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MID SUSSEX DISTRICT LOCAL PLAN
Butchers Field Ardingly

Agricultural Land Classification
ALC Map and Report

November 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

MID SUSSEX DISTRICT LOCAL PLAN
BUTCHERS FIELD, ARDINGLY

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 17 ha of land at Butchers Field Ardingly in Mid Sussex The survey was carried out during November 1997

2 The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture Fisheries and Food (MAFF) The survey was carried out in connection with MAFF s statutory input to the Mid Sussex District Local Plan This survey supersedes any previous ALC information for this land which includes a recent Desk Exercise covering the whole of the site

3 The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF 1988) A description of the ALC grades and subgrades is given in Appendix I

4 At the time of the survey most of the land was under permanent grassland some of which was being grazed by sheep and horses The remainder of the site was recently sown to grass The areas mapped as Other land comprise a farm track and wide wooded field boundaries A small paddock field was not surveyed on the advice of the owner due to the presence of a potentially dangerous horse

SUMMARY

5 The findings of the survey are shown on the enclosed ALC map The map has been drawn at a scale of 1 10 000 It is accurate at this scale but any enlargement would be misleading

6 The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1

7 The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land A total of 18 borings and 3 soil pits was described

8 The agricultural land at this site has been classified as Subgrade 3a (good quality) Subgrade 3b (moderate quality) and a small pocket of Grade 4 (poor quality) Soil wetness is the principal limitation on the site A microrelief limitation affects the poor quality (Grade 4) land

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[1] FRCA is an executive agency of MAFF and the Welsh Office

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3a	3 2	21 5	19 8
3b	11 1	74 5	68 5
4	0 6	4 0	3 7
Agricultural land not surveyed	0 8		4 9
Other land	0 5		3 1
Total surveyed area	14 9	100 0	92 0
Total site area	16 2		100 0

9 The majority of the land suffers from a soil wetness limitation associated with slowly permeable subsoils It is the depth to these less permeable horizons which determines the overall ALC grade Where these slowly permeable subsoils are shallow the drainage will be severely restricted and the land is classified as Subgrade 3b where they occur deeper within the profile the resultant ALC grade will be Subgrade 3a The effect of these poorly to imperfectly drained soils causes land utilisation to be restricted and yield potential to be reduced

10 Typically Subgrade 3a land comprises fine silty topsoils over similar upper subsoils Lower subsoils are heavier usually poorly structured and pass into less permeable clays with depth These soils are restricted to the valley and slopes to the east of the site

11 Subgrade 3b land is associated with two different soil types The majority of the land comprises fine silty top and upper subsoils These pass into soft and hard siltstones some of which can be penetrated by the soil auger The other soil type consists of fine silty topsoils over heavier textured subsoils before passing into clay at variable depth Drainage is impeded by slowly permeable subsoils at relatively shallow depth

12 A small pocket of Grade 4 land has been delineated in an area believed to be former World War II bomb crater Mechanised operations are likely to be severely restricted especially on the steeper sides of the area and localised slumping serves to compound the problem However the flatter areas will allow access to machinery but land use is restricted

FACTORS INFLUENCING ALC GRADE

Climate

13 Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics

14 The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met Office 1989)

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	TQ 344 293	TQ 341 297
Altitude	m AOD	95	115
Accumulated Temperature	day C (Jan June)	1420	1397
Average Annual Rainfall	mm	879	887
Field Capacity Days	days	184	185
Moisture Deficit Wheat	mm	99	96
Moisture Deficit Potatoes	mm	90	86
Overall climatic grade	N/A	Grade 1	Grade 1

15 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

16 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR) as a measure of overall wetness and accumulated temperature (ATO January to June) as a measure of the relative warmth of a locality

17 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation In addition the report to accompany sheet ALC 182 (MAFF 1972) indicates that this area is neither frost prone or suffers from exposure The site is climatically Grade 1 However climatic factors do interact with soil properties to influence soil wetness and soil droughtiness At this locality the climate is relatively moist in regional terms The likelihood of soil wetness problems may therefore be enhanced

Site

18 The site lies at altitudes in the range of 90 115 m AOD The survey area is bisected towards the east by a north south trending valley This feature effectively divides the higher land to the west from the lower land in the east Gradient measurements of the valley slopes indicated slopes of 4^0 6^0 this was not considered a limitation in terms of agricultural land quality However a large bomb crater in the south east of the site causes a severe microrelief limitation Steep sides and localised slumping restrict mechanised operations within this feature On the slopes adjoining this area there is localised water induced soil erosion where run off on exposed slopes has caused minor rill development However the area concerned is not considered significant or extensive enough to downgrade because the overall impact on the physical characteristics and management of the land is little affected and interception of surface water from higher ground could remedy the situation

