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A1

New Forest District Local Plan
Objector Sites 15 and 18
Land at Ferndene Farm, New Milton
Hampshire

Agricultural Land Classification
ALC map and report
February 1997

Ministry of Agriculture Fisheries and Food

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Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference 1508/021/97
MAFF Reference EL 15/00315
LUPU Commission 02768

AGRICULTURAL LAND CLASSIFICATION REPORT

NEW FOREST DISTRICT LOCAL PLAN, OBJECTOR SITES 15 AND 18 LAND AT FERNDENE FARM, NEW MILTON, HAMPSHIRE

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 40 hectares of land on the north-western edge of New Milton in Hampshire The survey was carried out during February 1997

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food s (MAFF) Land Use Planning Unit in Reading in connection with its statutory input to the New Forest District Local Plan the site is one of a number of objector sites This survey supersedes previous ALC information for this land

3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group in ADAS 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 survey the land use on the site was a mixture of permanent grassland and cereals

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

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3a	3 2	9 4	8 0
3b	31 0	90 6	77 5
Other land	5 8	N/A	14 5
Total surveyed area	34 2	100	85 5
Total site area	40 0		100

7 The fieldwork was conducted at an average density of 1 boring per hectare A total of 37 borings and 2 soil pits was described

8 Soil wetness is the main limiting factor across the site The majority of the land has been placed in Subgrade 3b (moderate quality land) as a result of the presence of subsoils that are poorly structured which inhibit drainage throughout the profiles and cause a wetness limitation In the areas of Subgrade 3a (good quality land) the wetness limitation is less severe This type of limitation will affect the flexibility of the land by limiting the number of days when the land is in a suitable condition for grazing by livestock, for trafficking with machinery or for cultivations as well as restricting the types of crops that are suited to these wet conditions

FACTORS INFLUENCING ALC GRADE

Climate

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

10 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	SZ 242 964	SZ 235 963
Altitude	m AOD	45	50
Accumulated Temperature	day°C (Jan June)	1517	1511
Average Annual Rainfall	mm	840	846
Field Capacity Days	days	175	175
Moisture Deficit, Wheat	mm	107	106
Moisture Deficit, Potatoes	mm	101	100
Overall climatic grade	N/A	1	1

11 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

12 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

13 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation There are also no significant local factors such as exposure or frost risk affecting the area The site is climatically Grade 1 Additional interpolations show that the extreme north-western corner of the site lies at 176 field capacity days but because this is such a small area, the entire site is treated as lying at or below 175 FC days

Site

14 The site is flat or gently sloping throughout lying at 45-50 metres Gradient, microrelief and flooding do not affect the site

Geology and soils

15 The most detailed published geological information for the site (BGS 1975) shows the area to be underlain by Plateau Gravel

16 The most detailed published soils information for the site (SSEW 1983 and 1984) shows the area to contain soils of the Shabbington Association These are described as deep fine loamy and fine loamy over sandy soils variably affected by groundwater Some slowly permeable seasonally waterlogged, fine loamy over clayey soils During fieldwork, clay loams over lower subsoils of clay were found throughout the site

AGRICULTURAL LAND CLASSIFICATION

17 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

18 *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

19 A small area in the south-east of the site is placed in this subgrade (good quality agricultural land) Pit 2 is representative of these soils which experience a soil wetness limitation Medium silty clay loam topsoils overlie an upper subsoil of heavy silty clay loam texture which changes into a heavy clay loam The soils fall into Wetness Class III as a result of shallow gleying and the presence of a slowly permeable layer from approximately 55 cm The structure in the lower subsoil is moderately developed coarse angular blocky

Subgrade 3b

20 Elsewhere on the site the soils are wetter and fall into Subgrade 3b (moderate quality agricultural land) For most profiles in this mapping unit, the slowly permeable layer occurs at a shallower depth (approximately 45 cm see Pit 1 where the structures are described as coarse platy) and the soils are placed in Wetness Class IV as a result Occasional borings within this unit are impenetrable at shallow depths and show evidence of the water table very close to the surface in parts of the site particularly where the topsoil had been cultivated, the ground was saturated from the surface during fieldwork These soils have also been placed in Wetness Class IV and Subgrade 3b Given this degree of soil wetness there will be a significant restriction on the flexibility of this land - there will be a limit on the number of days when the soil is in a suitable condition for trafficking by machinery for grazing by livestock of for cultivations and the range of crops that can tolerate such conditions will also be affected

