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ISLE OF WIGHT UNITARY DEVELOPMENT PLAN
OBJECTOR SITES
Land at Westridge Farm, Elmfield

Agricultural Land Classification
ALC Map and Report

September 1998

Resource Planning Team
Eastern Region
FRCA Reading

RPT Job Number: 1600/085/98
MAFF Reference: EL 16/01251

AGRICULTURAL LAND CLASSIFICATION REPORT

ISLE OF WIGHT UNITARY DEVELOPMENT PLAN - OBJECTOR SITES
LAND AT WESTRIDGE FARM, ELMFIELD

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 31.0 hectares of land at Westridge Farm, Elmfield, to the east of Ryde on the Isle of Wight. The survey was carried out during September 1998.

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), in connection with its statutory input to the Isle of Wight Unitary Development Plan. The survey covers two areas put forward as objector sites, these are outlined on the accompanying map. In order to provide a context for appraising these sites, further, adjacent land was also surveyed. This survey supersedes any previous ALC information for this land.

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 survey the land was in permanent and ley grassland, oilseed rape, and stubble. The areas mapped as 'Other land' include agricultural buildings, residential gardens and woodland.

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 objector sites and all of the surveyed land are summarised in Tables 1 to 3 inclusive.

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 33 borings and four soil pits were described.

Table 1: Area of grades - Objector Site 1

Grade/Other land	Area (hectares)	% site area
2	2.6	78.8
3a	0.7	21.2
Total site area	3.3	100

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

Table 2: Area of grades - Objector Site 2

Grade/Other land	Area (hectares)	% site area
3b	1.5	100
Total site area	1.5	100

Table 3: Area of grades and other land - Total land surveyed at Westridge Farm, Elmfield

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	2.6	9.1	8.4
3a	6.1	21.2	19.7
3b	20.0	69.7	64.5
Other Land	2.3	-	7.4
Total surveyed area	28.7	100	92.6
Total site area	31.0	-	100

8. The agricultural land at this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality) and Subgrade 3b (moderate quality). The key limitation is soil wetness with soil droughtiness being equally or more restricting in places. Soils vary in nature and across short distances, especially on land surrounding Westridge Farm.

9. Soil wetness affects land quality where clayey horizons impede soil drainage. The degree of wetness, and therefore the ALC grade, is determined by the depth to clay. Across the lower lying land in the south of the site, clay occurs at shallow depths below the topsoil and land is poorly drained such that Subgrade 3b is appropriate. Where clayey horizons occur lower in the profile, soil wetness is less significant, allowing Subgrade 3a or Grade 2 to be mapped. Excessive soil wetness will restrict seed germination and growth as well as limit the timing of cultivations. Wet soils such as these are also susceptible to structural damage through trafficking by agricultural machinery and grazing livestock.

10. Soil droughtiness (often in combination with soil wetness) restricts the land quality to Grade 2 or Subgrade 3a on the higher land around Westridge Farm. The profiles in the Grade 2 unit tend to comprise deeper, well drained, sandier soils with little stone content throughout whilst soils in the Subgrade 3a unit are often impenetrable to the soil auger at shallow to moderate depths as a result of higher stone contents in the profile. In this local climatic regime, the combination of soil textures, structures, and stone contents acts to restrict the amount of profile available water for crops. As a result the level and consistency of crop yields may be restricted.

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 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

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 (ATO, January to June), as a measure of the relative warmth of a locality.

Table 2: Climatic and altitude data

Factor	Units	Values		
Grid reference	N/A	SZ 611 913	SZ 608 915	SZ 607 916
Altitude	m. AOD	20	40	45
Accumulated Temperature	day°C (Jan-June)	1539	1516	1510
Average Annual Rainfall	mm	821	842	847
Field Capacity Days	days	168	171	172
Moisture Deficit, Wheat	mm	115	112	111
Moisture Deficit, Potatoes	mm	111	106	105
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. The site is however in close proximity to the coastline and may be at slight risk from exposure. Upon detailed field examination, exposure is not considered to be significant enough to limit land quality any further than Grade 2. Other local factors such as frost risk and flooding are not believed to have a significant effect on the site.