Geology and soils

19 The most detailed published geological information for the site (BGS 1972) shows the majority of the land to be underlain by Cuckfield (or Tilgate) Stone with Grinstead Clay and Ardingly Stone outcropping on the slopes to the east of the site

20 The most detailed published soils information covering the area (SSEW 1983) shows it to comprise entirely of soils of the Curtisden association These soils are described as silty soils over siltstone with slowly permeable subsoils and slight seasonal waterlogging Some similar well drained soils Some well drained coarse loamy soils over sandstone (SSEW 1983) Soils consistent with this description were observed on approximately half of the site fine silty over a hard impermeable siltstone with slowly permeable upper subsoils Over the remainder of the site two soil varients with fine silty topsoils over heavier subsoils passing into clay were observed The heavier of the two on the western slope was slowly permeable from the upper subsoil whilst the other in the east was slowly permeable from the lower subsoil

AGRICULTURAL LAND CLASSIFICATION

21 The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1 page 1

22 The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II

Subgrade 3a

23 Land of good quality has been mapped on sloping land on the east of the site coincident with deposits of Ardingly Stone

24 All of the land classified as Subgrade 3a is affected by a soil wetness limitation Soils comprise non calcareous medium silty clay loam topsoils which may contain up to 1 % total hard sandstone by volume Topsoils overlie similarly textured upper subsoils with up to 5 % hard sandstone by volume Lower subsoils are heavier with heavy silty clay loams passing to clays Respective stone content volumes for both these lower subsoils was estimated at 10 % hard sandstone Soil pit 3 (see Appendix II) is typical of these soils Where these horizons showed evidence of wetness the heavy silty clay loam and clay lower subsoils proved to be slowly permeable and impede drainage The lack of any soil wetness evidence above this horizon is probably the result of water able to drain freely downslope The depth to these slowly permeable heavy silty clay loam subsoils (typically 50 70 cm) places these soils into wetness class III Relating the wetness class to topsoil texture and the local climatic factors gives rise to a land classification of Subgrade 3a

25 The effect of soil wetness is to adversely affect seed germination and survival partly by a reduction in soil temperature and partly because of anaerobism This may also inhibit the development of a good root system and can affect crop growth

Subgrade 3b

26 Most of the site is made up of moderate quality land and is coincident with deposits of the Cuckfield Stone and Grinstead Clay These give rise to two broad soil types

27 On the higher more level ground soils believed to be related to the Cuckfield Stone proved to be impenetrable to the soil auger from approximately 60 cm onwards A soil inspection pit (1P see Appendix II) was used to describe this mapping unit Soils comprise non calcareous medium silty clay loam topsoil which may contain up to 2% total hard sandstones by volume These overly similarly textured but upper subsoils with up to 15% total hard sandstone These pass into poorly structured silt loam lower subsoils with up to 15% total hard sandstones beneath which the massive/platy sandstone is encountered These profiles are all gleyed within 40 cm evidence of wetness caused by impeded drainage due to the presence of a slowly permeable layer from 20 to 50 cm This degree of soil wetness equates to wetness class IV which related to topsoil texture and the local climate results in a land classification of Subgrade 3b

28 Grinstead Clay outcrops on the crest and valley sides adjacent to the Cuckfield Stone and this defines the area of the clayey soils on the site A soil inspection pit (2P, see Appendix II) was used to describe this unit Soils comprise non calcareous medium silty clay loam topsoils over similar but shallower heavier subsoils with few stones These overlie heavy silty clay loam or clayey lower subsoils Gleying occurs within 40 cm of the profile and is evidence of impeded drainage caused by a slowly permeable layer from 38 45 cm down the profile This equates to wetness class IV which when related to topsoil texture and the comparatively wet local climate this results in Subgrade 3b as the appropriate classification

29 A moderate to severe wetness limitation as found in areas mapped as Subgrade 3b results in restrictions in the utilisation of the land which affects the range of crops that can be grown and the level of yield In particular this wetness limitation will restrict the number of days when the soil is in a suitable condition for cultivation trafficking by machinery or grazing by livestock

