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Aylesbury Vale Local Plan
Land at Lower Road, Aylesbury, Buckinghamshire
Agricultural Land Classification Report
June 1996.

Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference: 0301/046/96
MAFF Reference: EL 03/01385
LUPU Commission: 2511

AGRICULTURAL LAND CLASSIFICATION REPORT

AYLESBURY VALE LOCAL PLAN
LAND AT LOWER ROAD, AYLESBURY, BUCKINGHAMSHIRE.

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on approximately 27 hectares of land to the west of Lower Road, south of Aylesbury, in Buckinghamshire. The survey was carried out during June 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 the Aylesbury Vale Local Plan. 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. Data from a previous survey, on adjacent land was also used in the grading of this site (ADAS Ref: 0301/005/94).

4. At the time of survey half of the site was under permanent grassland and half under wheat.

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)	% Total site area
3a	1.4	5.2
3b	25.5	94.8
Total site area	26.9	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 27 borings and one soil inspection pit were described.

8. The majority of the agricultural land on this site has been classified as Subgrade 3b (moderate quality) the key limitation being soil wetness. A small area of Subgrade 3a land

(good quality) has also been mapped in the north east corner of the site where soil droughtiness is limiting.

9. The majority of profiles are poorly drained comprising medium and heavy clay loam topsoils over slowly permeable clay subsoils at shallow depths. The resultant waterlogging will therefore restrict seed germination and growth. Given the local climatic regime the medium and heavy topsoil textures can also limit the timing of cultivations as trafficking by farm machinery and grazing livestock can lead to structural damage. These profiles have therefore been classified as Subgrade 3b due to soil wetness. Occasional better quality profiles also occur within this mapping unit but these were too limited in number and extent to map separately at this scale.

10. To the north east of the site the soil profiles are well drained comprising a very slightly stony (2% total flint by volume) heavy clay loam over a thin, poorly structured clay upper subsoil. At 45cm depth a moderately stony (29% total flint by volume), moderately structured medium clay loam subsoil occurs which overlies impenetrable gravelly deposits at 90cm. In this local climatic regime the combination of soil textures, structures, stone contents and depth to gravel acts to reduce the amount of profile available water for crops. As a result the level and consistency of crop yields is restricted. With the use of information from an adjacent site, this land has therefore been classified as Subgrade 3a on the basis of a moderate soil droughtiness limitation.

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.

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SP 823 108
Altitude	m, AOD	90
Accumulated Temperature	day°C (Jan-June)	1401
Average Annual Rainfall	mm	650
Field Capacity Days	days	140
Moisture Deficit, Wheat	mm	109
Moisture Deficit, Potatoes	mm	101

14. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation (Climatic Grade 1). However, climatic factors can interact with soil properties to influence soil wetness and droughtiness. At this locality the crop adjusted soil moisture deficits are slightly high thus increasing the likelihood of soil droughtiness. Correspondingly the field capacity day values are low thus decreasing the likelihood of soil wetness.

16. Local climatic factors such as frost risk and exposure are not thought likely to adversely affect agricultural land use on this site.

Site

17. The land on this site slopes very gently from 95m AOD in the south east to 90m AOD in the north and west.

18. Flooding is not likely to affect land quality in this area.

Geology and soils

19. The relevant geological sheet (BGS, 1972) maps Cretaceous Upper Greensand and Gault Clay across the site.

20. The most recently published soils information for this area (SSEW, 1983) maps the Grove soil association across the entire site. These soils are described as 'moderately permeable fine loamy calcareous soils over chalky gravel affected by groundwater. Some fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged clayey soils.' (SSEW, 1983).

21. Detailed field examination revealed soils of a similar nature to those described above across all of the site

Agricultural Land Classification

22. 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.

23. 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 3a

24. A very small area of good quality agricultural land (Subgrade 3a) has been mapped in the north east of the site. This land has been mapped in conjunction with an area of similar quality land on an adjacent site (ADAS Ref: 0301/055/94). The soil profiles here are typically

calcareous, comprising very slightly stony (2% total flints) heavy clay loam topsoils over slightly stonier (5% total flints), poorly structured, clay upper subsoils. At 45cm depth the profiles become moderately structured. They are also distinctly lighter and more stony, comprising medium clay loam lower subsoils with 20% soft limestone. At 90cm depth they become impenetrable to the soil auger over flints. In this locally cool and dry climatic regime the combination of heavy topsoil textures and gleying from the upper subsoil results in a slight wetness and workability limitation which is consistent with Wetness Class II (Appendix III), Grade 2. However, soil droughtiness is more limiting as the affects of soil texture, structure, stone content and soil depth combine to reduce the amount of profile available water for plants. As a result the level and consistency of crop yields will be restricted such that Subgrade 3a is appropriate.

