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ARUN DISTRICT LOCAL PLAN REVIEW
Objector Sites 5 & 12
Land East of Westergate,
West Sussex
Agricultural Land Classification
ALC Map and Report

March / April 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

ARUN DISTRICT LOCAL PLAN REVIEW
SITES 5 AND 12 LAND EAST OF WESTERGATE, WEST SUSSEX

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 19 8 hectares of land located to the east of the village of Westergate and south of Eastergate near Bognor Regis in West Sussex The survey was carried out during March 1997

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Arun District Local Plan Review The results of this survey supersede any previous ALC information for this land

3 Prior to 1 April 1997 the work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS After this date the work was completed by the same team as part of the Farming and Rural Conservation Agency (FRCA, Reading) 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 agricultural land at this site was either permanent grazing unmanaged grassland or in arable use The areas mapped as Other Land are located towards the west of the site and comprise impenetrable scrub and public open space

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 below

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	8 0	45 2	40 4
3a	1 9	10 7	9 6
3b	7 8	44 1	39 4
Other land	2 1	N/A	10 6
Total surveyed area	17 7	100	89 4
Total site area	19 8		100

7 The fieldwork was conducted at an average density of slightly more than 1 boring per hectare of agricultural land A total of 23 borings and three soil pits were described

8 The agricultural land on this site has been classified in the range Grade 2 (very good quality) to Subgrade 3b (moderate quality) including some Subgrade 3a (good quality) The limitations to land quality include soil droughtiness and soil wetness

9 The areas of Grade 2 and Subgrade 3a within the site are principally limited by soil droughtiness The soils comprise medium silty textures occasionally overlying light loams at depth or occasionally becoming moderately to very stony in the lower subsoil Soil droughtiness may affect plant growth, as the supply of available water may be deficient especially in drier years A few individual observations are also limited by soil wetness

10 The area of Subgrade 3b land is located towards the centre and east of the site To the north of the drainage channel running east-west across the site soil droughtiness is the principal limitation In this area the soils are of medium silty texture and are commonly very occasionally extremely stony In the local climate the droughtiness limitation that the high stone content causes will affect plant growth, development and yield potential especially in drier years To the south of the drainage channel there is an abrupt change in soil type Here the soils are predominantly clayey and they exhibit signs of a moderate soil wetness limitation which, in the local climate leads to Subgrade 3b being appropriate Soil wetness restricts land utilisation by adversely affecting plant growth and restricting the timing of mechanised operations or stocking

FACTORS INFLUENCING ALC GRADE

Climate

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

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

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 942 044	SU 942 050
Altitude	m AOD	5	10
Accumulated Temperature	day C (Jan June)	1543	1537
Average Annual Rainfall	mm	769	775
Field Capacity Days	days	157	158
Moisture Deficit, Wheat	mm	118	117
Moisture Deficit Potatoes	mm	115	114
Overall climatic grade	N/A	Grade 1	Grade 1

13 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

14 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 (AT0 January to June) as a measure of the relative warmth of a locality

15 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation Other local climatic factors such as exposure and frost risk are also believed not to affect the site The site is climatically Grade 1

Site

16 The site lies at altitudes in the range 5-10m AOD The highest land is towards the north west and south west of the site From these points the land slopes gently towards the centre of the site where a drainage channel runs to the eastern boundary which is a stream None of the slopes are steep enough to adversely affect agricultural land quality

Geology and soils

17 The published geological information for the site (BGS 1975) shows the site to be underlain by three deposits To the north and north west valley gravels are shown To the south west brickearth is indicated and in a narrow strip along the stream to the east of the site alluvium has been mapped

18 The most detailed published soils information for the site (SSGB 1967) shows this site to be underlain by a total of four soil series Hook series soils are shown in the north of the site These are commonly silty moderately well drained and variably stony Soils fitting this general description were found in this area of the site Across the centre of the site soils of the Calcetto series and Gade and Titchfield complexes are mapped These generally comprise variably stony and loamy soils which are variably affected by both groundwater and surface water and exhibit this in the form of extensive gleying The soils encountered in this part of the site were variable north of the drainage channel running to the east of the site the soils were loamy rarely gleyed but very stony To the south of the drainage channel the soils were clayey gleyed and only occasionally stony in the lower subsoil Towards the south west of the site Park Gate series soils are mapped These are described as being typically silty and moderately well drained (SSGB 1967) Soils similar to this description were found in this area of the site

