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Proposed Motorway Service Area
Land South of Great Wood,
White Waltham
Agricultural Land Classification
ALC Map and Report
January 1997

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

PROPOSED MOTORWAY SERVICE AREA LAND SOUTH OF GREAT WOOD, WHITE WALTHAM

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 50 hectares of land to the south of Great Wood, White Waltham, near Maidenhead. The survey was carried out during January 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 an adhoc planning application for a motorway service area. The results of this survey supersede any previous ALC information for this land.

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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.

4. At the time of survey, the agricultural land on this site was in permanent grassland and arable production. The areas of the site shown as Other Land consist of 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 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	16.5	36.0	33.7
3a	3.4	7.4	7.0
3b	26.0	56.6	53.2
Other land	3.0	-	6.1
Total Surveyed Area	45.9	100	-
Total site area	48.9	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 44 borings and 3 soil pits were described.

8. The 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 very occasionally more restricting in places.

9. Most of the soil profiles display wetness problems to varying degrees. The topsoils are dominantly clay loams with occasional fine sandy textures. These sometimes overlie similar subsoils, which either directly or indirectly rest over poorly structured clay in most cases. The depth to these clayey horizons will determine the degree of impeded drainage and therefore the final ALC grade. Where clay horizons are shallow, the drainage will be severely restricted and land is classified as Subgrade 3b, whereas clay horizons deeper in the profile give rise to Grade 2 and Subgrade 3a.

10. At the extreme southern corner of the site a small number of borings displayed similar characteristics to those described above, but were impenetrable to the auger at varying depths. Due to their position, these profiles were thought to be disturbed by motorway construction.

11. Towards the northern part of the site, borings of better quality are found which are sandier than those described above. Topsoils commonly comprise fine sandy textures which lie over similar subsoils. Interbedded clays and sands occur at depth. The combination of these soil properties and the prevailing climate results in a minor soil droughtiness limitation in addition to that of soil wetness.

Factors Influencing ALC Grade

Climate

12. Climate affects the grading of the 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).

Table 2: Climatic and altitude data

	Units	Values
Grid reference	N/A	SU 858 757
Altitude	m,AOD	40
Accumulated Temperature	day°C	1473
Average Annual Rainfall	mm	667
Field Capacity Days	days	140
Moisture Deficit, Wheat	mm	116
Moisture Deficit, Potatoes	mm	110

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.

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. Other local climatic factors such as exposure and frost risk are not believed to have a significant adverse effect on the site. The site is climatically Grade 1.

Site

17. The agricultural land at this site lies at an altitude of 38-42m AOD. The majority of the land at the site is flat or very gently sloping with slight undulations. Nowhere does gradient or microrelief affect agricultural land quality.

Geology and soils

18. The published geological information for the site (BGS, 1978) shows the site to be underlain completely by London Clay.

19. The most recently published soil information for the site (SSEW, 1983) shows the Wickham 4 association to cover most of the area to the north, central and eastern part of the site. The Hurst association is mapped in the south and extreme south western corners. The former soils are described as 'slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils, often with brown soils' (SSEW, 1983). The latter soil types are described as 'coarse and fine loamy permeable soils mainly over gravel variably affected by groundwater' (SSEW, 1983).

20. Upon detailed field examination, soils consistent with the Wickham 4 association were found to exist across the majority of the site in the central and southern parts. Elsewhere, the above descriptions were not representative of the profiles found, as field observations indicated that the soils were lighter than those described by the soil survey.

Agricultural Land Classification

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

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

Grade 2

23. A large section to the north of the site has been mapped as very good quality agricultural land. The land is affected by a combination of wetness and droughtiness restrictions.

24. Soils within this unit are mostly developed from interbedded sand and clay deposits. The nature and characteristics of the soil profiles subsequently varies with depth. Certain key characteristics can be observed. The topsoils comprise mainly non-calcareous, very slightly or slightly stony (1-8% total flints, 1-4% > 2cm) fine or medium sandy loam textures with occasional medium clay loam or medium sandy silt loam textures. These rest upon similar upper subsoils at depths between 28cm and 60 cm which tend to be gleyed but friable and moderately structured. Lower subsoils vary considerably in textures and horizon sequences from clays to fine sands, with a combination of textural classes inbetween.

