

0301-042-96

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**Aylesbury Vale Local Plan**  
**Land at Moreton Road,**  
**Buckingham**  
**Agricultural Land Classification Report**  
**June 1996, Revised August 1996.**

**Resource Planning Team**  
**Guildford Statutory Group**  
**ADAS Reading**

**ADAS Reference: 0301/042/96**  
**MAFF Reference: EL 03/01385**  
**LUPU Commission: 02511**

# **AGRICULTURAL LAND CLASSIFICATION REPORT**

## **AYLESBURY VALE LOCAL PLAN LAND AT MORETON ROAD, BUCKINGHAM**

### **INTRODUCTION**

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on approximately 22 hectares of land to the west of Moreton Road, north of Buckingham, in Buckinghamshire. The original survey was carried out during June 1996 when the ground conditions were extremely dry. This, together with the subsequent survey of land to the north (ADAS Ref: 0301/128/96), later necessitated a resurvey of certain parts of the site. The resurvey was carried out during September 1996. As a result, the original grading of the site has been amended.

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 Aylesbury Vale Local Plan. The results of this survey supersede the 1988, pre-revision survey (ADAS Ref: 0301/013/93) and the earlier, June 1996 survey for this land.

3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of 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. Data from an adjacent detailed ALC survey were also used in the grading of this site (ADAS Ref: 0301/13/93).

4. At the time of survey all of the agricultural land on this site was under permanent grassland.

### **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.

7. The original fieldwork was conducted at an average density of 1 boring per hectare. After a second visit a total of 36 borings and two soil inspection pits had been described.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area	% Surveyed Area
2	5.8	26.6	27.2
3a	6.7	30.7	31.5
3b	8.8	40.4	41.3
Other land	0.5	2.3	
<hr/>			
Total surveyed area	21.3	97.7	100.0
Total site area	21.8	100.0	-

8. The most extensive ALC grade on this site is Subgrade 3b (moderate quality) agricultural land which occurs in three discrete areas to the north, central west and south east of the site. The principal limitation here is soil wetness. A further strip of Subgrade 3b land has also been mapped along the course of a pipeline where the soils are believed to have been disturbed. This stretches from the south west corner of the site to Manor Farm. Its route to the north of Manor Farm is not known. Subgrade 3a land (good quality) has been mapped along the western and northern edges of the site where the land is limited by soil wetness. Grade 2 land (very good quality) occurs in the north east of the site; the key limitation here is soil wetness or soil droughtiness.

9. The majority of the land on the site is poorly drained, comprising heavy clay loam topsoils over shallow, slowly permeable, calcareous clay subsoils. In this local climatic regime, seed germination and growth will be adversely affected by such degrees of wetness, as will the timing of cultivations, as trafficking of land by agricultural machinery or grazing livestock will severely damage the soil structure when the soil is wet. This land has therefore been classified as Subgrade 3b due to a significant soil wetness limitation.

10. The rest of the soils on this site are derived from chalky boulder clay and glacial sand deposits. As such, they comprise moderately well drained, calcareous, medium and heavy clay loam topsoils and upper subsoils over clay subsoils that show distinct signs of wetness. These subsoils are generally slowly permeable at a moderate depth causing a minor drainage impedance. As a result, seed germination and growth, and the workability of the land, will be slightly inhibited. With the use of information from an adjacent site, this land has been classified as Subgrade 3a or Grade 2 on the basis of soil wetness.

11. The Grade 2 profiles through the centre of the site were generally impenetrable to the soil auger at shallow depths. However, information derived from soil inspection pit 1 and an adjacent site were used to grade this land. These profiles are well drained, mainly comprising slightly stony medium clay loam topsoils over moderately stony clay upper subsoils. The lower subsoils are markedly lighter comprising sandy loams and loamy sands with 20-30% flint. In this local climatic regime the combination of soil textures, structures and stone contents acts to slightly reduce the amount of profile available water for crops and thereby creates a slight soil droughtiness limitation which results in the level and consistency of crop yields will be slightly restricted.

## FACTORS INFLUENCING ALC GRADE

### Climate

12. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.
13. 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).
14. 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.