AGRICULTURAL LAND CLASSIFICATION

19 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

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

Grade 2

21 Land of very good quality has been mapped in two areas at this site to the north west and south west of the site

22 The land in this area is principally limited by soil droughtiness although soil wetness can be equally limiting at some locations Soils commonly comprise a slightly stony medium silty clay loam topsoil passing to a similarly textured though commonly stone free and occasionally gleyed upper subsoil in some observations this extended to depth (120cm) However the lower subsoil in the majority of the profiles in this mapping unit was more variable Occasionally it comprised a stone free permeable gleyed heavy silty clay loam which either occurred to depth (120cm) or was impenetrable to the soil auger due to stones between 80 and 85cm In the remaining observed profiles the lower subsoil was gleyed and comprised either a heavy silty clay loam overlying medium silty clay loam and medium sandy loam or a medium silty clay loam overlying medium sandy loam and loamy medium sand horizons which were commonly stoneless Such soils are permeable and allocated to Wetness Class I or II depending on the depth to gleying

23 These soils are generally water retentive but in the locally relatively dry climate they have a tendency to be slightly restricted by soil droughtiness This leads to the possibility of plant growth and yield being adversely affected especially in drier years In addition the majority of the observed profiles exhibited signs of soil wetness in the form of gleying due to fluctuating groundwater This will slightly restrict the versatility of the land by restricting the number of days when cultivations or stocking may occur without damaging the soil structure However this does not affect the classification in the majority of cases

Subgrade 3a

24 Land of good quality has been mapped in a single unit towards the south and west of the site The principal limitation is soil droughtiness The soil pit 3P is representative of the soil type found in these areas

25 The soils in this area are essentially similar (Wetness Class I and II) in texture to those described above for Grade 2 except that overall the stone content is greater and as such in the local climate the water available to crops is slightly more restricted Soils comprise a slightly stony (8% v/v total flints) medium silty clay loam topsoil overlying a moderately stony (up to 15% v/v total flints) medium silty clay loam upper subsoil This passes to a moderately stony (25% v/v total flints) heavy silty clay loam horizon overlying a medium silty clay loam lower subsoil containing 35% v/v total flints this was impenetrable to the soil auger and spade at 85cm Other observations in this map unit were impenetrable to the soil auger at slightly shallower depths (65cm) The stone content of the soil profile is such that the water available to plants is restricted to the extent that moisture balances given local climatic factors are in the Subgrade 3a range Soil droughtiness will restrict plant growth and yield especially in drier years

Subgrade 3b

26 Land of moderate quality has been mapped in a single mapping unit It is located towards the centre and east of the site Principal limitations to land quality include soil

droughtiness to the north of the drain (located towards the centre of the site) and soil wetness to the south of this feature

27 Within the Subgrade 3b mapping unit two separate soil types were observed To the north of the drain, the principal limitation is soil droughtiness In this area the soils are well drained (Wetness Class I) and are characterised by the soil pit 1P (see Appendix II) They comprise a slightly to moderately stony (up to 37% v/v total flints including up to 17% > 2cm) medium silty clay loam topsoil overlying moderately to very stony (up to 65% v/v total flints including up to 50% > 2cm) medium and heavy silty clay loam subsoil horizons These were commonly impenetrable to the soil auger between 25 and 45cm and to the spade at 55cm Rooting was observed to extend to at least 55cm and assumed to penetrate further The stone content of these profiles leads the available water to plants to be restricted to the extent that in the local climate Subgrade 3b is the appropriate classification Plant growth and yield potential are likely to be significantly and adversely affected by this restriction

28 To the south of the drain located towards the centre of the site the soils are distinctly different and principally limited by soil wetness The pit observation 2P (see Appendix II) is representative of the soils observed here They commonly comprise a stoneless medium or heavy silty clay loam or clay topsoil which may be gleyed This passes to a stone free poorly structured gleyed and slowly permeable clay subsoil The depth to the gleyed and slowly permeable horizons results in the soils being ascribed to Wetness Class IV Given the local climate and topsoil textures Subgrade 3b is the appropriate classification for these wet soils Soil wetness has the effect of restricting land utilisation by limiting the number of days when cultivation or grazing may occur without damaging the soil structure It can also restrict crop yield growth and rooting