25. Areas affected by soil wetness typically have clayey horizons at depth (ie. from 42 to 70 cm). As observed in Pit 2, (see appendix III) the clay is usually gleyed, poorly structured and slowly permeable. Depending on the depth to clay, many soil profiles have slight or very slight impeded drainage causing a wetness class of I or II (see appendix II) to be assigned to these soils. The interaction between these soils and the climatic conditions results in a wetness limitation which will restrict the utilisation of the land.

26. Areas affected by soil droughtiness commonly have essentially similar, though significantly more sandy soils which have restricted reserves of available water, such that there is a slight risk of drought stress to plants in most years, which given the local climatic condition leads to Grade 2 being appropriate. In many areas droughtiness is the overriding limitation, being equally or more limiting than soil wetness. Soil pit 1 is representative of this soil type.

Subgrade 3a

27. A small area of good quality land has been mapped across the north-east part of the site. Soil wetness is the main limitation here.

28. Soil profiles generally comprise mainly non-calcareous, medium clay loam topsoils which are very slightly stony (c. 1-5% total flints, 0% > 2 cm diameter). These mostly overlie very slightly stony (2-3% total flints, 0% > 2cm) non-calcareous sandy clay loam upper subsoils which are variable in nature, but are porous and moderately structured in most cases. Occasionally, these upper subsoils are dense and have low porosity. At variable depths, clay lower subsoils occur in most profiles which are gleyed and slowly permeable between 45cm and 58cm. As a result, soil drainage will be impeded to the extent that wetness classes III is appropriate, which when combined with local climatic conditions and topsoil characteristics, gives rise to a land classification of Subgrade 3a on the basis of soil wetness.

Subgrade 3b

29. The majority of the site in the central and southern areas (together with a small area to the extreme north-west) has been mapped as Subgrade 3b. This land is also limited by soil wetness.

30. Within this unit, the majority of profiles consist of very slightly stony (1-5% flint), non calcareous medium or heavy clay loam topsoils with occasional medium silty clay loam or sandy clay loam topsoils occurring in places. On occasion, shallow upper subsoils exist, which have similar characteristics to the topsoils and are moderately structured. On the whole, the topsoils lie directly over clay subsoils (typically within 35cm or less of the surface). The soil inspection pit 3 (see Appendix III) reveals the clay to be poorly structured and slowly permeable. The

heavier topsoil textures will also restrict the timing of cultivations as trafficking by agricultural machinery or grazing by livestock may lead to structural damage. Wetness Class IV, Subgrade 3b is therefore considered appropriate for this land.

31. A small number of borings to the extreme southern corner of the site are considered to have been disturbed by the construction of the adjacent motorway. The profiles display similar characteristics to those described in the Subgrade 3b unit above, but are more stony and impenetrable to the auger at variable depths (40-45 cm). The shallow nature of the soils reduces the profile available water so that soil droughtiness is the overriding limitation in this area, restricting the land to Subgrade 3b.

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SOURCES OF REFERENCE

British Geological Survey (1978) Sheet No. 269, Windsor 1:63,360 scale (Drift Edition). 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 : MSA LAND S OF GREAT WOOD Pit Number : 1P

Grid Reference: SU85907600 Average Annual Rainfall : 667 mm
 Accumulated Temperature : 1473 degree days
 Field Capacity Level : 140 days
 Land Use : Cereals
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	FSL	10YR42 00	1	3	HR					
35- 51	FSL	25Y 62 63	0	7	HR	C	MDVCAB	FR	M	
51- 70	SCL	25Y 51 52	0	6	HR	M	MDVCAB	FR	M	
70-120	LFS	25Y 62 63	0	0		M	MDCPL	FR	M	