Subgrade 3b

25. The majority of the site has been classified as moderate quality agricultural land (Subgrade 3b) due to a significant soil wetness limitation. The soil profiles are variably calcareous, comprising very slightly stony (1-2% flint) medium or heavy clay loam topsoils over poorly structured clay or silty clay upper subsoils. Occasionally, the profiles become lighter where slightly stony (10% soft sandstone) medium or sandy clay loam lower subsoils occur at approximately 80-90cm depth. Soil inspection Pit 1 revealed both the clay and silty clay to be slowly permeable and thus responsible for a significant drainage impedance. Pit 1 was chosen to demonstrate a broad cross-section of soils present on the site and is not, therefore, wholly representative of the drainage status of the site. The pit is consistent with Wetness Class III, Subgrade 3a, whilst the site as a whole has been assessed as Wetness Class IV, Subgrade 3b. Wet soils such as these can restrict seed development and crop growth. The medium and heavy topsoil textures can also restrict the flexibility of cropping and stocking as over trafficking of the land can lead to structural damage.

26. Occasional borings of slightly higher quality were also recorded in this mapping unit. They were not mapped separately, however, due to their limited number and extent.

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SOURCES OF REFERENCE

British Geological Survey (1972) *Sheet No. 238, Aylesbury.* 1:50,000 Series. Solid & Drift. 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

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 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:

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. **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	**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. **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	**SLST**:	soft oolitic or dolimitic 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).

Soil Pits and Auger Borings

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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:

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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.

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F: few <2% **C:** common 2-20% **M**: many 20-40% **VM**: very many 40% +

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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.

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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).

SOIL PIT DESCRIPTION

Site Name : AYLESBURY LP,LOWER ROAD Pit Number : 1P

Grid Reference: SP82301110 Average Annual Rainfall : 650 mm
Accumulated Temperature : 1401 degree days
Field Capacity Level : 140 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MCL	10YR42 00	0	0						
27- 45	HCL	10YR42 00	0	10	HR	C	MDCSAB	FM	M	
45- 57	C	10YR62 00	0	5	HR	M	MDCPR	FM	P	
57- 75	C	25Y 62 61	0	0		M	MDCPR	FM	P	
75- 90	ZC	25Y 72 00	0	0		M	STVCAB	FM	P	

Wetness Grade : 3A Wetness Class : III
Gleying :028 cm
SPL :045 cm

Drought Grade : 3A APW : 109mm MBW : 0 mm
APP : 107mm MBP : 6 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EXP	EROSN DIST	FROST	CHEM LIMIT	ALC	COMMENTS
1	SP82501130	CER			030	030	4	3B		0		0						WE	3B	I70 Flinty
1P	SP82301110	PGR			028	045	3	3A	109	0	107	6	3A					WE	3A	At Boring 8
2	SP82601130	CER			030		2	2	072	-37	072	-29	3B					DR	3B	I90 3Aadj land
3	SP82301120	PGR			028	028	4	3B	137	28	105	2	2					WE	3B	
4	SP82401120	WHT			025	025	4	3B	091	-18	102	-1	3A					WE	3B	Calc
5	SP82501120	CER			030	030	4	3B		0		0						WE	3B	Calc 55
6	SP82601120	CER			030	030	4	3B		0		0						WE	3B	I100 Gravly
7	SP82201110	PGR			030	030	4	3B		0		0						WE	3B	
8	SP82301110	PGR			028	050	3	3A		0		0						WE	3A	See 1P
9	SP82401110	PGR	N		032	032	4	3B		0		0						WE	3B	
10	SP82501110	WHT			028	028	4	3B		0		0						WE	3B	Calc 28
11	SP82601110	CER	E		030		2	3A	066	-43	066	-35	3B					WE	3B	I40 Gravly
12	SP82701110	CER	E		030		2	3A	070	-39	070	-31	3B					WE	3A	I45 Gravly
13	SP82201100	PGR			0	025	4	3B		0		0						WE	3A	Calc
14	SP82301100	PGR			028	028	4	3B		0		0						WE	3B	Calc
15	SP82401100	PGR	N	01	030	030	4	3B		0		0						WE	3B	Calc 30
16	SP82501100	WHT			0	030	4	3B	085	-24	091	-12	3B					WE	3B	I60 Flinty
17	SP82601100	CER	E		022	022	4	3B		0		0						WE	3B	Calc 22
18	SP82701100	CER	E		030	030	4	3B		0		0						WE	3B	I60 gravly
19	SP82201090	PGR			025	025	4	3B		0		0						WE	3B	
20	SP82301090	PGR			025	025	4	3B		0		0						WE	3B	
21	SP82401090	PGR	E	02	032	032	4	3B		0		0						WE	3B	Calc
22	SP82501090	PGR			030	045	3	3B		0		0						WE	3B	Calc 70
23	SP82601090	WHT			025	025	4	3B		0		0						WE	3B	Calc 55
24	SP82201080	PGR			020	020	4	3B		0		0						WE	3B	Calc
25	SP82301080	PGR			035	035	4	3B		0		0						WE	3B	Calc 35
26	SP82401080	PGR			040	040	3	3B		0		0						WE	3B	Calc 32
27	SP82301070	PGR			027	027	4	3B		0		0						WE	3B	