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ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1975) *Sheet No 330 Lymington*
BGS 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 South East England*
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**	Soil erosion 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 **VF** very friable **FR** friable **FM** firm **VM** very firm
EM extremely firm **EH** extremely hard

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	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1P	SZ23509605	CER	S	01	028	045	4	3B	103	-4	112	11	3A				WE	3B	
2	SZ23509650	ARA			000	040	4	3B	089	-18	095	-6	3A				WE	3B	WET35
2P	SZ24209600	PGR	SW		030	055	3	3A	119	12	121	20	2				WE	3A	
5	SZ23809650	PGR			000		4	3B	088	-19	088	-13	3A				WE	3B	NOSPL
6	SZ23909650	PGR	S		028	050	3	3A	000	0	000	0					WE	3A	WT50
8	SZ24109650	PGR	S		030	045	4	3B	096	-11	108	7	3A				WE	3B	
9	SZ24209650	PGR	S		030		3	3A	063	-44	063	-38	3B				WE	3A	IMPQWC
10	SZ23409640	PGR			000		4	3B	064	-43	064	-37	3B				WE	3B	IMPWET30
11	SZ23509640	ARA			000		4	3B	081	-26	081	-20	3B				WE	3B	IMPWET38
12	SZ23609640	ARA	S		028		4	3B	062	-45	062	-39	3B				DR	3B	
13	SZ23709640	ARA			030	040	4	3B	089	-18	095	-6	3A				WE	3B	SPLWET30
15	SZ23909640	PGR	S		065	065	2	2	000	0	000	0					WE	2	
16	SZ24009640	PGR	S		033	055	3	3A	000	0	000	0					WE	3A	
17	SZ24109640	PGR	S	01	035	045	4	3B	000	0	000	0					WE	3B	
18	SZ24209640	PGR	S		042	060	3	3A	000	0	000	0					WE	3A	
19	SZ23409630	PGR			000		4	3B	000	0	000	0					WE	3B	WT30
20	SZ23509630	CER	S	01	000		4	3B	000	0	000	0					WE	3B	POSS SPL
21	SZ23609630	CER	S	01	000	045	4	3B	000	0	000	0					WE	3B	QUERYSPL
22	SZ23709630	ARA			028	050	3	3A	101	-6	113	12	3A				WE	3A	
24	SZ23909630	HRT	S	01	030		4	3B	100	-7	108	7	3A				WE	3B	EDIT SPL
25	SZ24009630	HRT	S		000	045	4	3B	099	-8	111	10	3A				WE	3B	ANAEROBI
26	SZ24109630	PGR	S		000	045	4	3B	000	0	000	0					WE	3B	
27	SZ24209630	PGR	S		000	045	4	3B	000	0	000	0					WE	3B	
28	SZ24309630	PGR	S		035		4	3B	000	0	000	0					WE	3B	IMP60QWC
30	SZ23509620	ARA	S		030	065	3	3A	114	7	115	14	2				WE	3A	
31	SZ23609620	CER	S	01	025	040	4	3B	000	0	000	0					WE	3B	WT20
32	SZ23709620	ARA			000	045	4	3B	094	-13	102	1	3A				WE	3B	
33	SZ24009620	PGR	S		000	047	4	3B	000	0	000	0					WE	3B	IMP 90CM
34	SZ24109620	PGR	SW	01	035	055	3	3A	120	13	118	17	2				WE	3A	IMP 90CM
35	SZ24209620	PGR	S		042	080	2	2	000	0	000	0					WE	2	
36	SZ23509610	ARA			028	045	4	3B	094	-13	103	2	3A				WE	3B	
37	SZ23609610	ARA			000	045	4	3B	095	-12	103	2	3A				WE	3B	
38	SZ24109610	PGR	SW	01	030	045	4	3B	109	2	114	13	3A				WE	3B	QHZCL 45
39	SZ24209610	PGR	S		025	043	4	3B	000	0	000	0					WE	3B	IMP
40	SZ23509600	ARA			028	028	4	3B	086	-21	091	-10	3B				WE	3B	
41	SZ24109600	PGR	SW	01	037	060	3	3A	126	19	120	19	2				WE	3A	IMP
42	SZ24209600	PGR	S		035	055	3	3A	000	0	000	0					WE	3A	IMP
43	SZ24309600	PGR	S		058	058	3	3A	000	0	000	0					WE	3A	IMP
44	SZ	PGR	SW	01	045	075	2	2	000	0	000	0					WE	2	
45	SZ	PGR	S		050	065	2	2	000	0	000	0					WE	2	IMP