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SP 698 351	SP 698 348
Altitude	m, AOD	110	104
Accumulated Temperature	day°C (Jan-June)	1371	1378
Average Annual Rainfall	mm	685	684
Field Capacity Days	days	146	146
Moisture Deficit, Wheat	mm	102	103
Moisture Deficit, Potatoes	mm	92	93

15. 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.
16. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. However, climatic factors can interact with soil properties to influence soil wetness and droughtiness. At this locality the relatively low field capacity day values decrease the likelihood of soils wetness.
17. Local climatic factors such as frost risk and exposure are not thought likely to adversely affect agricultural land use on this site. This site is climatically Grade 1.

### Site

18. The land on this site slopes gently from 115m AOD in the north west to 104m AOD in the south east.
19. Local site factors such as flooding, microrelief and gradient do not affect land quality in this area.

### Geology and soils

20. The relevant geological sheet (BGS, 1957) maps Middle Cornbrash across most of the site with the possibility of some Great Oolite in the south east corner. However, the detailed field work has revealed that all of the site is covered by chalky Boulder Clay and glacial sands.

21. The most recently published soils information for this area (SSEW, 1983) maps the Ashley soil association across the site. These soils are described as “fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Associated with similar but wetter soils. Some calcareous and non-calcareous slowly permeable clayey soils.” (SSEW, 1983).

22. Detailed field examination revealed soils of a similar nature to those described above.

## AGRICULTURAL LAND CLASSIFICATION

23. 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.

24. 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 III.

### *Grade 2*

25. Land mapped as Grade 2 comprises two distinct soil types. Towards the centre of the site the profiles are derived from the glacial sand and limited to Grade 2 by a slight soil droughtiness limitation. The profiles here are calcareous and well drained (Wetness Class I), comprising very slightly to slightly stony (2-10% flint) medium clay loam topsoils over stony subsoils. These subsoils were impenetrable to the soil auger due to the extremely dry conditions at the time of survey (June, 1996). However, soil inspection Pit 1 is believed to be representative of these profiles and shows that the soil resource continues to at least 120cm depth. Here, moderately well structured, clay upper subsoils with 20-25% flint overlie distinctly lighter textured subsoils at approximately 60cm depth. These comprise medium sandy loams with 30% flint over loamy medium sand lower subsoils with 20% flint. In this local climatic regime the combined effects of soil texture, structure and stone content slightly reduce the amount of profile available water for crops and thus limit the level and consistency of yields.

26. The soil profiles to the west of the site are derived from the chalky boulder clay and, as such, comprise very slightly to slightly stony (2-10% total flints), calcareous, medium clay loam topsoils over similarly stony, heavy clay loam and/or clay upper subsoils. Soils derived from the Boulder Clay generally comprise a compound structure; part of which tends towards a poor structure. However, the high calcium carbonate content in these soils improves the structural conditions and means that a moderate structure predominates. Some of these upper subsoils were gleyed and most contained small, weathered iron concretions. During the original survey (June, 1996) the majority of these profiles became impenetrable at approximately 35-50cm depth. However, on a subsequent visit (August, 1996) the profiles were shown to continue to depth. From between 45-65cm depth a pale, gleyed clay lower subsoil appears. This is poorly structured and slowly permeable and thus slightly impedes drainage through the profile. In this locally cool and dry climatic regime the resultant soil wetness is considered to be consistent with Wetness Class II-III (Appendix II). In combination with the medium textured topsoils, the timing and flexibility of cultivations may be limited, as over trafficking by farm machinery or livestock can lead to structural damage. The calcareous nature of these soils does help to alleviate such workability restrictions but this land still can not be classified higher than Grade 2 due to a minor soil wetness limitation.

### *Subgrade 3a*

27. The Subgrade 3a mapping unit again comprises two distinct soil profiles. Those in the north of the site are very similar to those described in paragraph 26. However, these either become gleyed and slowly permeable at slightly shallower depths (25-40cm), or are less calcareous. The shallower slowly

permeable horizons cause a more significant drainage impedance while the lack of calcium carbonate means that the resultant workability limitation will be more severe. This land is therefore restricted to Wetness Class III (Appendix II), Subgrade 3a on the basis of a moderate soil wetness limitation.