Wetness Grade : 1 Wetness Class : II
 Gleying : 035 cm
 SPL : cm

Drought Grade : 2 APW : 171mm MBW : 55 mm
 APP : 115mm MBP : 5 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : MSA LAND S OF GREAT WOOD Pit Number : 2P

Grid Reference: SU86007580 Average Annual Rainfall : 667 mm
 Accumulated Temperature : 1473 degree days
 Field Capacity Level : 140 days
 Land Use : Cereals
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	FSL	10YR42 00	1	4	HR					
29- 42	HCL	10YR52 53	0	10	HR	C	MDCSAB	FR	M	
42- 65	C	25Y 52 00	0	5	HR	M	MDCPR	FM	P	
65- 75	LFS	25Y 52 53	0	0		M	MDCPL	VF	M	
75-120	FS	25Y 62 00	0	0		M	MDCPL	VF	M	

Wetness Grade : 2 Wetness Class : III
 Gleying : 029 cm
 SPL : 042 cm

Drought Grade : 2 APW : 156mm MBW : 40 mm
 APP : 105mm MBP : -5 mm

FINAL ALC GRADE : 2

MAIN LIMITATION : Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name : MSA LAND S OF GREAT WOOD Pit Number : 3P

Grid Reference: SU85507590 Average Annual Rainfall : 667 mm
 Accumulated Temperature : 1473 degree days
 Field Capacity Level : 140 days
 Land Use : Cereals
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MCL	10YR42 52	0	1	HR					
27- 70	C	10YR61 00	0	0		M	MDCOAB	FM	P	

Wetness Grade : 3B Wetness Class : IV
 Gleying : 027 cm
 SPL : 027 cm

Drought Grade : APW : 000mm MBW : 0 mm
 APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--			-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS	
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST		LIMIT
1P	SU85907600	CER		035		2	1	171	55	115	5	2			DR	2	
2	SU85907600	CER		032		2	1	173	57	121	11	2			DR	2	SEE PIT 1
2P	SU86007580	CER		029	042	3	2	156	40	105	-5	2			WD	2	
3	SU86007600	CER		037	058	3	3A	140	24	117	7	2			WE	3A	SANDY
3P	SU85507590	CER		027	027	4	3B	000	0	000	0				WE	3B	
4	SU86107600	CER		035		2	1	172	56	114	4	2			DR	2	
5	SU85507590	CER		030	030	4	3B	000	0	000	0				WE	3B	
6	SU85607590	CER		028	045	3	2	148	32	115	5	2			WD	2	
7	SU85707590	CER		030		2	2	157	41	119	9	2			WD	2	