SOIL PIT DESCRIPTION

Site Name NFDLP SITES 15/18 Pit Number 1P

Grid Reference SZ23509605

Average Annual Rainfall	840 mm
Accumulated Temperature	1517 degree days
Field Capacity Level	175 days
Land Use	Cereals
Slope and Aspect	01 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR42 00	0	2	HR	F				
28- 45	HCL	10YR53 00	0	0		M			M	
45- 75	C	10YR63 00	0	0		M	WCPLAT	FR	P	

Wetness Grade 3B

Wetness Class	IV
Gleying	028 cm
SPL	045 cm

Drought Grade 3A

APW	103mm	MBW	-4 mm
APP	112mm	MBP	11 mm

FINAL ALC GRADE 3B

MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name NFDLP SITES 15/18 Pit Number 2P

Grid Reference SZ24209600

Average Annual Rainfall	840 mm
Accumulated Temperature	1517 degree days
Field Capacity Level	175 days
Land Use	Permanent Grass
Slope and Aspect	degrees SW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR33 00	0	2	HR					
30- 55	HZCL	10YR53 00	0	2	HR	M	MCSAB	FM	M	
55- 80	HCL	10YR62 53	0	2	HR	M	MCAB	FR	M	

Wetness Grade 3A

Wetness Class	III
Gleying	030 cm
SPL	055 cm

Drought Grade 2

APW	119mm	MBW	12 mm
APP	121mm	MBP	20 mm

FINAL ALC GRADE 3A

MAIN LIMITATION Wetness

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
1P	0-28	mzcl	10YR42 00	000C00	00	F			0	0	HR	2						
	28-45	hcl	10YR53 00	10YR58	00	M		Y	0	0		0		M				
	45-75	c	10YR63 00	75YR58	00	M		Y	0	0		0	WCPLAT FR	P	Y		Y	
2	0-30	mzcl	10YR42 00	000C00	00	C		Y	0	0	HR	5						
	30-40	hzcl	10YR52 00	000C00	00	M		Y	0	0	HR	10		M				
	40-60	c	10YR52 00	000C00	00	M		Y	0	0	HR	5		P	Y		Y	
2P	0-30	mzcl	10YR33 00						0	0	HR	2						
	30-55	hzcl	10YR53 00	10YR56	00	M		Y	0	0	HR	2	MCSAB FM	M				
	55-80	hcl	10YR62 53	75YR58	00	M		Y	0	0	HR	2	MCAB FR	M	Y		Y	
5	0-30	hzcl	10YR52 00	000C00	00	M		Y	1	0	HR	5						
	30-50	hzcl	10YR62 00	000C00	00	M		Y	0	0	HR	2		M				
6	0-28	zl	10YR33 00						0	0		0						
	28-50	hzcl	25 Y62 00	10YR58	00	M		Y	0	0		0		M				
	50-100	c	25 Y61 63	10YR58	00	M		Y	0	0	HR	10		P			Y	
8	0-30	mcl	10YR43 00						0	0	HR	2						
	30-45	hzcl	10YR53 00	000C00	00	M		Y	0	0		0		M				
	45-70	hzcl	10YR53 00	000C00	00	M		Y	0	0		0		P	Y		Y	
9	0-30	mcl	10YR42 00						0	0	HR	10						
	30-40	mzcl	10YR52 00	000C00	00	C		Y	0	0	HR	20		M				
10	0-28	mcl	10YR42 00	000C00	00	M		Y	0	0	HR	5						
	28-40	mcl	10YR52 00	000C00	00	M		Y	0	0	HR	20		M				
11	0-30	mzcl	10YR42 00	000C00	00	C		Y	2	0	HR	7						
	30-40	hzcl	10YR52 00	000C00	00	M		Y	0	0	HR	15		M				
	40-50	hzcl	10YR52 00	000C00	00	M		Y	0	0	HR	25		M				
12	0-28	mzcl	10YR42 00						6	0	HR	15						