Site

16. The agricultural land at this site lies at an altitude of 15-45m AOD and is flat or gently sloping towards the south or south-east. Flooding restrictions and microrelief do not affect land quality.

Geology and soils

17. The most detailed published geological information (BGS, 1976) shows the north and west parts of the site to lie over marine gravel and the south and east parts of the site to lie over Bembridge Marls (a clayey/marly deposit).

18. The most recently published soils information for the site shows the north and west of the survey area to be mapped as Sonning 2 Association and the south and east to be mapped as Wickham 4 Association. The former is described as 'well drained flinty coarse loamy and gravelly soils. Associated with slowly permeable seasonally waterlogged fine loamy over clayey soils, and coarse loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging' (SSEW,1983). The latter is described as 'slowly permeable

seasonally waterlogged fine loamy over clayey soils, often with brown subsoils' (SSEW,1983).

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 the details of the soils data are presented in Appendix II.

21. The agricultural land at this site is classified mainly as Subgrade 3b (moderate quality) with smaller areas of Grade 2 (very good quality) and Subgrade 3a (good quality) occurring on the higher land in the northern part of the site. The lower quality land is affected mainly by soil wetness, whilst soil droughtiness tends to be more restricting on the better quality land.

Grade 2

22. A small proportion of the survey area (totalling 2.6 hectares) in the north of the site is mapped as Grade 2 (very good quality agricultural land). The land is limited to a minor extent by soil droughtiness. The soil profiles comprise medium clay loam topsoils, which are stoneless or very slightly stony (containing up to 2% total flint). These overlie very similar upper subsoils which sometimes show evidence of impeded drainage in the form of gleying. Lower subsoils are gleyed and often become heavier in texture with increasing depth and are very slightly to slightly stony (containing up to 15% total flint rock). A wetness class of I or II is assigned to these soils (depending on the existence of, or depth to, gleying). Crop germination and growth may be slightly affected in areas where drainage is slightly impeded. The timing of cultivations may also be restricted as trafficking by agricultural machinery or grazing by livestock may lead to structural damage. In addition to soil wetness the combination of the soil textures and stone contents means that the land is also affected by a very minor soil droughtiness limitation. The amount of profile available water for crops is therefore restricted slightly and the level and consistency of crop growth and yields may be reduced.

Subgrade 3a

23. Soil profiles within the Subgrade 3a unit (good quality agricultural land) are similar to those described in the Grade 2 unit, but the severity of the droughtiness and/or wetness limitation is greater.

24. The profiles within this unit generally comprise medium clay loam topsoils which are very slightly or slightly stony (containing up to 8% total flints). The upper subsoils vary in composition from medium clay loam to clay, are often gleyed, and contain up to 15% hard rock. Where soil droughtiness is overriding the profiles are impenetrable to the auger at variable depths between 35cm and 45cm over very stony, hard and dry subsoils which contain up to 56% total flint. A Wetness Class of I or II has been ascribed to these soils. Soil Pit 2 is representative of these soils types (see Appendix II). The combination of soil texture and the amount of hard rock restricts the water available to crops such that there is a moderate risk of drought stress to the plants in most years. Where soil wetness is more limiting to soil droughtiness, profiles tend to have poorly structured, slowly permeable, clay horizons which

occur at depths in the range 58cm to 65cm. In this climatic regime, the occurrence of waterlogging as a result of the slowly permeable horizons at moderate depths results in a minor soil wetness limitation such that the soils are placed in Wetness Class III. This degree of wetness, in combination with the topsoil textures and the prevailing field capacity level (168-172 days), limits this land to Subgrade 3a. Crop germination and growth may therefore be adversely affected and cultivations may also be restricted. Very occasional borings of better quality occur within the Subgrade 3a mapping unit but were too few and far between to be mapped separately at this scale.

Subgrade 3b

25. The majority of the site has been classified as Subgrade 3b (moderate quality agricultural land) on the basis of a significant soil wetness limitation.