Grade 4

30 An area of poor quality land defines a very large crater believed to be caused by a stick of bombs dropped during the Second World War This has resulted in a significant microrelief limitation which in addition to some water seepage restricts mechanised access to certain areas only Consequently land utilisation is likely to be severely restricted the area being suitable for grassland use only

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SOURCES OF REFERENCE

British Geological Survey (1972) *Sheet No 302* Horsham 1 50 000 Solid & Drift Edition BGS London

Ministry of Agriculture Fisheries and Food (1972) *Agricultural Land Classification of England and Wales Report to Accompany Sheet 182 Brighton and Worthing* MAFF London

Ministry of Agriculture Fisheries and Food (1988) *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* MAFF London

Met Office (1989) *Climatological Data for Agricultural Land Classification* Met Office Bracknell

Soil Survey of England and Wales (1983) *Sheet* 6 *Soils of South East England*, 1 250,000 SSEW Harpenden

Soil Survey of England and Wales (1984) *Soils and their Use in South East England* SSEW Harpenden

APPENDIX I

DESCRIPTIONS OF THE 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 includes 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 or horticultural crops can usually be grown but on some land of this 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 land

Grade 3 Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops the timing and type of cultivation harvesting or the level of yield When 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 the 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 moist 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 severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

APPENDIX II

SOIL DATA

Contents

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database This uses notations and abbreviations as set out below

Boring Header Information

1 **GRID REF** national 100 km grid square and 8 figure grid reference

2 **USE** Land use at the time of survey The following abbreviations are used

ARA	Arable	**WHT**	Wheat	**BAR**	Barley
CER	Cereals	**OAT**	Oats	**MZE**	Maize
OSR	Oilseed rape	**BEN**	Field beans	**BRA**	Brassicae
POT	Potatoes	**SBT**	Sugar beet	**FCD**	Fodder crops
LIN	Linseed	**FRT**	Soft and top fruit	**FLW**	Fallow
PGR	Permanent pasture	**LEY**	Ley grass	**RGR**	Rough grazing
SCR	Scrub	**CFW**	Coniferous woodland	**OTH**	Other
DCW	Deciduous woodland	**BOG**	Bog or marsh	**SAS**	Set Aside
HTH	Heathland	**HRT**	Horticultural crops	**PLO**	Ploughed

3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer

4 **GLEY/SPL** Depth in centimetres (cm) to gleying and/or slowly permeable layers

5 **AP (WHEAT/POTS)** Crop adjusted available water capacity

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

7 **DRT** Best grade according to soil droughtiness

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

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

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

OC	Overall Climate	**AE**	Aspect	**ST**	Topsoil Stoniness
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
EX	Exposure				

Soil Pits and Auger Borings

1 **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)

2 **MOTTLE COL** Mottle colour using Munsell notation

3 **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% +

4 **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

5 **PED COL** Ped face colour using Munsell notation

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

7 **STONE LITH** Stone Lithology one of the following is used

HR	all hard rocks and stones	**FSST**	soft fine grained sandstone
ZR	soft argillaceous or silty rocks	**CH**	chalk
MSST	soft medium grained sandstone	**GS**	gravel with porous (soft) stones
SI	soft weathered igneous/metamorphic rock	**GH**	gravel with non porous (hard) stones

Stone contents (>2cm >6cm and total) are given in percentages (by volume)

8 **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		
Ped shape	**S**	single grain	**M**	massive
	GR	granular	**AB**	angular blocky
	SAB	sub angular blocky	**PR**	prismatic
	PL	platy		

9 **CONSIST** Soil consistence is described using the following notation

L loose	**FM** firm	**EH** extremely hard
VF very friable	**VM** very firm	
FR friable	**EM** extremely firm	

10 **SUBS STR** Subsoil structural condition recorded for the purpose of calculating profile droughtiness **G** good **M** moderate **P** poor