28. Towards the western side of the site the borings were impenetrable at very shallow depths (e.g. 20cm). Unfortunately, the extremely dry conditions at the time of the original, and subsequent, survey prevented further exploration of this area. These profiles do, however, appear to be very similar to the Grade 2 borings around soil inspection Pit 1 so are likely to be of 'best and most versatile' quality. A previous survey on land to the west graded the adjacent land as Subgrade 3a. It was therefore decided to include this land in the Subgrade 3a mapping unit as the soils are probably limited by a moderate soil droughtiness limitation.

#### *Subgrade 3b*

29. A significant area of the site has been classified as Subgrade 3b. Soil inspection Pit 2 typifies these profiles which generally comprise very slightly to slightly stony (2-10% flint and chalk fragments), medium or heavy clay loam topsoils over poorly structured, slowly permeable, gleyed, clay upper subsoils. Drainage through the profile is therefore impeded resulting in prolonged waterlogging. These profiles are therefore placed in Wetness Class IV. Despite the locally dry climatic regime, wet soil such as these will disrupt seed germination and crop growth crop. The combination of topsoil textures will also limit the amount of time when the land can be worked or grazed without causing structural damage restricting this part of the site to Subgrade 3b.

30. The narrow strip of Subgrade 3b which runs from the south west corner to Manor Farm is believed to have been disturbed by a pipeline. The profiles here comprised moderately stony (15% flint), medium silty clay loams which were impenetrable to the soil auger at extremely shallow depths (e.g. 22cm) and contained some rubble. It is possible that the pipeline extends north beyond Manor Farm, but the course beyond this point is not known. This land has therefore been limited to Subgrade 3b due to the shallow, stony nature of the soils and the local variability caused by the disturbance which, together, will restrict the amount of profile available water for crops and the range of agricultural machinery which can be affectively used.

Helen Goode  
Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## SOURCES OF REFERENCE

British Geological Survey (1957) *Sheet No. 2. 1:625,000 Series.*  
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

SOIL PIT DESCRIPTION

Site Name : AYLESBURYLP,MORETON ROAD Pit Number : 1P

Grid Reference: SP69803520 Average Annual Rainfall : 685 mm  
 Accumulated Temperature : 1371 degree days  
 Field Capacity Level : 146 days  
 Land Use : Permanent Grass  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 26	MCL	10YR43 00	4	10	HR					Y
26- 37	C	75YR54 00	0	20	HR				M	Y
37- 60	C	75YR54 00	0	25	HR				M	Y
60- 75	MSL	10YR54 00	0	30	HR				M	Y
75-120	LMS	10YR54 00	0	20	HR				G	Y

Wetness Grade : 1 Wetness Class : I  
 Gleying : cm  
 SPL : No SPL

Drought Grade : 2 APW : 117mm MBW : 15 mm  
 APP : 96 mm MBP : 4 mm

FINAL ALC GRADE : 2  
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : AYLESBURYLP, MORETON ROAD Pit Number : 2P

Grid Reference: SP70023512 Average Annual Rainfall : 685 mm  
 Accumulated Temperature : 1371 degree days  
 Field Capacity Level : 146 days  
 Land Use : Permanent Grass  
 Slope and Aspect : 03 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	HCL	25Y 42 00	3	5	HR					Y
25- 65	C	25Y 52 00	0	5	HR	M	STCPR	FM	P	Y

