

**A1
Lamberhurst Integrated Waste
Management Facility, Kent
Agricultural Land Classification
Reconnaissance Survey
Report and Map
November 1996**

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

**ADAS Reference 2011/201/96
MAFF Reference EL 20/01403
LUPU Commission 02891**

AGRICULTURAL LAND CLASSIFICATION REPORT
LAMBERHURST INTEGRATED WASTE MANAGEMENT
FACILITY, KENT

RECONNAISSANCE SURVEY

Introduction

1 This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of approximately 180 hectares of land at Lamberhurst Farm to the south of Yorkletts Kent. The survey was carried out during November 1996.

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 proposals for an integrated waste site. The results of this survey supersede any previous ALC information 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.

4 At the time of survey the agricultural land on this site was either in arable crops or grass. The areas of the site shown as Other Land consists of woodland, residential dwellings and agricultural buildings.

Summary

5 The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:15,000. 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)	% Total site area
3b	166.4	92.0
Other land	14.4	8.0
Total site area	180.8	100

7 The fieldwork was conducted at an average density of 1 boring every 5 hectares. A total of 36 borings and 3 soil pits were described.

8 The land at this site has been classified as Subgrade 3b (moderate quality) on the basis of soil wetness/workability limitations. In parts of the site gradient restrictions are equally limiting.

9 All the land at the site is mapped as Subgrade 3b and is limited by soil wetness/workability where soils have developed over London Clay. These clayey soils cause drainage to be impeded so that land utilisation is restricted. The combination of poor drainage and heavy topsoil textures will limit the timing and flexibility of cultivations, trafficking by machinery or grazing by livestock.

10 Across parts of the site gradient is equally limiting. Where slopes between 7 and 11° were recorded, the land is limited to Subgrade 3b. This will have the effect of restricting the safe and efficient operation of farming machinery. Across localised parts of the site slopes were found to exceed 11° thereby further restricting land quality to Grade 4. However, these areas were not mapped as a separate unit due to their limited extent and the scale of mapping.

Factors Influencing ALC Grade

Climate

11 Climate affects the grading of the 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).

Table 2 Climatic and altitude data

	Units	Values			
Grid reference	N/A	TR 086 625	TR 095 620	TR 099 622	TR 093 614
Altitude	m AOD	25	45	73	86
Accumulated Temperature	day°C	1468	1445	1413	1399
Average Annual Rainfall	mm	602	613	629	647
Field Capacity Days	days	122	125	127	132
Moisture Deficit Wheat	mm	125	122	118	116
Moisture Deficit Potatoes	mm	123	119	114	111

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. The field capacity days for the site range between 124 and 132. In terms of the ALC guidelines, 126 field capacity days represents an important cut off between two ranges which may be significant for the assessment of soil wetness and workability. This boundary runs approximately across the centre of the site.

Land to the north of the boundary is potentially drier than land to the south (on the higher ground) Due to the nature of the soils on the site the existence of the boundary is not relevant in this case

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

Site

16 The agricultural land at this site lies at an altitude of 23.86m AOD In localised areas the land is limited to Subgrade 3b on the basis of gradient restrictions having slopes between 7° and 11° Very occasionally land is limited to Grade 4 due to the existence of slopes of 13° but these areas were too small to map at this level of survey Nowhere does microrelief affect the land quality

Geology and soils

17 The published geological information for the site (BGS 1974) shows the site to be underlain completely by Eocene London Clay

18 The most recently published soil information for the site (SSEW 1983) shows the Windsor association to cover the area These soils are described as Slowly permeable seasonally waterlogged clayey soils mostly with brown subsoils Some fine loamy over clayey and fine silty over clayey and locally on slopes clayey soils with slight seasonal waterlogging (SSEW 1983) Soils consistent with this description were found to exist across the site upon detailed field examination

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 page 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 III

