 19

Depth to Slowly Permeable Horizon 19

Wetness Class IV

Wetness Grade 4

Available Water Wheat 120 mm

Potatoes 97 mm

Moisture Deficit Wheat 97 mm

Potatoes 87 mm

Moisture Balance Wheat +23 mm

Potatoes +10 mm

Droughtiness Grade 2 (Calculated to 120cm)

Final ALC Grade 4

Main Limiting Factor(s) We

Remarks H2 Few large worm channels
H2 Stones = Calc nodules
H3 Stones = Calc nodules & limestone

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE			PARENT MATERIAL
Beckington	Pit 2 (Asp 28)	1 N	Maize	Av Rainfall ATO FC Days Climatic Grade Exposure Grade	795 mm 1468 day C 178 1	Forest Marble
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY			SOIL SAMPLE REFERENCES
8 96	12/6/96	ST 80375170	PB			PB 376

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	MCL/ SCL	10YR42	1% HR (VIS)	0	0					FF VF		Clear Smooth
2	50	C	10YR54	0	0	0	MCSAB	Fr	M	G	FF VF		Grad Smooth
3	65	C	2 5Y64	0	CDFO 10YR 58	F	MCSAB	Fm	M	G	FF VF		Grad Smooth
4	80+	C	2 5Y64	0	MDMO 10YR58	C	WCSAB	Fm	P	P	FF VF		

Profile Gleyed From 50 cm

Depth to Slowly Permeable Horizon 65 cm

Wetness Class II

Wetness Grade 3a

Available Water	Wheat	136 mm
	Potatoes	116 mm
Moisture Deficit	Wheat	97 mm
	Potatoes	87 mm
Moisture Balance	Wheat	+39 mm
	Potatoes	+29 mm

Droughtiness Grade 1 (Calculated to 120 cm)

Final ALC Grade 3a

Main Limiting Factor(s) We

Remarks H4 porosity borderline good

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Beckington	Pit 3 (Asp 17)	1 N	PGR	Av Rainfall 795 mm ATO 1468 day C	Forest Marble sandstone
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days 178 Climatic Grade 1 Exposure Grade	SOIL SAMPLE REFERENCES
8 96	12/6/96	ST 79825789	PB		PB 377 378

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	38	FSL	10YR42	0	0	0					MF VF	0	Ab Wavy
2	67	FSL	10YR64 74	0	FDMD* 10YR58	0	WCSAB	VFr	G	G	CVF	0	Ab Wavy
3	120+	LMS	10YR66 73	0	FDMO * 10YR58	0	WCAB	Fr	G	G	FVF	0	

Profile Gleyed From

Depth to Slowly Permeable Horizon

Wetness Class I

Wetness Grade 1

Available Water Wheat 162 mm

Potatoes 135 mm

Moisture Deficit Wheat 97 mm

Potatoes 87 mm

Moisture Balance Wheat +65 mm

Potatoes +48 mm

Droughtiness Grade 1 (Calculated to 120 cm)

Final ALC Grade 1

Main Limiting Factor(s)

Remarks Ochreous mottles appear at the top of H2 and H3 with dense packing below

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE			PARENT MATERIAL
Beckington	Pit 4 (Asp 55)	2 E	Maize	Av Rainfall	811 mm	Cornbrash
				ATO	1451 day C	
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days	178	SOIL SAMPLE REFERENCES
8 96	12/6/96	ST 80655133	PB	Climatic Grade	1	PB 379
				Exposure Grade		

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	21	C	10YR54	6% >2cm 16% <2cm 22% HR (S&D)	0	0					MF VF	Y	Ab Smooth
2	43	C	10YR46	25% >2cm 16% <2cm 41% HR (S&D)	0	0	MM, FSAB	Fr	G	G	FF VF	Y	Clear Smooth
3	80	C	2 5Y64	50% >2cm 12% < 2cm 62% HR (S&D)	FDFO 10YR58	0	Too Stony	Fm			FF VF	Y	Grad Smooth
4	97+	C	25Y64 10YR66	30% >2cm 22% <2cm 52% HR (S&D)	CDFO 10YR58	0	Too Stony	Fm				Y	

Profile Gleyed From 80 cm

Depth to Slowly Permeable Horizon

Wetness Class I

Wetness Grade 3b

Available Water Wheat 87 mm

Potatoes 74 mm

Moisture Deficit Wheat 97 mm

Potatoes 87 mm

Moisture Balance Wheat 10 mm

Potatoes 13 mm

Droughtiness Grade 3a (Calculated to 120 cm)

Final ALC Grade 3b

Main Limiting Factor(s) Wk

Remarks Rock is HR/SLST