9	SU85907590	CER		035		2	1	147	31	124	14	1				1	
10	SU86007590	CER		032	032	4	3A	098	-18	104	-6	3A			WE	3A	HEAVY SCL
11	SU86107590	CER		035	055	3	3A	105	-11	110	0	3A			WE	3A	
12	SU85507580	CER		030	045	3	3A	000	0	000	0				WE	3A	
13	SU85607580	CER		030	052	3	2	000	0	000	0				WE	2	
14	SU85807580	PLO		030	048	3	2	131	15	109	-1	2			WD	2	SEE PIT 2
15	SU85907580	CER		035	050	3	3A	000	0	000	0				WE	3A	SEE PIT 2
16	SU86007580	CER		028	045	3	2	000	0	000	0				WE	2	SEE PIT 2
17	SU86107580	CER		035	035	4	3B	000	0	000	0				WE	3B	SEE PIT 3
18	SU85407570	CER		030	060	3	2	000	0	000	0				WE	2	
19	SU85507570	CER		029		2	1	156	40	120	10	2			DR	2	BORDER 1
20	SU85607570	CER		028	055	3	2	000	0	000	0				WE	2	
21	SU85707570	PLO		030		2	1	153	37	111	1	2			DR	2	
22	SU85807570	PLO		040		1	1	153	37	115	5	2			DR	2	
23	SU85907570	CER		030	070	2	2	141	25	118	8	2			WD	2	SEE PIT 2
24	SU86007570	CER		030	030	4	3B	000	0	000	0				WE	3B	SEE PIT 3
25	SU86107570	CER		028	035	4	3B	000	0	000	0				WE	3B	SEE PIT 3
26	SU85407560	CER		035	059	3	2	135	19	112	2	2			WD	2	
27	SU85507560	CER		030	058	3	3A	114	-2	110	0	3A			WE	3A	SEE PIT 2
28	SU85707560	ARA		028	028	4	3B	000	0	000	0				WE	3B	SEE PIT 3
29	SU85807560	ARA		030	030	4	3B	000	0	000	0				WE	3B	SEE PIT 3
30	SU85907560	ARA		028	035	4	3B	000	0	000	0				WE	3B	
31	SU86007560	CER		030	030	4	3B	000	0	000	0				WE	3B	SEE PIT 3
33	SU85407550	CER		025	025	4	3B	000	0	000	0				WE	3B	WT 25 HEAVY SCL
34	SU85507550	CER		027	027	4	3B	000	0	000	0				WE	3B	SEE PIT 3
36	SU85707550	ARA		030	030	4	3B	000	0	000	0				WE	3B	SEE PIT 3
38	SU85907550	ARA		030	030	4	3B	000	0	000	0				WE	3B	SEE PIT 3
40	SU86107550	CER		0	030	4	3B	100	-16	105	-5	3A			WE	3B	SEE PIT 3
41	SU85607540	RGR		030		2	2	060	-56	060	-50	4			WD	3B	DISTURBED
43	SU85807540	CER		035	045	3	3A	103	-13	108	-2	3A			WE	3A	
44	SU85907540	CER		0	030	4	3B	093	-23	105	-5	3B			WE	3B	SEE PIT 3
45	SU86007540	CER		0	035	4	3B	102	-14	107	-3	3A			WE	3B	SEE PIT 3
46	SU85507530	RGR		030		2	2	000	0	000	0				WD	3B	DISTURBED