26. Most of the land south of Westridge Farm is limited to Subgrade 3b due to a soil wetness problem. The majority of the profiles comprise very slightly or slightly stony (0-15% flint) medium clay loam or occasionally heavy clay loam topsoils. These sometimes overlie variably stony, shallow, upper subsoils which are similar or slightly heavier in texture and show evidence of wetness in the form of gleying. At shallow depths within the profile (22cm to 44cm), clay subsoils are encountered which impede soil drainage. Soil inspection pits 3P and 4P (see Appendix II) reveal these shallow clay lower subsoils to be poorly structured and slowly permeable. These soils fall into Wetness Class IV, and the heavy nature of the topsoils in combination with the local climatic regime limits such land to Subgrade 3b. Occasional borings of better quality occur within the Subgrade 3b mapping unit but were too few and far between to be mapped separately at this scale.

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SOURCES OF REFERENCE

British Geological Survey (1976) *Sheet No's. 344 and 345, Isle of Wight.*
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, Soils of 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	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	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SZ60809180	STB			25		2	2	113	2	113	8	3A				WD	2	SEE 1P
2	SZ60801700	STB			38		2	2	83	-28	83	-22	3B				WD	2	SEE 1P
3	SZ60749165	OSR			42		1	1	137	26	106	1	2				DR	2	SEE 1P
4	SZ60809160	PGR			25		2	2	57	-54	57	-48	4				DR	3A	SEE 2P
5	SZ60609150	PGR	SW	2			1	1	45	-66	45	-60	4				WE	3B	SEE 3P
6	SZ60739150	PGR	SE	3			1	1	74	-37	74	-31	3B				DR	3A	I45 SEE 2P
7	SZ60809150	PGR	SE	2			1	1	71	-40	71	-34	3B				DR	3A	I43 SEE 2P
8	SZ60509140	PGR	SE	2	0		2	2	57	-54	57	-48	4				WE	3B	I35 SEE 3P
9	SZ60909157	PGR	E	2	25		2	2	66	-45	66	-39	4				DR	3A	I40 SEE 2P
10	SZ61009160	PGR	SE	2	27	58	3	3A	111	0	109	4	3A				WE	3A	
10A	SZ61039168	PGR	SE	1			1	1	39	-72	39	-66	4				DR	3B	I25 SEE 2P
11	SZ61109160	PGR	SE	1	0	38	4	3B	93	-7	104	-1	3A				WE	3B	SEE 4P
12	SZ60909150	PGR	SE	3	23	65	3	3A	144	33	113	8	2				WE	3A	
13	SZ61009150	PGR	SW	2	26		2	2	154	43	116	11	1				WE	2	SEE 2P
14	SZ61109150	LEY	SE	3	24	24	4	3B	96	-15	100	-5	3A				WE	3B	SEE 4P
15	SZ61209150	LEY	SE	3	0	22	4	3B	91	-20	96	-9	3A				WE	3B	SEE 4P
16	SZ60609140	PGR	SE	3	39	39	4	3B	124	13	102	-3	2				WE	3B	SEE 3P
17	SZ60709140	PGR	SE	3	25		2	2	53	-58	53	-52	4				WE	3B	I25 SEE 3P
18	SZ60809140	PGR	S	3	0	25	4	3B	87	-24	99	-6	3B				WE	3B	SEE 4P
19	SZ60909140	LEY	SE	3	0	25	4	3B	88	-23	99	-6	3B				WE	3B	SEE 4P
20	SZ61009140	PGR	SE	2	0	25	4	3B	97	-14	102	-3	3A				WE	3B	SEE 4P
21	SZ61109140	LEY	SE	2	0	25	4	3B	86	-25	90	-15	3B				WE	3B	SEE 4P
22	SZ61209140	LEY	SE	1	28	50	3	3A	132	21	109	4	2				WE	3A	SANDY
23	SZ60509130	LEY	SE	3	25	25	4	3B	95	-16	100	-5	3A				WE	3B	SEE 3P
24	SZ60609130	LEY	SE	2	25	45	4	3B	101	-10	106	1	3A				WE	3B	SEE 3P
25	SZ60709130	PGR	SE	3	28	28	4	3B	99	-12	104	-1	3A				WE	3B	SEE 4P
26	SZ60809130	MCL	SW	2	26	26	4	3B	98	-13	103	-2	3A				WE	3B	SEE 4P
27	SZ60909130	PGR	SE	2	0	24	4	3B	90	-21	102	-3	3B				WE	3B	SEE 4P
28	SZ61009130	LEY	SE	3	28	28	4	3B	104	-7	101	-4	3A				WE	3B	SEE 4P
29	SZ61109130	PGR	SW	3	35	40	4	3B	97	-14	102	-3	3A				WE	3B	SEE 3P
30	SZ60909120	PGR	SW	1	35	44	4	3B	105	-6	110	5	3A				WE	3B	SEE 4P
31	SZ61029122	PGR	SE	3	28	74	3	3A	138	27	114	9	2				WE	3A	SEE 1P
32	SZ60739187	STB			28	95	2	2	145	34	115	10	1				WE	2	SEE 1P
1P	SZ60809180	OSR			27		2	2	142	31	113	8	2				WD	2	PIT TO 120
2P	SZ60809150	PGR	SE	2	37		2	2	79	-32	86	-19	3B				DR	3A	IF 120 -11 WHT
3P	SZ60509140	PGR	SE	2	0	44	4	3B	91	-20	99	-6	3A				WE	3B	PIT TO 80
4P	SZ61009140	LEY	SE	2	0	25	4	3B	121	10	98	-7	2				WE	3B	PIT 75 AUG 120