Subgrade 3b

21 The Subgrade 3b mapping unit which covers the entire site is limited by soil wetness/workability Here heavy clay loam and heavy silty clay loam clay or silty clay topsoils overlie clay or silty clay subsoils with no stones or very few stones throughout (0.5% total) The soils are non calcareous All three of the soil inspection pits (see Appendix III) reveal both the upper and lower subsoils to be poorly structured The subsoil in all cases was slowly permeable at shallow depths typically within 40cm (or less) of the surface Drainage is thus significantly impeded causing prolonged seasonal waterlogging in the soil profile As a result crop germination and growth may be adversely affected 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 III Subgrade 3b is therefore considered appropriate for this land

22 In some areas of the site a gradient limitation is equal to a wetness/workability limitation. Slope measurements of between 7 and 11 degrees were recorded on the site. However in localised patches slope readings were in excess of 11 degrees reaching measurements of approximately 13 degrees limiting the land to Grade 4 (poor quality). These areas were not mapped as a separate unit due to the scale of mapping. Areas limited by gradient lie predominantly towards the south western section of the site. Such gradients will have a significant effect on mechanised farm operations limiting the performance and safety of conventional farm machinery. There may also be a risk of increased soil erosion on steeper sloping land.

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SOURCES OF REFERENCE

British Geological Survey (1974) Sheet No 273 Faversham 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

APPENDIX I

DESCRIPTION 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 that 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 that restricts use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years ²
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 90 days but only wet within 40 cm depth for 30 days in most years
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or if there is no slowly permeable layer present within 80 cm depth it is wet within 70 cm for more than 180 days but only wet within 40 cm depth for between 31-90 days in most years
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or if there is no slowly permeable layer present within 80 cm depth it is wet within 40 cm depth for 91-210 days in most years
V	The soil profile is wet within 40 cm depth for 211-335 days in most years
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* (MAFF 1988).

¹ The number of days is not necessarily a continuous period

² In most years is defined as more than 10 out of 20 years

APPENDIX III

SOIL DATA

Contents

Sample location map

Soil abbreviations - Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout - Horizon Level Information

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		
DCW	Deciduous Wood				
HTH	Heathland	BOG	Bog or Marsh	FLW	Fallow
PLO	Ploughed	SAS	Set aside	OTH	Other
HRT	Horticultural Crops				

3 **GRDNT** Gradient as estimated or measured by a hand-held optical clinometer

4 **GLEYSPL** 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	EX	Exposure
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
ST	Topsoil Stoniness				

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 **GLEYS** 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	SLST	soft oolitic or dolomitic limestone
CH	chalk	FSST	soft fine grained sandstone
ZR	soft argillaceous or silty rocks	GH	gravel with non porous (hard) stones
MSST	soft medium grained sandstone	GS	gravel with porous (soft) stones
SI	soft weathered igneous/metamorphic rock		

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

<u>degree of development</u>	WK weakly developed ST strongly developed	MD moderately developed
<u>ped size</u>	F fine C coarse	M medium VC very coarse
<u>ped shape</u>	S single grain GR granular SAB sub-angular blocky PL platy	M massive AB angular blocky PR prismatic

9 **CONSIST** Soil consistence is described using the following notation

firm	L loose	VF very friable	FR friable	FM firm	VM very
	EM extremely firm	EH extremely hard			

10 structural condition recorded for the purpose of calculating good **M** moderate **P** poor

SUBS profile	STR droughtiness	Subsoil G
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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 LAMBERHURST WASTE KENT Pit Number 1P

Grid Reference TR09806170 Average Annual Rainfall 647 mm
 Accumulated Temperature 1457 degree days
 Field Capacity Level 125 days
 Land Use Cereals
 Slope and Aspect 04 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	C	10YR53 00	2	2	HR	C				
35-120	C	25 Y61 00	0	1	HR	M	WDCAB	FM	P	

Wetness Grade 3B Wetness Class III
 Gleying 0 cm
 SPL 035 cm

Drought Grade 3A APW 126mm MBW 2 mm
 APP 103mm MBP -18 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name LAMBERHURST WASTE KENT Pit Number 2P

Grid Reference TR09306200 Average Annual Rainfall 647 mm
 Accumulated Temperature 1457 degree days
 Field Capacity Level 125 days
 Land Use Cereals
 Slope and Aspect 02 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	C	10YR53 00	0	0		F				
28-120	C	10YR61 00	0	0		M	WDCAB	FM	P	