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS	
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST		LIMIT
47	SU85607530	RGR	028	035	4	3B	097	-19	102	-8	3A			WE	3B	HEAVY HCL
48	SU85707530	CER	028	028	4	3B	098	-18	101	-9	3A			WE	3B	
49	SU85807530	CER	030	040	3	3B	102	-14	107	-3	3A			WE	3B	
50	SU85907530	CER	0	035	4	3B	102	-14	107	-3	3A			WE	3B	SEE PIT 3
51	SU86007530	CER	028	045	3	3B	107	-9	105	-5	3A			WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED		-----STONES-----			STRUCT/	SUBS	SPL	CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH					TOT
1P	0-35	fs1	10YR42 00						1	0	HR	3				
	35-51	fs1	25Y 62 63 10YR58 00 C				00MN00	00	Y	0	0	HR	7	MDVCAB	FR	M
	51-70	sc1	25Y 51 52 75YR58 00 M				00MN00	00	Y	0	0	HR	6	MDVCAB	FR	M
	70-120	lfs	25Y 62 63 05YR58 46 M				00MN00	00	Y	0	0		0	MDCPL	FR	M
2	0-32	fs1	10YR42 00							0	0	HR	4			
	32-60	fs1	10YR72 52 10YR46 00 C				00MN00	00	Y	0	0		0			M
	60-80	sc1	10YR52 62 75YR58 00 M				00MN00	00	Y	0	0		0			M
	80-120	lfs	25Y 62 63 10YR58 00 M				00MN00	00	Y	0	0		0			M
2P	0-29	fs1	10YR42 00							1	0	HR	4			
	29-42	hc1	10YR52 53 10YR56 00 C						Y	0	0	HR	10	MDCSAB	FR	M
	42-65	c	25Y 52 00 10YR56 00 M						Y	0	0	HR	5	MDCPR	FM	P
	65-75	lfs	25Y 52 53 10YR58 00 M						Y	0	0		0	MDCPL	VF	M
	75-120	fs	25Y 62 00 10YR68 58 M						Y	0	0		0	MDCPL	VF	M
3	0-37	mc1	10YR42 00							0	0	HR	3			
	37-58	fs1	10YR62 00 10YR46 00 C				00MN00	00	Y	0	0	HR	2			M
	58-120	c	10YR62 63 75YR58 00 M				00MN00	00	Y	0	0	HR	2			P
3P	0-27	mc1	10YR42 52							0	0	HR	1			
	27-70	c	10YR61 00 75YR58 00 M				00MN00	00	Y	0	0		0	MDCOAB	FM	P
4	0-35	fs1	10YR41 42							0	0	HR	4			
	35-60	lfs	10YR63 64 10YR46 00 C						Y	0	0		0			M
	60-68	sc1	10YR62 63 75YR58 00 C				00MN00	00	Y	0	0		0			M
	68-75	fs1	10YR62 63 75YR58 00 C						Y	0	0		0			M
	75-120	lfs	10YR54 56						Y	0	0		0			M
5	0-30	mc1	10YR42 52							0	0		0			
	30-75	c	10YR61 00 75YR58 68 M						Y	0	0		0			P
6	0-28	fs1	10YR42 00							0	0	HR	1			
	28-45	sc1	25 Y62 00 75YR58 00 M						Y	0	0		0			M
	45-70	c	25 Y72 00 75YR58 00 M						Y	0	0		0			M
	70-85	sc1	25 Y72 00 75YR58 00 M						Y	0	0		0			M
	85-100	fs1	25 Y72 00 75YR58 00 M						Y	0	0		0			M
	100-120	c	10YR62 00 75YR56 00 M						Y	0	0		0			P
7	0-30	mc1	10YR42 00							0	0	HR	1			
	30-45	fs1	25 Y62 00 75YR56 00 C						Y	0	0		0			M
	45-55	c	25 Y72 00 75YR58 00 M						Y	0	0	HR	2			M
	55-120	sc1	25 Y72 00 75YR58 00 M						Y	0	0		0			M
9	0-35	msz1	10YR42 00							0	0	HR	2			
	35-58	fs1	25Y 52 62 10YR46 00 C				00MN00	00	Y	0	0		0			M
	58-80	fs1	10YR52 62 75YR58 00 M				00MN00	00	Y	0	0	HR	2			M
	80-100	sc1	10YR52 62 75YR58 00 M				00MN00	00	Y	0	0		0			M