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
1	0-25	MCL	10YR43						0	0	HR	1						
	25-54	MCL	10YR5364	75YR56	M			Y	0	0	HR	3		M				
	54-65	HCL	10YR53	75YR58	M			Y	0	0	HR	2		M				
	65-88	C	10YR53	75YR58	M			Y	0	0	HR	5		M				IMP FLINTS
2	0-30	MCL	10YR43						0	0	HR	2						
	30-38	MCL	25Y53	75YR46	F				0	0	HR	10		M				
	38-50	HCL	10YR63	75YR56	C			Y	0	0	HR	5		M				IMP FLINTS
3	0-32	MCL	10YR43						1	0	HR	1						
	32-42	MCL	10YR53						0	0	HR	1		M				
	42-90	HCL	10YR52	10YR56	M	D		Y	0	0	HR	1		P				POROUS
	90-103	MCL	10YR62	10YR56	M	D		Y	0	0	HR	3		M				LOOSE
	103-120	MCL	10YR53	10YR56	C	D		Y	0	0	HR	15		M				POROUS
4	0-25	MCL	10YR53						0	0	HR	7						
	25-35	C	10YR62	10YR58	M	D	10YR58	Y	0	0	HR	10		M				IMP FLINTS
5	0-26	MCL	10YR43						0	0	HR	5						IMP FLINTS
6	0-25	MCL	10YR3242						0	0	HR	2						
	25-40	MCL	10YR4353						0	0	HR	5		M				
	40-45	MCL	10YR4353	10YR56	F	D			0	0	HR	20		M				IMP FLINTS
7	0-35	MCL	10YR42						0	0	HR	5						
	35-43	HCL	10YR4353	10YR56	F	D			0	0	HR	15		M				IMP FLINTS
8	0-25	MCL	10YR42	10YR46	C	D		Y	0	0	HR	1						
	25-35	C	25Y63	10YR58	M	D		Y	0	0	HR	25		M				IMP FLINTS
9	0-25	MCL	10YR42	10YR58	C				0	0	HR	2						
	25-40	HCL	10YR53	75YR58	M			Y	0	0	HR	10		M				IMP FLINTS
10	0-27	MCL	10YR43						0	0	HR	2						
	27-45	MCL	10YR53	10YR58	C			Y	0	0	HR	10		M				
	45-58	HCL	10YR64	75YR58	M			Y	0	0	HR	5		M				
	58-90	C	25Y73	75YR68	M			Y	0	0	HR	2		P		Y		IMP FLINTS
10A	0-25	MCL	10YR43						0	0	HR	15						IMP FLINTS
11	0-27	MCL	10YR42	75YR46	C			Y	0	0	HR	2						
	27-38	HCL	10YR6271	75YR68	M			Y	0	0	HR	10		M				
	38-70	C	25Y71	75YR68	M			Y	0	0	HR	2		P		Y		PLASTIC
12	0-23	MCL	10YR43	10YR43	F	D			0	0	HR	5						
	23-30	C	05Y62	10YR56	C	D		Y	0	0		0		M				
	30-65	HCL	25Y64	10YR46	M	D		Y	0	0		0		M				
	65-95	C	25Y63	10YR58	M	D		Y	0	0		0		P		Y		PLASTIC
	95-120	MCL	25Y62	10YR58	M	D		Y	0	0		0		M				