Wetness Grade : 3B Wetness Class : IV  
 Gleying : 025 cm  
 SPL : 025 cm

Drought Grade : 3A APW : 84 mm MBW : -18 mm  
 APP : 92 mm MBP : 0 mm

FINAL ALC GRADE : 3B  
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	--WETNESS--				-WHEAT-		-POTS-		M. REL		EROSN	FROST	CHEM	ALC	COMMENTS
				GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1	SP69703530	PGR W	01	060	040	3	3A	129	27	106	14	2			WE	3A	S1. Gley 40	
1P	SP69803520	PGR				1	1	117	15	96	4	2			DR	2	V. Dry/hard	
2	SP69803530	PGR W	01		025	3	3A	124	22	101	9	2			WE	3A	S1. Gley 25	
2P	SP70023512	PGR S	03	025	025	4	3B	84	-18	92	0	3A			WE	3B	At Boring 12	
3	SP69903530	PGR W	02	030	030	4	3B	126	24	104	12	2			WE	3B	Calc	
3A	SP69883528	PGR		035	035	4	3B	093	-9	105	13	3A			WE	3B	Border 3a	
4	SP70003530	PGR		025	025	4	3B		0	0					WE	3B	Calc 25	
5	SP69803520	PGR E	02			1	1	35	-67	35	-57	4			DR	2	I20 See 1P	
6	SP69903520	PGR E	02			1	1	35	-67	35	-57	4			DR	2	I20 See 1P	
7	SP70003520	PGR S	02	030		2	2	78	-24	78	-14	3B			DR	2	I50 See 1P	
7A	SP70013518	PGR		060	060	2	2	112	10	112	20	2			WE	2		
8	SP70103520	PGR S	02	030		3	3A	73	-29	73	-19	3B			WE	3A	I45 See 1P	
8A	SP70063524	PGR		050	050	3	3A	100	-2	112	20	3A			WE	3A	Border 2	
9	SP70203520	PGR S	02	030		2	2	71	-31	71	-21	3B			WD	2	I45 See 1P	
9A	SP70173523	PGR				1	1	051	-51	051	-41	4			WE	3A	See 9B	
9B	SP70203522	PGR S		040	040	3	3A	093	-9	103	11	3A			WE	3A		
10	SP69803510	PGR S	01	0	025	4	3B		0	0					WE	3B	Calc	
11	SP69903508	PGR S	02	025		2	2	55	-47	55	-37	3B			DR	2	I35 See 11A	
11A	SP69813509	PGR				2	2	087	-15	088	-4	3A			WE	2	See2P AdjSite	
12	SP70023512	PGR S	02	025	025	4	3B		0	0					WE	3B	See 2P	
13	SP70103510	PGR S	02			1	1	49	-53	49	-43	4			DR	2	I30 See 13A	
13A	SP70103513	PGR S				2	2	084	-18	088	-4	3A			WE	2	See2P AdjSite	
13B	SP70083505	PGR S	01	045	045	3	2	110	8	104	12	2			WD	2	Calc	
14	SP69803500	PGR S	01			1	1	29	-73	29	-63	4			DR	3A	I20 QDisturb	
14A	SP69803503	PGR S	03			1	1	034	-68	034	-58	4			DR	3A	I20 QDisturb	
15	SP69903500	PGR S	02			1	1	49	-53	49	-43	4			DR	2	I30 See 1P	
15A	SP69893501	PGR		030	030	4	3B	112	10	104	12	2			WE	3B		
16	SP70023498	PGR S	02			1	1	57	-45	57	-35	3B			WE	2	I35 See 16A	
16A	SP67003500	PGR S	02	045	065	2	2	130	28	111	19	2			WD	2		
17	SP69703490	PGR				1	1	38	-64	38	-54	4			DB	3B	I22 QDisturb	
18	SP69803490	PGR				1	1	31	-71	31	-61	4			DR	2	I20 See 1P	
18A	SP69823492	PGR S				1	1	058	-44	058	-34	3B			DR	2	Q LIKE1P	
19	SP69893492	PGR S	02			1	1	41	-61	41	-51	4			WE	3B	I25 See 19A	
19A	SP69933495	PGR S		025	035	4	3B		0	0	3A				WE	3B		
20	SP69803480	PGR		025	025	4	3B		0	0					WE	3B	Calc	
21	SP69903480	PGR SW	01	030	030	4	3B		0	0					WE	3B	Calc	
22	SP69723500	PGR		040	040	3	3A	95	-7	104	12	3A			WE	3A	I75 CHGH	
23	SP69753523	PGR E	01			1	1	36	-66	36	-56	4			DR	2	I20 see 1P	