Wetness Grade 3B Wetness Class III
 Gleying 028 cm
 SPL 028 cm

Drought Grade 3A APW 125mm MBW 1 mm
 APP 102mm MBP -19 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name LAMBERHURST WASTE KENT Pit Number 3P

Grid Reference TR08606240 Average Annual Rainfall 647 mm
 Accumulated Temperature 1457 degree days
 Field Capacity Level 125 days
 Land Use Cereals
 Slope and Aspect 01 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	C	10YR4/2 00	0	0						
35-120	C	10YR6/1 00	0	0		M	MDCAB	FM	P	

Wetness Grade 3B Wetness Class III
 Gleying 035 cm
 SPL 035 cm

Drought Grade 2 APW 135mm MBW 11 mm
 APP 112mm MBP -9 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT USE	--WETNESS--		-WHEAT		POTS-		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB				
1	TR08906280	CER N	03	030 030	3	3B		0	0				WE	3B
1P	TR09806170	CER NE	04	0 035	3	3B	126	2 103	-18	3A			WE	3B
2	TR08506260	PGR W	02	029 029	3	3B		0	0				WE	3B
2P	TR09306200	CER NE	02	028 028	3	3B	125	1 102	-19	3A			WE	3B
3	TR08906260	CER S	02	030 030	3	3B		0	0				WE	3B
3P	TR08606240	CER NE	01	035 035	3	3B	135	11 112	-9	2			WE	3B
4	TR09206260	PGR NE	02	025 025	3	3B		0	0				WE	3B
5	TR08606240	CER W	01	030 030	3	3B		0	0				WE	3B
6	TR09106240	CER N	02	030 030	3	3B		0	0				WE	3B
7	TR09506240	CER NW	04	0 032	3	3B	133	9 110	-11	3A			WE	3B
8	TR08506220	CER W	02	030 030	3	3B		0	0				WE	3B
9	TR08906220	CER N	03	030 030	3	3B		0	0				WE	3B
10	TR09106220	CER N	01	029 029	3	3B		0	0				WE	3B
11	TR09306220	CER NE	02	0 028	3	3B		0	0				WE	3B
12	TR09506220	CER NW	03	0 030	3	3B	125	1 102	-19	3A			WE	3B
13	TR09706220	CER SE	04	0 030	3	3B		0	0				WE	3B
14	TR09906220	CER SE	03	0 020	3	3B		0	0				WE	3B
15	TR08706200	CER W	03	028 028	3	3B		0	0				WE	3B
16	TR08906200	CER W	04	035 035	3	3B		0	0				WE	3B
17	TR09106200	CER NW	03	030 030	3	3B		0	0				WE	3B
18	TR09306200	CER NW	02	030 030	3	3B	131	7 108	-13	3A			WE	3B
19	TR09506200	CER NW	04	0 028	3	3B	123	-1 100	-21	3A			WE	3B
20	TR09706200	CER N	06	0 028	3	3B		0	0				WE	3B
21	TR09906200	CER E	02	0 023	3	3B		0	0				WE	3B
22	TR10106200	CER E		0 020	3	3B		0	0				WE	3B
23	TR08906180	CER W	07	035 035	3	3B		0	0				WE	3B
24	TR09106180	CER SW	04	030 030	3	3B	131	7 108	-13	3A			WE	3B
25	TR09306180	CER NW	02	030 030	3	3B		0	0				WE	3B
26	TR09906160	CER SE	03	038 038	3	3B		0	0				WE	3B
27	TR09706180	CER N	02	0 025	3	3B		0	0				WE	3B
28	TR09906180	CER SE	05	0 025	3	3B		0	0				WE	3B
29	TR09106160	CER W	04	027 027	3	3B	130	6 107	-14	3A			WE	3B
30	TR09706160	CER SE	04	028 028	3	3B		0	0				WE	3B
31	TR09906160	CER SW	03	0 038	3	3B		0	0				WE	3B
32	TR09306140	CER N	02	030 030	3	3B		0	0				WE	3B
33	TR09506140	CER S	05	028 028	3	3B		0	0				WE	3B
34	TR09706140	CER S	05	028 028	3	3B		0	0				WE	3B
35	TR09106120	CER SW	01	035 035	3	3B		0	0				WE	3B
36	TR09306120	CER S	03	028 028	3	3B		0	0				WE	3B