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

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

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

14 **CALC** If the soil horizon is calcareous a Y will appear in this column

15 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

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	--WETNESS-- GLEY	SPL	CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TQ34102970	PGR			65	65	3	3A	118	19	117	27					WE	3A	
2	TQ34002960	PGR	S	1	0	30	4	3B	94	-5	98	8					WE	3B	SEE PIT 1
3	TQ34102960	PGR			20	20	4	3B	147	48	116	26					WE	3B	SEE PIT 1
4	TQ34202960	PGR	SW	1	27	27	4	3B	183	84	127	37					WE	3B	SEE PIT 1
5	TQ34302960	PGR	SE	1	0	28	4	3B	133	34	123	33					WE	3B	SEE PIT 1
6	TQ34402960	PGR	SE	4	0	38	4	3B	141	42	115	25					WE	3B	SEE PIT 2
8	TQ34102950	PGR			30	30	4	3B	121	22	127	37					WE	3B	SEE PIT 1
9	TQ34202950	PGR	S	1	0	32	4	3B	100	1	108	18					WE	3B	SEE PIT 1
10	TQ34302950	PGR	S	1	0	25	4	4B	161	62	156	66					WE	3B	SEE PIT 1
11	TQ34402950	PGR	E	3	0	64	2	3A	161	62	125	35					WE	3A	SEE PIT 3
12	TQ34502950	PGR	SW	2	55	55	2	3A	140	41	126	36					WE	3A	SEE PIT 3
13	TQ34322940	LEY	S	1			1	2	146	47	131	41					WE	2	
14	TQ34412941	LEY	N	3	27	27	4	3B	105	6	110	20					WE	3B	SEE PIT 2
15	TQ34502940	LEY	S	2	30		1	2	116	17	112	22					WE	2	SEE PIT 3
16	TQ34432926	LEY	SE	1	22	45	4	3B	111	12	116	26					WE	3B	SEE PIT 2
17	TQ34502930	LEY	W	3	70	70	2	3A	138	39	122	32					WE	3A	SEE PIT 3
18	TQ34232939	PGR	E	1	27	27	4	3B	132	33	126	36					WE	3B	SEE PIT 1
19	TQ34362937	LEY	E	1	38	55	4	3B	107	8	111	21					WE	3B	SEE PIT 2
1P	TQ34202950	PGR	S	1	31	31	4	3B	112	13	120	30	2				WE	3B	PIT 1 AT AB 9
2P	TQ34402960	PGR	SE	4	32	32	4	3B	106	7	106	16					WE	3B	PIT 2 AT AB 6
3P	TQ34502950	PGR	SW	2	67	43	3	3A	106	7	106	16					WE	3A	PIT 3 AT AB 12