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED		-----STONES-----			STRUCT/ CONSIST	SUBS				CALC	
				COL	ABUN	CONT	COL.	GLEYS	>2	>6	LITH		TOT	STR	POR	IMP		SPL
1	0-22	mc1	25Y 42 44						0	0	SLST	2						
	22-40	hc1	25Y 56 00						0	0	HR	2		M				
	40-60	c	10YR54 53	10YR56 58 C			00MN00 00 S		0	0	HR	1		P		Y		
	60-120	c	10YR53 00	10YR58 00 M			00MN00 00 Y		0	0	HR	1		P		Y	Sl. Calc	
1P	0-26	mc1	10YR43 00						4	0	HR	10					Y	V. hard/dry
	26-37	c	75YR54 00						0	0	HR	20		M			Y	V. hard/dry
	37-60	c	75YR54 00						0	0	HR	25		M			Y	+ 20% Chalk
	60-75	ms1	10YR54 00						0	0	HR	30		M			Y	V. dry
	75-120	lms	10YR54 00						0	0	HR	20		G			Y	V. dry
2	0-25	hc1	25Y 42 00						0	0	SLST	2					Y	
	25-48	c	25Y 44 54				00MN00 00		0	0	SLST	4		P			Y	Not Gleyed
	48-120	c	25Y 44 54	10YR58 00 C				S	0	0	SLST	4		P		Y	Y	
2P	0-25	hc1	25Y 42 00						3	0	HR	5					Y	
	25-65	c	25Y 52 00	10YR66 00 M				Y	0	0	HR	5	STCPR	FM	P	Y	Y	Y
3	0-30	hc1	10YR42 00						0	0	SLST	2					Y	
	30-120	c	25Y 52 00	75YR58 46 C				Y	0	0	SLST	4		P		Y	Y	
3A	0-25	mc1	10YR43 00						0	0	HR	1					Y	
	25-35	c	25Y 54 00						0	0	HR	2		M			Y	
	35-70	c	25Y 53 00	10YR58 00 C				Y	0	0	HR	1		P		Y	Y	
4	0-25	hc1	25Y 42 00						0	0	SLST	2						
	25-120	c	25Y 42 00	10YR58 00 C				Y	0	0	SLST	5		P		Y	Y	
5	0-20	mc1	10YR43 44						0	0	HR	4						I Dry/flinty
6	0-20	mc1	10YR43 00						0	0	HR	2						I Dry/flinty
7	0-30	mc1	25Y 42 00						4	0	HR	10					Y	
	30-50	hc1	10YR53 00	10YR56 00 C				Y	0	0	HR	10		M		Y	I dry/flinty	
7A	0-35	mc1	10YR42 00						0	0	HR	2						V. Sl. Calc
	35-60	c	10YR44 43	10YR58 00 F					0	0	HR	6		M				V. Sl. Calc
	60-90	c	25Y 62 63	10YR58 00 C			00MN00 00 Y		0	0	HR	3		P		Y		Non-calc
8	0-30	mc1	25Y 42 00						4	0	HR	6						
	30-45	hc1	10YR53 00	10YR56 00 C				Y	0	0	HR	10		M				I dry/flinty
8A	0-35	mc1	10YR43 00						0	0		0						
	35-45	c	10YR54 00	75YR58 00 F					0	0	HR	5		M				
	45-50	c	10YR54 00	75YR56 00 C				S	0	0	HR	2		M				
	50-70	c	10YR52 00	75YR58 00 C			00MN00 00 Y		0	0	HR	2		P		Y		plastic
9	0-30	hc1	10YR43 00						4	0	HR	10						
	30-45	hc1	10YR53 00	10YR56 00 C				Y	0	0	HR	10		M				I dry/flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED		-----STONES-----			STRUCT/	SUBS	CALC				
				COL	ABUN	CONT	COL.	GLEYS	>2	>6	LITH				TOT	CONSIST	STR	POR
9A	0-30	mc1	10YR43 00						0	0	HR	5						I dry/flinty
9B	0-30	mc1	10YR43 00						3	0	HR	6						
	30-40	hc1	10YR54 00				00FE00 00		0	0	HR	5	M					
	40-72	c	10YR64 00	75YR58 00	C		00MN00 00	Y	0	0	HR	5	P		Y	Y		Imp dry
10	0-25	hc1	10YR53 00	10YR58 00	C			Y	0	0	SLST	5					Y	
	25-60	c	25Y 63 00	10YR58 00	C			Y	0	0	SLST	5	P		Y	Y		
	60-80	c	25Y 62 61	10YR66 00	C			Y	0	0	SLST	2	P		Y	Y		
11	0-25	mc1	10YR43 00						4	0	HR	10						
	25-35	hc1	10YR53 00	10YR56 00	C				0	0	HR	10	M					I dry/flinty
11A	0-30	mc1	10YR43 00						0	0	HR	2						
	30-52	hc1	10YR44 00	75YR58 00	F		00MN00 00		0	0	HR	1	M					Imp Stony
12	0-25	hc1	25Y 42 00						2	0	SLST	2					Y	
	25-65	c	25Y 52 00	10YR66 00	M			Y	0	0	SLST	5	P		Y	Y		
	65-120	c	25Y 52 00	10YR66 00	M			Y	0	0		0	P		Y	Y		
13	0-30	mc1	10YR43 00						4	0	HR	10						I dry/flinty
13A	0-25	mc1	10YR43 44						0	0	HR	3						V. Sl. Calc
	25-55	c	10YR44 00	75YR58 00	C		00MN00 00	S	0	0	HR	8	M					V. Sl. Calc
13B	0-25	mc1	10YR43 00						0	0	HR	5					Y	
	25-35	hc1	10YR53 00						0	0	HR	5	M				Y	
	35-45	c	25Y 53 00				00FE00 00		0	0	HR	5	M				Y	
	45-95	c	25Y 62 00	10YR58 00	C			Y	0	0	SLST	8	P		Y	Y		plastic
14	0-20	mc1	10YR43 00						0	0	HR	20						I dry/flinty
14A	0-20	mc1	10YR43 00						0	0	HR	5						I dry/flinty
15	0-30	mc1	10YR43 00						4	0	HR	10						I dry/flinty
15A	0-30	mc1	10YR42 00						0	0	HR	3						
	30-100	c	25Y 62 00	10YR58 00	C			Y	0	0	HR	2	P		Y			
16	0-35	hc1	10YR42 00						4	0	HR	10						I dry/flinty
16A	0-30	mc1	10YR43 00						0	0	HR	5					Y	
	30-45	hc1	10YR53 00						0	0	HR	5	M				Y	
	45-65	c	25Y 64 00	10YR58 00	C			Y	0	0	SLST	5	M				Y	fritable/sandy
	65-120	c	25Y 62 00	10YR58 00	C			Y	0	0	SLST	8	P		Y	Y		
17	0-22	mzc1	10YR43 00						0	0	HR	15						