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	
13	0-26	MCL	10YR42						0	0	HR	2							
	26-77	MCL	25Y64	10YR56	C	D		Y	0	0		0		M					
	77-120	MCL	25Y72	10YR56	C	D		Y	0	0		0		M					
14	0-24	HCL	10YR42	10YR46	F	D			0	0	HR	2							
	24-50	C	25Y 52	10YR58	M	D		Y	0	0	HR	5		P		Y			
	50-80	C	25Y 72	10YR68	M	D		Y	0	0	CH	15		P		Y	Y		
15	0-22	C	10YR41	10YR58	C	D		Y	0	0	HR	5							
	22-50	C	25Y 62	75YR58	M	D		Y	0	0	HR	5		P		Y			
	50-80	C	05Y 62	10YR5868	M	D		Y	0	0	CH	5		P		Y	Y		
16	0-25	MCL	10YR42	10YR46	F	D			0	0	HR	5							
	25-39	HCL	10YR5343	10YR58	F	D			0	0	HR	10		M					
	39-120	C	05Y 62	10YR58	M	D		Y	0	0	HR	5		P		Y			
17	0-25	MCL	10YR42						0	0	HR	5							
	25-35	C	25Y 5252	10YR5658	C	D		Y	0	0	HR	20		P					IMP FLINTS
18	0-25	HCL	10YR53	10YR56	C	D		Y	0	0	HR	5							
	25-70	C	05Y72	10YR56	M	D		Y	0	0	HR	5		P		Y			
19	0-25	MCL	10YR42	10YR56	C	D		Y	0	0	HR	2							
	25-40	C	25Y 52	10YR58	M	D		Y	0	0	HR	10		P		Y			
	40-70	C	05Y 62	10YR58	M	D		Y	0	0	HR	5		P		Y			
20	0-25	MCL	10YR43	10YR56	F	D		Y	0	0	HR	2							
	25-70	C	05Y51	10YR58	M	D		Y	0	0	HR	2		P		Y			
	70-80	C	05Y51	10YR58	M	D		Y	0	0	CH	5		P		Y	Y		
21	0-25	HCL	10YR43	10YR56	C	D		Y	0	0	HR	10							
	25-45	C	10YR52	10YR58	M	D		Y	0	0	HR	30		P		Y			
	45-80	C	25Y 5262	10YR58	M	D		Y	0	0	HR	5		P		Y	Y		
22	0-28	MCL	10YR43						0	0	HR	2							
	28-50	HCL	10YR5453	10YR56	C	D		Y	0	0	HR	2		M					SANDY
	50-120	C	25Y 52	10YR58	M	D		Y	0	0	HR	3		P		Y			SANDY
23	0-25	MCL	10YR42						0	0	HR	5							
	25-80	C	25Y6263	10YR5658	M	D		Y	0	0	HR	2		P		Y			
24	0-25	MCL	10YR42						0	0	HR	5							
	25-45	HCL	10YR53	10YR56	C	D		Y	0	0	HR	3		M					
	45-80	C	25Y 5262	10YR5262	M	D		Y	0	0		0		P		Y			
25	0-28	MCL	10YR42						0	0	HR	2							
	28-80	C	25Y5371	10YR68	M	D		Y	0	0		0		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	
26	0-26	MCL	10YR42						0	0	HR	2							
	26-38	C	25Y63	10YR56	C	D		Y	0	0		0			P		Y		
	38-80	C	25Y5371	10YR68	M	D		Y	0	0		0			P		Y		