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SOURCES OF REFERENCE

British Geological Survey (1975) *Sheet 317 Bognor Drift Edition 1 63 360 Scale* 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

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

Soil Survey of Great Britain (1967) *Soils of the West Sussex Coastal Plain 1 25 000 Scale* SSGB Harpenden

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

Soil Survey of England and Wales (1984) *Soils of South East England. Bulletin No 15* 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	**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

SOIL PIT DESCRIPTION

Site Name ARUN DLP SITES 5 & 12 Pit Number 1P

Grid Reference SU94200470
Average Annual Rainfall 769 mm
Accumulated Temperature 1543 degree days
Field Capacity Level 157 days
Land Use Permanent Grass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 22	MZCL	10YR33 00	8	13	HR					
22 36	MZCL	10YR43 00	50	55	HR			FR	M	
36 45	HZCL	10YR43 00	40	61	HR			FR	M	
45- 55	HZCL	10YR42 00	0	65	HR			FR	M	

Wetness Grade 1
Wetness Class I
Gleying cm
SPL cm

Drought Grade 4
APW 60 mm MBW -58 mm
APP 61 mm MBP -54 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name ARUN DLP SITES 5 & 12 Pit Number 2P

Grid Reference SU94200460
Average Annual Rainfall 769 mm
Accumulated Temperature 1543 degree days
Field Capacity Level 157 days
Land Use Permanent Grass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	MZCL	10YR42 43	0	0						
25- 55	C	25 Y41 42	0	0		C	MDCAB	FM	P	

Wetness Grade 3B
Wetness Class IV
Gleying 25 cm
SPL 25 cm

Drought Grade
APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name ARUN DLP SITES 5 & 12 Pit Number 3P

Grid Reference SU94100460

Average Annual Rainfall	769 mm
Accumulated Temperature	1543 degree days
Field Capacity Level	157 days
Land Use	Wheat
Slope and Aspect	2 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR43 53	1	8	HR					
28- 48	MZCL	10YR53 54	0	15	HR	F	MDCSAB	FR	M	
48- 63	HZCL	10YR53 00	0	25	HR	C	MDCSAB	FR	M	
63- 85	MZCL	10YR52 00	0	35	HR	M		FR	M	

Wetness Grade 1

Wetness Class	I
Gleying	48 cm
SPL	cm

Drought Grade 3A

APW	106mm	MBW	-12 mm
APP	106mm	MBP	-9 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Droughtiness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
1	SU94200500	PGR	E	3			1	1	31	-87	31	-84	4				DR	3B	SEE 1P
1P	SU94200470	PGR					1	1	60	-58	61	-54	4				DR	3B	IMP 55 3B-120
2	SU94000490	PGR			65		1	1	106	-12	119	4	3A				DR	3A	IMP 70 SEE 3P
2P	SU94200460	PGR			25	25	4	3B		0		0					WE	3B	PIT 55
3	SU94200490	PGR	E	2	22	22	2	3A	53	-65	53	-62	4				TS	3B	IMP 45 SEE 1P
3P	SU94100460	WHT	N	2	48		1	1	106	-12	106	-9	3A				DR	3A	PIT IMP 85
4	SU94100480	PGR					1	1	56	-62	56	-59	4				DR	3B	IMP 32 SEE 1P
5	SU94200480	PGR					1	1	49	-69	49	-66	4				DR	3B	IMP 30 SEE 1P
6	SU94100470	PGR					1	1	59	-59	59	-56	4				DR	3B	IMP 35 SEE 1P
7	SU94200470	PGR					1	1	49	-69	49	-66	4				DR	3B	IMP 30 SEE 1P
8	SU94100460	WHT	N	2	28		2	2	97	-21	105	-10	3B				DR	3A	IMP 65 SEE 3P
9	SU94200460	PGR			28	28	4	3B		0		0					WE	3B	SEE 2P
10	SU94100450	WHT			28		2	2	156	38	122	7	2				WD	2	
11	SU94200450	WHT	NE	2			1	1	54	-64	54	-61	4				DR	3A	IMP30 SEE1P/3P
12	SU94100440	WHT			65		1	1	157	39	121	6	2				DR	2	
13	SU94200440	WHT	E	4	35		2	2	126	8	125	10	2				WD	2	
14	SU94300440	PGR	E	2	0	25	4	3B		0		0					WE	3B	SEE 2P
15	SU94140507	PGR					1	1	158	40	123	8	2				DR	2	
16	SU94090490	PGR			22		2	2	48	-70	48	-67	4				DR	3B	IMP 30 SEE 1P
17	SU94020480	PGR			0		2	2	82	-36	82	-33	3B				DR	3B	IMP 50 SEE 3P
18	SU94010474	PGR	S	1	0	20	4	3B		0		0					WE	3B	SEE 2P
19	SU94000460	RGR			55		1	1	152	34	124	9	2				DR	2	
20	SU94000450	RGR			30		2	2	159	41	123	8	2				WD	2	
21	SU94140499	PGR			45		1	1	118	0	123	8	3A				DR	2	IMP 80 SEE 3P
22	SU94260447	PGR			10	10	4	3B		0		0					WE	3B	IMP 55 SEE 2P
23	SU94130465	PGR			25	25	4	3B		0		0					WE	3B	IMP 55 SEE 2P