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/	SUBS	SPL	CALC		
				COL	ABUN	CONT	COL	GLE	>2	>6	LITH					TOT	CONSIST
1	0-30	hzc1	10YR42 00						0	0	0						
	30-60	c	10YR61 00	75YR58	00	M		Y	0	0	0		P	Y			
1P	0-35	c	10YR53 00	10YR56	00	C		Y	2	0	HR	2					
	35-120	c	25 Y61 00	75YR58	68	M		Y	0	0	HR	1	WDCAB	FM	P	Y	Y
2	0-29	hc1	10YR42 00	10YR58	00	F			0	0	0						
	29-60	c	10YR61 00	75YR58	00	M		Y	0	0	0		P	Y			
2P	0-28	c	10YR53 00	10YR56	00	F			0	0	0						
	28-120	c	10YR61 00	75YR58	00	M	10YR61	00	Y	0	0	0	WDCAB	FM	P	Y	Y
3	0-30	c	10YR42 00						0	0	0						
	30-60	c	10YR61 00	75YR68	00	M		Y	0	0	0		P	Y			
3P	0-35	c	10YR42 00						0	0	0						
	35-120	c	10YR61 00	75YR68	00	M		Y	0	0	0	MDCAB	FM	P	Y	Y	BORDER HZCL
4	0-25	c	10YR42 00	10YR58	00	F			0	0	0						
	25-45	c	10YR51 00	10YR58	00	C		Y	0	0	0		P	Y			
	45-60	c	10YR61 00	75YR58	00	M		Y	0	0	0		P	Y			
5	0-30	zc	10YR42 00						0	0	0						
	30-60	zc	10YR61 00	75YR68	00	M		Y	0	0	0		P	Y			
6	0-30	hzc1	10YR42 00						0	0	0						
	30-60	c	10YR61 00	75YR58	00	M		Y	0	0	0		P	Y			
7	0-32	hzc1	10YR53 51	10YR58	00	C	00M00	00	Y	0	0	HR	1				
	32-120	c	25Y 51 52	75YR58	00	M	00M00	00	Y	0	0	0		P	Y		
8	0-30	c	10YR42 00						0	0	0						
	30-60	c	10YR61 00	75YR68	00	M		Y	0	0	0		P	Y			
9	0-30	c	10YR42 00						0	0	0						
	30-80	c	10YR52 00	75YR68	00	M		Y	0	0	0		P	Y			
10	0-29	c	10YR42 00						0	0	0						
	29-80	c	10YR52 00	75YR58	00	M		Y	0	0	0		P	Y			
11	0-28	hzc1	10YR51 53	10YR58	00	C	00M00	00	Y	0	0	0					
	28-60	c	25 Y51 52	75YR58	00	M		Y	0	0	0		P	Y			
12	0-30	c	10YR53 51	75YR58	00	C	00M00	00	Y	0	0	HR	2				
	30-85	c	25Y 62 00	75YR58	00	M	00M00	00	Y	0	0	0		P	Y		
	85-120	c	10YR53 00	10YR58	00	C	00M00	00	Y	0	0	0		P	Y		
13	0-30	hzc1	10YR51 53	10YR58	00	C	00M00	00	Y	3	0	HR	3				
	30-60	c	25 Y51 52	75YR58	00	M		Y	0	0	HR	3		P	Y		