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	
1	0-30	hcl	10YR42 00						2	0	HR	2							
	30-70	c	25Y 52 00	75YR46 00	M			Y	0	0	HR	10		P			Y		Imp Flinty
1P	0-27	mcl	10YR42 00						0	0		0							
	27-45	hcl	10YR42 00	75YR56 00	C		10YR52 00	Y	0	0	HR	10	MDCSAB FM	M					
	45-57	c	10YR62 00	75YR56 00	M		10YR52 00	Y	0	0	HR	5	MDCPR FM	P	Y		Y		
	57-75	c	25Y 62 61	75YR58 00	M		25Y 62 00	Y	0	0		0	MDCPR FM	P	Y		Y		
	75-90	zc	25Y 72 00	75YR58 46	M		25Y 71 00	Y	0	0		0	STVCAB FM	P	Y		Y		
2	0-30	hcl	10YR42 00						2	0	HR	2						Y	
	30-45	c	10YR53 00	10YR56 00	M			Y	0	0	HR	5		P				Y	
	45-90	mcl	10YR53 72	10YR56 00	C			Y	0	0	SLST	20		M				Y	Imp Gravelly
3	0-28	mcl	10YR42 00						0	0		0							
	28-40	c	10YR52 61	75YR58 00	C		00MN00 00	Y	0	0		0		P			Y		
	40-90	c	25Y 62 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
	90-120	scl	25Y 61 00	75YR58 00	M		00MN00 00	Y	0	0		0		M			Y		Fine Sand
4	0-25	hcl	10YR42 00						0	0	HR	1						Y	
	25-35	c	25Y 62 00	10YR58 00	C			Y	0	0		0		P			Y	Y	
	35-70	c	25Y 72 71	10YR56 00	C			Y	0	0	SLST	2		P			Y	Y	
5	0-30	hcl	10YR42 00						2	0	HR	2							
	30-55	c	25Y 52 00	10YR56 00	M			Y	0	0		0		P			Y		
	55-120	zc	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
6	0-30	hcl	10YR42 00						2	0	HR	2							
	30-55	c	25Y 52 00	10YR56 00	M			Y	0	0		0		P			Y		
	55-90	zc	25Y 62 00	10YR56 00	M			Y	0	0		0		P			Y	Y	
	90-100	scl	10YR52 00	10YR58 00	C			Y	0	0	HR	20					Y	Y	Imp Gravelly
7	0-30	mcl	10YR42 00						0	0		0							
	30-50	c	10YR52 61	75YR58 00	C			Y	0	0	HR	2		P			Y		
	50-80	c	25Y 62 00	75YR68 00	M			Y	0	0	HR	2		P			Y		
8	0-28	mcl	10YR42 00						0	0		0							
	28-50	hcl	10YR53 00	75YR58 00	C		00MN00 00	Y	0	0	HR	10		M					
	50-60	c	10YR52 61	75YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		
	60-75	c	25Y 62 00	75YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		
	75-95	c	25Y 72 00	10YR58 00	C		00MN00 00	Y	0	0		0		P			Y		
9	0-32	mcl	10YR43 00	10YR58 00	F				0	0	HR	2							Sl. Calc
	32-80	c	25Y 52 53	10YR58 00	M			Y	0	0	SLST	1		P			Y		Sl. Calc
10	0-28	hcl	10YR42 00						1	0	HR	2							
	28-38	c	25Y 62 63	10YR58 00	C			Y	0	0		0		P			Y	Y	
	38-70	zc	25Y 72 00	10YR56 00	C			Y	0	0		0		P			Y	Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
11	0-30	hcl	10YR32 42						0	0	HR	1							
	30-40	c	10YR52 53	10YR58	00	C		Y	0	0	HR	5		P					Imp Gravelly
12	0-30	hcl	10YR32 42				00MN00	00	0	0	HR	5							