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-14	mzcl	10YR32 00	10YR56 00	F				13	5	HR	33							
	14-25	mzcl	10YR54 00						0	0	HR	33		M					IMP FLINTS 25
1P	0-22	mzcl	10YR33 00						8	4	HR	13							STONES SAMPLED
	22 36	mzcl	10YR43 00						50	0	HR	55		FR M					STONES SAMPLED
	36-45	hzcl	10YR43 00						40	0	HR	61		FR M					STONES SAMPLED
	45-55	hzcl	10YR42 00						0	0	HR	65		FR M					
2	0-30	mzcl	10YR43 53	10YR46 00	F				0	0	HR	3							
	30-65	mzcl	10YR44 54	10YR56 00	F				0	0	HR	5		M					
	65-70	mzcl	75YR54 00	75YR56 00	C			S	0	0	HR	25		M					IMP FLINTS 70
2P	0-25	mzcl	10YR42 43						0	0		0							
	25 55	c	25 Y41 42	75YR56 00	C		25 Y41 00	Y	0	0		0	MDCAB	FM P	Y		Y		
3	0 22	hcl	10YR42 00						17	8	HR	37							
	22 45	c	25 Y53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	10		P		Y			IMP FLINTS 45
3P	0 28	mzcl	10YR43 53						1	0	HR	8							
	28-48	mzcl	10YR53 54	10YR58 00	F		00MN00 00		0	0	HR	15	MDCSAB	FR M					
	48 63	hzcl	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	25	MDCSAB	FR M					STONES SAMPLED
	63 85	mzcl	10YR52 00	10YR58 00	M			Y	0	0	HR	35		FR M					STONE SAMPLE IMP 85
4	0-30	mzcl	10YR41 00						0	0	HR	5							
	30-32	mzcl	10YR52 00						0	0	HR	50		M					IMP FLINTS 32
5	0-20	mzcl	10YR33 00						0	0	HR	2							
	20 30	mzcl	10YR34 00						0	0	HR	30		M					IMP FLINTS 30
6	0 23	mzcl	10YR33 00						0	0	HR	5							
	23 35	hzcl	10YR43 00						0	0	HR	15		M					IMP FLINTS 35
7	0-23	mzcl	10YR33 00						4	2	HR	8							
	23-30	mzcl	10YR33 00						0	0	HR	30		M					IMP FLINTS 30
8	0 28	mzcl	10YR43 53						1	0	HR	5							
	28 50	mzcl	10YR53 54	10YR56 00	C			Y	0	0	HR	5		M					
	50-65	hzcl	25Y 53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	30		M					IMP FLINTS 65
9	0-28	mzcl	10YR33 00						0	0		0							
	28-55	c	10YR53 00	75YR56 00	C			Y	0	0		0		P		Y			
	55 120	c	10YR52 00	75YR56 00	M			Y	0	0		0		P		Y			
10	0-28	mzcl	10YR43 00						1	0	HR	5							
	28-60	mzcl	10YR53 63	10YR58 00	C		00MN00 00	Y	0	0		0		M					
	60-80	hzcl	10YR62 00	10YR58 00	C		00MN00 00	Y	0	0		0		M					
	80-110	mzcl	25Y 62 00	75YR58 00	M		00MN00 00	Y	0	0	HR	10		M					
	110-120	msl	10YR53 00	75YR58 00	M		00MN00 00	Y	0	0		0		M					