	28-40	hzcl	10YR53 00	000C00	00	C		Y	0	0	HR	20		M				
13	0-30	mzcl	10YR52 00						1	0	HR	5						
	30-40	hzcl	10YR52 00	000C00	00	C		Y	0	0	HR	10		M				
	40-60	c	10YR53 00	000C00	00	M		Y	0	0	HR	2		P	Y		Y	
15	0-35	zl	10YR33 00						0	0	HR	2						
	35-65	hzcl	10YR54 00						0	0		0		M				
	65-90	c	10YR53 00	10YR56	00	M		Y	0	0		0		P			Y	
16	0-33	zl	10YR42 00						0	0	HR	2						
	33-55	hzcl	25 Y62 63	10YR58	00	M		Y	0	0		0		M				
	55-80	zc	25 Y61 63	10YR58	00	M		Y	0	0	HR	10		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
17	0-35	zl	10YR31 00						0	0	HR	2						
	35-45	hzcl	25 Y61 63 75YR58 00	C				Y	0	0	HR	10		M				
	45-70	c	25 Y61 63 75YR58 00	M				Y	0	0	HR	20		P			Y	
18	0-30	mcl	10YR43 00						0	0	HR	2						
	30-42	hcl	75YR54 00						0	0		0		M				
	42-60	hcl	75YR63 00 000C00	00	C			Y	0	0		0		M				
	60-80	hcl	75YR53 00 000C00	00	M			Y	0	0		0		P			Y	
19	0-30	mcl	10YR42 00 10YR46	00	C			Y	0	0	HR	5						
	30-55	mzcl	25 Y52 00 10YR46	00	C			Y	0	0	HR	5		M				
20	0-38	mcl	10YR42 00 10YR46	00	C			Y	3	0	HR	10						
	38-50	c	25 Y61 00 25 Y66	00	C			Y	0	0	HR	15		M				
21	0-35	mcl	10YR42 00 10YR46	00	C			Y	3	0	HR	10						
	35-45	mcl	25 Y42 00 25 Y56	00	C			Y	0	0	HR	10		M				
	45-70	c	25 Y61 00 10YR58	00	M			Y	0	0	HR	10		P			Y	
22	0-28	mzcl	10YR52 00						0	0	HR	5						
	28-50	hzcl	10YR53 00 000C00	00	C			Y	0	0	HR	2		M				
	50-70	c	75YR53 00					Y	0	0		0		P	Y		Y	
24	0-30	mzcl	10YR42 00						1	0	HR	2						
	30-40	mzcl	10YR42 00 10YR46	00	C			Y	0	0	HR	2		M				
	40-75	c	10YR62 00 10YR58	00	M			Y	0	0	HR	10		P				
25	0-30	mzcl	05Y 42 00					Y	2	0	HR	4						
	30-45	mzcl	05Y 42 00					Y	0	0	HR	2		M				
	45-70	c	10YR62 00 10YR58	00	M			Y	0	0	HR	5		P			Y	
26	0-35	zl	10YR42 00 10YR46	00	C		00MN00 00	Y	0	0		0						
	35-45	hzcl	10YR53 00 10YR56	00	C			Y	0	0		0		M				
	45-70	c	25 Y61 00 10YR58	00	M			Y	0	0	HR	10		P			Y	
27	0-28	mzcl	10YR42 00 10YR46	00	C			Y	0	0		0						
	28-45	hzcl	10YR52 00 10YR58	00	M			Y	0	0		0		M				
	45-70	c	25 Y62 00 10YR68	00	M			Y	0	0	HR	10		P			Y	
28	0-35	mcl	10YR31 00						0	0	HR	2						
	35-60	hcl	25 Y63 00 25 Y56	00	M			Y	0	0	HR	15		M				
30	0-30	mzcl	10YR42 00						0	0	HR	5						
	30-40	hcl	25Y 53 00 000C00	00	C			Y	0	0	HR	2		M				
	40-65	hcl	25Y 53 00 000C00	00	M			Y	0	0	HR	2		M				
	65-85	hcl	25Y 53 00 000C00	00	M			Y	0	0		0		P			Y	
31	0-25	mcl	10YR43 00 10YR46	00	F				1	0	HR	5						
	25-40	hcl	10YR52 00 10YR46	00	M		00MN00 00	Y	0	0	HR	2		M				
	40-110	c	25 Y53 00 75YR58	00	M		00MN00 00	Y	0	0	HR	2		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