27	0-24	MCL	10YR42	10YR46	C	D		Y	0	0	HR	2							
	24-70	C	05Y63	10YR56	M	F		Y	0	0		0			P		Y		
28	0-28	HCL	10YR43	10YR56	F	D			0	0	HR	3							
	28-50	C	25Y 53	10YR58	M	D		Y	0	0	HR	5			P		Y		
	50-90	C	05Y 72	10YR68	M	D		Y	0	0	CH	15			P		Y	Y	
29	0-35	HCL	10YR32	10YR46	F	D			0	0	HR	10							
	35-40	C	10YR5352	10YR4658	C	D		Y	0	0	HR	15			M				SANDY
	40-80	C	25Y 5262	10YR5658	M	D		Y	0	0	HR	3			P		Y		DENSE
30	0-35	MCL	10YR42						0	0	HR	2							
	35-44	MCL	25Y64	10YR46	C	F		Y	0	0		0			M				LOOSE
	44-80	C	25Y5371	10YR68	M	D		Y	0	0		0			P		Y		SANDY
31	0-28	MCL	10YR42						0	0	HR	5							DENSE, FIRM
	28-35	MCL	10YR53	10YR4656	C	D		Y	0	0	HR	2			M				
	35-74	HCL	25Y 6272	10YR56	M	D		Y	0	0	HR	2			M				
	74-120	C	25Y 5262	10YR58	M	D		Y	0	0		0			P		Y		LOOSE
32	0-28	MCL	10YR43						0	0	HR	2							POROUS
	28-45	MCL	25Y73	75YR68	M			Y	0	0	HR	2			M				
	45-75	HCL	10YR64	75YR58	M			Y	0	0	HR	2			M				
	75-95	SCL	10YR64	75YR58	M			Y	0	0	HR	5			M				
	95-120	C	10YR64	75YR58	M			Y	0	0		0			P		Y		
1P	0-27	MCL	10YR43						1	0	HR	1							
	27-56	MCL	10YR53	75YR46	C	D		Y	0	0	HR	1	MDCSAB	FR	M				LOOSE
	56-65	HCL	10YR53	10YR58	M	D		Y	0	0	HR	1	MDCOPR	FM	P				V.POROUS
	65-88	C	10YR53	10YR58	M	D		Y	0	0	HR	3	MDCOPR	FR	M				POROUS
	88-120	HCL	10YR53	10YR56	C	D		Y	0	0	HR	15	MDCSAB	FR	M				
2P	0-22	MCL	10YR4232						2	0	HR	8							
	22-37	MCL	10YR43						0	0	HR	8			M				
	37-50	HCL	10YR53	10YR58	C	D		Y	0	0	HR	43			M				
	50-70	C	10YR52	75YR68	M	D		Y	0	0	HR	56			M				
3P	0-24	MCL	10YR42	10YR46	C	D		Y	0	0	HR	2							
	24-44	C	25Y5363	10YR68	C	D		Y	0	0	HR	25	MDCSAB	FR	M				POROUS
	44-60	C	25Y63	10YR68	C	D		Y	0	0	HR	7	MDCAB	FM	P	Y	Y		DENSE,FIRM
	60-75	C	05Y63	10YR68	C	D		Y	0	0		0	MDCAB	FM	P	Y	Y		PLASTIC
4P	0-25	MCL	10YR41	10YR46	C	D		Y	0	0	HR	2		FR					
	25-60	C	25Y 52	10YR58	M	D	25Y 53	Y	0	0	HR	10	MDCPR	VM	P	Y	Y		
	60-120	C	05Y 63	10YR68	M	D	05Y63	Y	0	0	HR	2	MDCPR	FM	P	Y	Y	Y	