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED		-----STONES-----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		
10	0-32	fs1	10YR42 00						0	0	HR	3					
	32-75	sc1	10YR52 62	10YR56	58	M	00M00	00	Y	0	0	HR	3	P		Y	HEAVY SCL
11	0-35	mc1	10YR42 00						0	0	HR	3					BORDER FSL
	35-55	sc1	10YR52 62	10YR56	00	C			Y	0	0	HR	2	M			
	55-80	c	25Y 52 62	75YR58	00	M	00M00	00	Y	0	0	HR	2	P		Y	
12	0-30	mc1	10YR42 52						0	0		0					
	30-45	sc1	25 Y62 00	75YR56	00	C			Y	0	0		0	M			
	45-80	c	25 Y62 00	75YR68	00	M			Y	0	0		0	P		Y	
13	0-30	fs1	10YR42 00						1	0	HR	2					
	30-38	fs1	25 Y72 00	75YR56	00	C			Y	0	0		0	M			
	38-52	sc1	25 Y72 00	75YR56	00	C			Y	0	0		0	M			
	52-90	c	10YR62 00	75YR58	00	M			Y	0	0		0	P		Y	
14	0-30	fs1	10YR42 00						2	0	HR	3					
	30-48	mc1	10YR71 00	10YR58	00	C	00M00	00	Y	0	0	HR	2	M			
	48-65	c	25Y 62 00	75YR58	00	M	00M00	00	Y	0	0	HR	2	P		Y	
15	0-35	mc1	10YR42 00						0	0	HR	4					
	35-50	sc1	10YR52 62	10YR56	00	C			Y	0	0	HR	2	M			
	50-80	c	25Y 61 62	75YR58	00	M	00M00	00	Y	0	0	HR	2	P		Y	
16	0-28	fs1	10YR42 00						0	0	HR	3					
	28-45	sc1	12YR52 62	10YR56	58	C	00M00	00	Y	0	0	HR	2	M			
	45-75	c	25Y 52 62	75YR58	00	M	00M00	00	Y	0	0	HR	3	P		Y	
17	0-35	mc1	10YR42 00						0	0	HR	5					
	35-60	c	25Y 52 62	75YR58	00	M	00M00	00	Y	0	0	HR	2	P		Y	
18	0-30	fs1	10YR42 00						0	0	HR	2					
	30-60	mc1	25Y 52 63	10YR56	58	C	00M00	00	Y	0	0	HR	1	M			
	60-80	c	25Y 62 53	75YR58	00	M			Y	0	0		0	P		Y	
19	0-29	fs1	10YR42 00						0	0	HR	4					
	29-55	fs1	25 Y63 52	10YR56	58	C			Y	0	0	HR	3	M			
	55-68	c	25 Y63 00	10YR58	00	C			Y	0	0		0	M			
	68-120	sc1	25 Y62 00	75YR58	00	M			Y	0	0		0	M			
20	0-28	ms1	10YR42 00						1	0	HR	2					
	28-45	sc1	25 Y62 00	75YR56	00	C	00M00	00	Y	0	0		0	M			
	45-55	hc1	25 Y62 00	75YR56	00	C	00M00	00	Y	0	0		0	M			
	55-80	c	10YR71 00	75YR68	00	M			Y	0	0		0	P		Y	
21	0-30	fs1	10YR42 00						4	0	HR	8					
	30-40	mc1	25Y 63 73	10YR58	00	M	00M00	00	Y	0	0	HR	15	M			
	40-75	hc1	25Y 53 62	75YR58	00	M	00M00	00	Y	0	0	HR	2	P		Y	
	75-90	lfs	10YR63 00	10YR56	00	C			Y	0	0		0	G		Y	
	90-120	mc1	25Y 71 00	10YR56	00	C			Y	0	0		0	M		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL.	---STONES---			STRUCT/ CONSIST	SUBS			CALC		
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR		POR	IMP
22	0-28	mc1	10YR43 00					1	0	HR	2						
	28-40	mc1	10YR54 00					0	0	HR	2		M				
	40-120	mc1	10YR53 62	10YR58	00	C		Y	0	0	HR	2		M			
23	0-30	mzc1	10YR43 00					1	0	HR	4						
	30-45	mc1	10YR53 54	10YR56	00	C		Y	0	0	HR	2		M			
	45-60	mc1	10YR53 62	10YR56	00	C		Y	0	0	HR	2		M			
	60-70	hc1	25Y 52 62	75YR58	00	M		00M00	00	Y	0	0	HR	2		M	
	70-120	c	25Y 62 52	75YR58	00	M		00M00	00	Y	0	0		0		P	Y
24	0-30	mc1	10YR43 00					1	0	HR	4						
	30-60	c	25Y 62 53	10YR58	00	M		00M00	00	Y	0	0	HR	2		P	Y
25	0-28	mc1	10YR43 00					1	0	HR	4						
	28-35	mc1	10YR62 53	10YR56	00	C		Y	0	0	HR	4		M			
	35-60	c	25Y 62 00	10YR68	00	M		Y	0	0	HR	2		P		Y	