-----MOTTLES----- PED -----STONES----- STRUCT/ SUBS

SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
14	0-20	hzc1	10YR53 51	10YR58	00	C	00MN00	00	Y	5	0	HR	5					
	20-60	c	25 Y51 52	75YR58	00	M			Y	0	0	HR	2	P			Y	
15	0-28	hzc1	10YR43 00	10YR56	00	F				0	0							
	28-60	c	25 Y61 00	10YR58	00	M	00MN00	00	Y	0	0			P			Y	
16	0-35	hzc1	10YR43 00							0	0							
	35-60	c	10YR52 00	10YR58	00	C			Y	0	0			P			Y	
17	0-30	c	10YR43 00							0	0							
	30-80	c	10YR52 00	75YR58	00	M			Y	0	0			P			Y	
18	0-30	hzc1	10YR53 00	10YR56	00	F	00MN00	00		0	0	HR	1					
	30-120	c	25Y 62 63	75YR56	58	M	00MN00	00	Y	0	0	HR	1	P			Y	
19	0 28	c	10YR51 52	10YR58	00	C	00MN00	00	Y	0	0	HR	2					
	28-90	c	25Y 61 62	75YR58	00	M	00MN00	00	Y	0	0	HR	2	P			Y	
	90-120	c	10YR53 00	10YR58	00	C	00MN00	00	Y	0	0			P			Y	
20	0 28	hzc1	10YR51 53	10YR58	00	C			Y	1	0	HR	1					
	28 65	c	25 Y51 52	75YR58	00	M			Y	0	0			P			Y	
	65 66	c	10YR53 00	10YR58	00	C			Y	0	0			P			Y	
21	0 23	hzc1	10YR53 51	10YR58	00	C	00MN00	00	Y	2	0	HR	2					
	23 77	c	25 Y51 52	75YR58	00	M			Y	0	0	HR	2	P			Y	
22	0-20	hzc1	10YR53 51	10YR58	00	C	00MN00	00	Y	0	0							
	20 75	c	25 Y51 52	75YR58	00	M			Y	0	0	HR	1	P			Y	
23	0 35	hzc1	10YR43 00							0	0	Z	0					
	35-80	c	10YR53 00	10YR58	00	M			Y	0	0			P			Y	
24	0 30	hzc1	10YR43 00							1	0	HR	1					
	30 120	c	25 Y61 00	10YR58	00	M	00MN00	00	Y	0	0			P			Y	
25	0-30	c	10YR43 00							0	0							
	30 80	c	10YR61 00	75YR68	00	M			Y	0	0			P			Y	
26	0-38	hzc1	10YR43 00							0	0							
	38 60	c	25 Y61 00	10YR58	00	M	00MN00	00	Y	0	0			P			Y	
27	0 25	hzc1	10YR53 51	10YR58	00	C	00MN00	00	Y	0	0							
	25 90	c	25 Y51 52	75YR58	00	M			Y	0	0			P			Y	
	90 120	c	10YR53 00	10YR58	00	C			Y	0	0			P			Y	
28	0 25	hzc1	10YR51 53	10YR58	00	C	00MN00	00	Y	0	0							
	25 70	c	25 Y51 52	75YR58	00	C			Y	0	0			P			Y	
	70 120	c	10YR53 00	10YR58	00	C			Y	0	0			P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL	GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL
29	0 27	hzc1	10YR43 00						0	0	0						
	27-120	c	25 Y61 00	10YR58 00	M		00M00 00	Y	0	0	0		P				Y
30	0 28	hzc1	10YR42 00						1	0	HR	1					
	28-120	c	25 Y61 00	10YR58 00	M		00M00 00	Y	0	0	0		P				Y
31	0-38	c	10YR52 00	10YR58 00	C		00M00 00	Y	0	0	0						
	38 60	c	25 Y61 00	10YR58 00	M		00M00 00	Y	0	0	0		P				Y
32	0 30	hcl	10YR42 00						0	0	HR	5					
	30-80	c	10YR52 00	75YR58 00	M			Y	0	0	HR	5		P			Y
33	0-28	hzc1	10YR42 00						0	0	HR	3					
	28-40	c	10YR52 00	10YR58 00	C			Y	0	0	HR	5		P			Y
	40 80	c	10YR61 00	75YR68 00	M			Y	0	0		0		P			Y
34	0-28	c	10YR42 00						0	0	0						
	28 60	c	10YR52 00	75YR68 00	M			Y	0	0	0			P			Y
35	0-35	c	10YR42 00						0	0	HR	1					
	35-120	c	10YR52 00	75YR58 00	M			Y	0	0	0			P			Y
36	0 28	c	10YR53 00						0	0	HR	1					
	28 80	c	10YR61 00	75YR68 00	M			Y	0	0	0			P			Y