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED		-----STONES-----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		IMP
18	0-20	mc1	10YR43 00						0	0	HR	15				Y	I dry/flinty
18A	0-35	mc1	10YR43 00				00FE00 00		0	0	HR	8					I dry/flinty
19	0-25	mc1	10YR43 00						4	0	HR	10					I dry/flinty
19A	0-25	mc1	10YR43 00				00FE00 00		0	0	HR	3				Y	
	25-35	hc1	10YR53 00	75YR46 00	C		00FE00 00	Y	0	0	HR	3	M			Y	
	35-60	c	10YR63 00	75YR58 00	M		00MN00 00	Y	0	0	HR	1	P		Y	Y	
	60-80	c	25Y 62 00	10YR58 00	C			Y	0	0	SLST	5	P		Y	Y	
20	0-25	hc1	10YR43 00						0	0	SLST	5				Y	
	25-60	c	25Y 63 00	75YR56 00	C			Y	0	0	SLST	10	P		Y	Y	
21	0-30	mzc1	10YR43 00						0	0	SLST	2				Y	
	30-70	c	25Y 62 61	75YR58 00	C			Y	0	0	SLST	2	P		Y	Y	
22	0-25	hc1	10YR43 00						0	0	SLST	5				Y	
	25-40	c	10YR54 00	10YR58 00	F				0	0	SLST	5	M			Y	dry/friable
	40-50	c	10YR53 00	10YR58 00	C			Y	0	0	SLST	5	P		Y	Y	dry/firm
	50-65	c	25Y 53 00	10YR58 00	C			Y	0	0	SLST	5	P		Y	Y	firm
	65-75	c	25Y 64 00	10YR58 00	C			Y	0	0	SLST	15	P		Y	Y	I Chalky-grav
23	0-20	mc1	25Y 42 44						0	0	HR	1					Imp hard/dry