26	0-35	fs1	10YR42 00					0	0	HR	3						
	35-59	mc1	25Y 52 63	10YR56	58	C		00M00	00	Y	0	0	HR	4		M	
	59-120	c	10YR62 63	75YR58	00	M		00M00	00	Y	0	0	HR	2		P	Y
27	0-30	mc1	10YR42 32					0	0	HR	4						
	30-58	hc1	25Y 62 63	10YR58	46	M		00M00	00	Y	0	0	HR	5		M	
	58-80	c	25Y 52 63	75YR58	46	M		00M00	00	Y	0	0	HR	5		P	Y
	80-90	hc1	25Y 52 63	75YR58	46	M		00M00	00	Y	0	0	HR	5		M	Y
28	0-28	mzc1	10YR43 53					1	0	HR	5						
	28-60	c	25Y 62 61	75YR58	68	M		00M00	00	Y	0	0	HR	2		P	Y
29	0-30	mc1	10YR43 00					1	0	HR	5						
	30-60	c	25Y 52 53	10YR68	00	M		00M00	00	Y	0	0		0		P	Y
30	0-28	mc1	10YR43 00					1	0	HR	5						
	28-35	hc1	25Y 62 53	75YR56	00	M		00M00	00	Y	0	0	HR	3		M	
	35-60	c	25Y 61 00	10YR68	56	M		00M00	00	Y	0	0	HR	2		P	Y
31	0-30	mzc1	10YR43 00					1	0	HR	4						
	30-60	c	25Y 62 00	10YR68	00	M		00M00	00	Y	0	0	HR	4		P	Y
33	0-25	mc1	10YR42 00					0	0	HR	3						
	25-60	sc1	05Y 61 62	75YR58	46	M		00M00	00	Y	0	0	HR	10		P	Y
34	0-27	hc1	10YR42 00					0	0	HR	5						
	27-60	c	05Y 61 62	75YR58	00	M		00M00	00	Y	0	0	HR	10		P	Y
36	0-30	mc1	10YR43 00					1	0	HR	5						
	30-60	c	25Y 62 00	75YR68	00	M		Y	0	0	HR	5		P		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED		-----STONES-----				STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT		STR	POR	IMP		
38	0-30	hc1	10YR41 42						1	0	HR	3						
	30-60	c	25Y 61 00	10YR68	00	M		Y	0	0	HR	2	P				Y	
40	0-30	hc1	10YR52 00	10YR58	00	C		Y	1	0	HR	2						
	30-80	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
41	0-30	sc1	10YR43 00						3	0	HR	15						
	30-45	c	05Y 52 42	10YR56	00	C		Y	0	0	HR	20	P					
43	0-35	mc1	10YR52 00						1	0	HR	5						
	35-45	mc1	10YR62 00	10YR58	68	C		Y	0	0	HR	5	M					
	45-80	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
44	0-30	hc1	10YR52 00	10YR58	00	C		Y	0	0	HR	2						
	30-70	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
45	0-35	hc1	10YR52 00	10YR58	00	C		Y	0	0	HR	2						
	35-80	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
46	0-30	mc1	10YR43 00						3	0	HR	15						
	30-40	c	05Y 51 00	10YR56	00	C		Y	0	0	HR	15	P					
47	0-28	mc1	10YR42 00						0	0	HR	5						
	28-35	hc1	10YR52 00	10YR58	00	C		Y	0	0	HR	5	M					
	35-45	hc1	25Y 52 00	25YR48	00	M		Y	0	0	HR	2	P				Y	
	45-80	c	25Y 62 71	10YR68	00	C		Y	0	0	HR	2	P				Y	
48	0-28	mc1	10YR53 00	10YR58	00	F			1	0	HR	5						
	28-55	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
	55-80	hc1	25Y 71 00	75YR58	00	M		Y	0	0		0	P				Y	
49	0-30	hc1	10YR53 00						0	0	HR	3						
	30-40	hc1	10YR53 00	10YR58	00	C		Y	0	0	HR	3	M					
	40-80	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
50	0-35	hc1	10YR53 00	10YR58	00	C		Y	0	0	HR	3						
	35-80	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	
51	0-28	hc1	10YR53 00						0	0	HR	3						
	28-35	hc1	10YR53 00	10YR58	00	C		Y	0	0	HR	3	M					
	35-45	sc1	25Y 71 00	10YR58	00	M		Y	0	0	HR	15	M					
	45-90	c	25Y 71 00	75YR68	00	M		Y	0	0		0	P				Y	

HEAVY HCL