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	
1	0-27	MZCL	10YR53						0	0	HR	2							
	27 65	MZCL	10YR54						0	0	HR	10		M					
	65-90	C	25Y73	10YR58	M			Y	0	0		0		P			Y		
2	0-30	MZCL	10YR53	10YR46	C	F			0	0	HR	2							
	30-40	MZCL	10YR53	10YR46	C	F			0	0	HR	5		M			Y		
	40-58	MZCL	10YR44						0	0	HR	20		M			Y		
3	0-20	MZCL	10YR53						0	0	HR	1							
	20-50	MZCL	25Y53	10YR46	C	F		Y	0	0	HR	5		M			Y		
	50-120	MZCL	10YR44	10YR46	C			S	0	0	HR	20		P			Y		DENSE P-MATERIAL
4	0-27	ZR	10YR43						0	0		0							
	27-52	MZCL	10YR53	10YR56	C			Y	0	0	HR	5		M			Y		
	52-75	MZCL	25Y66	10YR56	C			S	0	0	HR	30		M			Y		
	75-120	ZR	10YR54	10YR68	C			S	0	0		0		P			Y		DENSE P-MATERIAL
5	0-28	MZCL	10YR42	10YR46	C	F		Y	0	0		0							
	28 42	MZCL	10YR53	10YR56	C			Y	0	0		0		M			Y		
	42 70	MZCL	25Y66	10YR56	C			S	0	0	HR	30		M			Y		
	70-85	ZR	25Y66	10YR56	C			S	0	0		0		P			Y		DENSE P-MATERIAL
6	0 28	MZCL	10YR52	10YR46	C			Y	0	0		0							
	28-38	HZCL	25Y53	10YR56	C			Y	0	0		0		M			Y		SEE PIT 2
	38-60	C	25Y72	10YR56	M			Y	0	0		0		P			Y		
	60-120	C	25Y71	10YR56	M			Y	0	0		0		P			Y		
8	0-30	MZCL	10YR53						0	0		0							
	30 45	MZCL	25Y53	10YR56	C			Y	0	0	HR	5		M			Y		
	45-60	MZCL	10YR53	10YR56	M				0	0	HR	35		M			Y		
	60-75	ZR	10YR54						0	0		0		P			Y		DENSE P-MATERIAL
9	0-32	MZCL	10YR53	10YR46	C	F		Y	0	0	HR	1							
	32-50	MZCL	25Y53	10YR46	C	F		Y	0	0	HR	20		M			Y		
	50-60	ZR	25Y64	10YR56	C			Y	0	0		0		P			Y		DENSE P-MATERIAL
10	0-25	ZL	10YR52	10YR46	C			Y	0	0	HR	2							
	25-57	MZCL	25Y62	10YR46	M			Y	0	0		0		M			Y		
	57-85	ZR	25Y81	10YR56	M			Y	0	0		0		P			Y		DENSE P-MATERIAL
11	0-32	MZCL	10YR52	10YR46	C	F		Y	0	0		0							
	32-64	MZCL	10YR44						0	0		0		M					
	64-120	HZCL	10YR54	10YR46	C			Y	0	0		0		P			Y		
12	0 35	MZCL	10YR52	10YR46	C	F		Y	0	0		0							
	35-55	MZCL	10YR54						0	0		0		M					
	55-85	HZCL	10YR53	10YR46	C			Y	0	0		0		M			Y		SEE PIT 3
	85-100	HZCL	25Y74	10YR56	M			Y	0	0	HR	20		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	IMP	SPL	CALC	
13	0-24	ZL	10YR43						0	0	HR	1							
	24-50	ZL	10YR53						0	0	HR	30		M					
	50-75	ZL	10YR54						0	0	HR	30		M					
	75-90	ZR	10YR68						0	0		0		M					
14	0-27	MZCL	10YR52						0	0	HR	1							
	27-40	HZCL	25Y63	10YR4656	C			Y	0	0	HR	10		M		Y			
	40-75	C	25Y72	10YR56	M			Y	0	0		0		P		Y			
	75-80	C	25Y73	10YR56	M			Y	0	0		0		P		Y	N		
15	0-22	MZCL	10YR43						0	0		0							
	22-30	MZCL	10YR54						0	0	HR	5		M					
	30-88	MZCL	75YR54	10YR46	S			S	0	0	HR	20		M					
16	0 22	MZCL	10YR53						0	0	HR	1							
	22 45	MZCL	10YR52	10YR46	C	F		Y	0	0	HR	5		M					SEE PIT 3
	45-65	HZCL	25Y53	10YR56	C			Y	0	0	HR	10		P		Y			
	65-80	ZC	25Y73	10YR58	M			Y	0	0		0		P		Y			
17	0-29	MZCL	10YR52						0	0	HR	1							
	29-60	MZCL	10YR54						0	0	HR	5		M					
	60-70	MZCL	10YR44	10YR46	C			S	0	0		0		M					
	70-120	HZCL	10YR62	10YR58	M			Y	0	0		0		P		Y			
18	0-27	MZCL	10YR53						0	0	HR	1							
	27-54	MZCL	25Y53	10YR46	C			Y	0	0	HR	10		M		Y			
	54-62	MZCL	25Y63	10YR56	C			Y	0	0	HR	20		M		Y			
	62-85	ZR	25Y73	10YR58	M			Y	0	0		0		P		Y			DENSE P-MATERIAL
19	0-25	MZCL	10YR53						0	0	HR	1							
	25-38	MZCL	10YR54						0	0	HR	20		M					
	38-55	HZCL	25Y63	10YR58	M			Y	0	0	HR	10		P		Y			
	55 80	ZC	25Y73	10YR58	M			Y	0	0		0		P		Y			
1P	0-31	MZCL	10YR53	10YR46	C	F		Y	0	0	HR	2							
	31-50	MZCL	25Y52	10YR56	M			Y	0	0	HR	15	MDCPR	FR	M		Y		
	50-75	ZR	25Y63	10YR56	M			Y	0	0	HR	15	MDCAB	FR	P		Y		PARENT MATERIAL
2P	0 32	MZCL	10YR52	10YR46	C			Y	0	0	HR	1							
	32 47	HZCL	25Y52	10YR56	M			Y	0	0	HR	1	MDCPR	FR	M		Y		
	47-67	HZCL	25Y62	10YR56	M			Y	0	0		0	WKCAB	FM	P		Y		
	67-87	C	25Y72	10YR58	M			Y	0	0		0	MASSVE	VM	P		Y		
3P	0 26	MZCL	10YR53						0	0	HR	1							
	26-43	MZCL	10YR44						0	0	HR	1	MDCSAB	FR	M				
	43-67	HZCL	75YR54	10YR46	C			S	0	0	HR	10	MDVCAB	FR	M		Y		
	67-87	C	10YR63	10YR56	M			Y	0	0	HR	10	MDVCPR	VM	P		Y		