32	0-30	mzcl	10YR42 00	000C00 00	C			Y	0	0	HR	5						
	30-45	hcl	75YR53 00	000C00 00	C			Y	0	0	HR	2		M				
	45-65	hcl	75YR53 00	000C00 00	M			Y	0	0		0		P	Y		Y	
33	0-28	mzcl	10YR42 00		C			Y	0	0		0						
	28-35	mzcl	25Y 64 00	10YR58 00	C			Y	0	0		0		M				
	35-47	hzcl	25Y 62 64	25Y 58 00	M			Y	0	0		0		M				
	47-90	c	10YR61 00	10YR58 00	M			Y	0	0	HR	10		P			Y	
34	0-35	mzcl	10YR42 00						0	0		0						
	35-55	hzcl	10YR53 00	10YR58 00	M			Y	0	0		0		M				
	55-90	zc	10YR53 00	10YR58 00	M			Y	0	0	HR	5		P			Y	
35	0-35	mzcl	10YR42 00						0	0		0						
	35-42	hzcl	10YR44 00						0	0		0		M				
	42-60	hzcl	10YR64 54	10YR58 00	C			Y	0	0		0		M				
	60-80	mzcl	25 Y62 64	10YR58 00	M			Y	0	0		0		M				
	80-100	c	10YR61 00	10YR58 00	M			Y	0	0		0		P			Y	
36	0-28	mzcl	10YR42 00						0	0	HR	5						
	28-45	hcl	10YR42 00	000C00 00	C			Y	0	0	HR	2		M				
	45-65	c	75YR53 00	000C00 00	M			Y	0	0		0		P	Y		Y	
37	0-28	mzcl	10YR52 00	000C00 00	C			Y	0	0	HR	2						
	28-45	mcl	10YR53 00	000C00 00	C			Y	0	0	HR	2		M				
	45-65	hcl	10YR53 00	000C00 00	M			Y	0	0		0		P	Y		Y	
38	0-30	mzcl	25Y 42 00						0	0		0						
	30-35	mzcl	25Y 52 00	10YR46 00	C			Y	0	0		0		M				
	35-45	hzcl	10YR53 00	10YR58 00	M			Y	0	0		0		M				
	45-80	c	10YR61 00	10YR58 00	M			Y	0	0	HR	2		P			Y	
39	0-25	mzcl	10YR41 00		F		000C00 00		0	0	HR	1						
	25-43	hzcl	10YR53 00	10YR58 00	C			Y	0	0	HR	1		M				
	43-60	c	10YR53 00	10YR58 00	M			Y	0	0	HR	20		P			Y	
40	0-28	mzcl	10YR42 00						0	0	HR	2						
	28-60	hcl	25Y 63 00	000C00 00	M			Y	0	0		0		P	Y		Y	
41	0-30	mzcl	10YR42 00						0	0		0						
	30-37	mzcl	10YR52 00						0	0		0		M				
	37-60	hzcl	25Y 62 64	10YR58 00	C			Y	0	0		0		M				
	60-100	c	10YR61 00	10YR58 00	M			Y	0	0	HR	10		P			Y	
42	0-35	mzcl	10YR33 00						0	0		0						
	35-55	hzcl	10YR53 00	10YR56 00	C			Y	0	0		0						
	55-80	c	10YR63 00	10YR58 00	M			Y	0	0	HR	5		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
43	0-30	mzcl	10YR32 00						0	0		0						
	30-58	mzcl	10YR42 00						0	0	HR	1		M				
	58-90	zc	10YR53 00	10YR56 00	M			Y	0	0	HR	15		P			Y	
44	0-28	mzcl	10YR42 00						0	0		0						
	28-45	mzcl	10YU54 00	10YR58 00	F				0	0		0		M				
	45-75	hzcl	10YR53 54	10YR58 00	C			Y	0	0		0		M				
	75-90	c	10YR61 00	10YR58 00	M			Y	0	0	HR	10		P			Y	
45	0-30	mzcl	10YR42 00						0	0		0						
	30-50	mzcl	10YR54 00						0	0	HR	2		M				
	50-65	hzcl	10YR53 54	10YR58 00	C			Y	0	0	HR	2		M				
	65-110	c	10YR53 54	10YR58 00	M			Y	0	0	HR	5		P			Y	