				----MOTTLES-----			PED		----STONES----			STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
11	0-25	mzcl	10YR43 00						0	0	HR	5						
	25-30	mzcl	10YR54 00						0	0	HR	2		M				IMP FLINTS 30
12	0-30	mzcl	10YR43 53						1	0	HR	5						
	30-65	mzcl	10YR54 00	10YR56	00 F				0	0	HR	2		M				
	65-120	mzcl	10YR52 53	10YR58	00 C		00MN00	00 Y	0	0		0		M				
13	0-35	mzcl	10YR43 00						0	0	HR	2						
	35-55	mzcl	10YR43 00	75YR56	00 C		00MN00	00 Y	0	0		0		M				
	55-85	hzcl	10YR52 00	10YR58	00 M			Y	0	0		0		M				IMP FLINTS 85
14	0-25	mzcl	10YR42 00	75YR46	00 C			Y	0	0	HR	2						
	25-45	zc	10YR53 51	75YR48	00 M			Y	0	0	HR	2		P		Y		
	45-85	c	05 Y51 00	75YR58	00 M			Y	0	0	HR	5		P		Y		
15	0-30	mzcl	10YR43 53	10YR46	00 F				0	0	HR	2						
	30-50	mzcl	10YR53 00						0	0	HR	2		M				
	50-120	hzcl	75YR54 00	10YR56	00 F				0	0	HR	2		M				
16	0-22	mzcl	10YR42 52						0	0	HR	10						
	22-30	mzcl	10YR52 00	10YR56	00 C			Y	0	0	HR	30		M				IMP FLINTS 30
17	0-25	mzcl	10YR42 52	10YR46	00 C			Y	0	0	HR	5						
	25-45	mzcl	25Y 52 62	10YR58	00 C			Y	0	0	HR	10		M				
	45-50	mzcl	25Y 63 00	10YR58	00 C			Y	0	0	HR	30		M				IMP FLINTS 50
18	0-20	c	25Y 42 00	10YR58	68 C			Y	0	0	HR	5						
	20-70	c	25Y 53 00	10YR68	00 M		00MN00	00 Y	0	0	HR	10		P		Y		
19	0-30	mzcl	10YR42 00						0	0	HR	2						
	30-55	mzcl	10YR54 00	10YR56	00 F				0	0		0		M				
	55-75	mzcl	10YR53 62	10YR58	00 C		00MN00	00 Y	0	0		0		M				
	75-100	ms1	25Y 62 00	10YR58	00 M			Y	0	0		0		M				
	100-120	lms	25Y 62 00	10YR58	00 M			Y	0	0		0		M				
20	0-30	mzcl	10YR42 00						0	0	HR	3						
	30-55	mzcl	10YR54 64	10YR56	00 C			Y	0	0		0		M				
	55-120	mzcl	25Y 62 00	75YR58	00 M		00MN00	00 Y	0	0		0		M				
21	0-30	mzcl	10YR42 00						0	0	HR	2						
	30-45	mzcl	10YR44 54	00MN00	00 F				0	0		0		M				
	45-75	mzcl	10YR54 00	10YR56	00 C		00MN00	00 Y	0	0	HR	3		M				
	75-80	mzcl	10YR54 00	10YR56	00 C		00MN00	00 S	0	0	HR	30		M				
22	0-10	hzcl	10YR31 41						0	0		0						
	10-55	c	25Y 42 00	75YR58	00 M		00MN00	00 Y	0	0		0		P		Y		IMP FLINTS 55
23	0-25	hzcl	10YR42 00	10YR46	00 F				0	0	HR	2						
	25-55	c	25Y 41 51	75YR58	00 C			Y	0	0		0		P		Y		IMP FLINTS 55