	30-45	c	25Y 52 00	10YR58	00	C	00MN00	00 Y	0	0	HR	6		P					Imp Gravelly
13	0-25	hcl	10YR42 52	75YR58	00	C		Y	0	0	HR	2						Y	
	25-40	c	10YR52 61	75YR58	00	C		Y	0	0	HR	5		P		Y		Y	
	40-55	c	25Y 62 00	10YR58	00	C		Y	0	0	HR	5		P		Y		Y	
	55-120	scl	25Y 72 00	10YR68	00	M		Y	0	0	HR	15		M				Y	Too Soft/Wet
14	0-28	hcl	10YR42 00						0	0		0						Y	
	28-45	c	10YR52 61	75YR58	00	C	00MN00	00 Y	0	0	HR	2		P		Y		Y	
	45-70	c	25Y 72 00	10YR58	00	C	00MN00	00 Y	0	0	SLST	2		P		Y		Y	
15	0-30	hcl	10YR32 42						0	0	SLST	2							
	30-85	c	25Y 52 53	10YR58	00	M		Y	0	0	SLST	3		P		Y		Y	
16	0-30	hcl	10YR32 00	75YR58	00	C		Y	0	0	HR	2							
	30-40	c	10YR52 00	75YR58	00	C		Y	0	0	HR	2		P		Y			
	40-60	zc	25Y 62 72	75YR58	00	C		Y	0	0	HR	5		P		Y		Y	Imp Flinty
17	0-22	hcl	10YR32 00						0	0	HR	3							Sl. Calc
	22-38	c	10YR52 00	10YR58	00	C		Y	0	0	SLST	3		P		Y		Y	
	38-90	c	25Y 52 53	10YR58	00	M	05Y 51	00 Y	0	0	SLST	5		P		Y		Y	
18	0-30	hcl	10YR32 42						0	0	HR	2							
	30-60	c	25Y 52 53	10YR58	00	M	00MN00	00 Y	0	0	HR	6		P		Y			Imp Gravelly
19	0-25	hcl	10YR42 00						2	0	HR	2						Y	
	25-75	c	25Y 52 00	10YR56	00	M		Y	0	0		0		P		Y		Y	
	75-120	zc	25Y 62 00	10YR58	00	M		Y	0	0		0		P		Y		Y	
20	0-25	hcl	10YR42 00						2	0	HR	2							
	25-60	c	25Y 52 00	10YR56	00	M		Y	0	0		0		P		Y		Y	
21	0-32	hcl	10YR32 00						0	0	SLST	1						Y	
	32-55	c	10YR52 00	10YR56	00	M		Y	0	0	SLST	1		P		Y		Y	
	55-120	zc	25Y 52 62	10YR58	00	M	00MN00	00 Y	0	0	SLST	2		P		Y		Y	
22	0-30	hcl	10YR32 00						0	0	HR	2							
	30-45	c	10YR42 00	10YR58	00	C		Y	0	0	HR	2		M					Sl. Sandy
	45-70	c	10YR52 53	75YR58	00	M	10YR42	00 Y	0	0	CH	2		P		Y			Sl. Calc
	70-120	zc	05Y 52 53	10YR58	00	C		Y	0	0	SLST	3		P		Y		Y	
23	0-25	hcl	10YR32 00						0	0		0							
	25-55	c	10YR52 00	75YR58	00	C		Y	0	0	HR	2		P		Y			
	55-70	zc	25Y 62 72	75YR58	00	C		Y	0	0	HR	2		P		Y		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
24	0-20	c	10YR42 00						2	0	HR	2						Y	
	20-80	c	10YR52 00	10YR56 00	M			Y	0	0		0		P			Y	Y	
	80-120	mzcl	10YR81 00					Y	0	0		0		M				Y	
25	0-35	hcl	10YR42 00						2	0	HR	2							
	35-75	c	25Y 52 00	10YR56 00	M			Y	0	0		0		P			Y	Y	
	75-120	zc	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y	Y	
26	0-32	hcl	10YR32 00						0	0	CH	2							Sl. Calc
	32-40	c	25Y 52 53	10YR58 00	F				0	0	SLST	2		P				Y	Not Gleyed
	40-90	c	25Y 52 53	10YR58 00	C			Y	0	0	SLST	5		P			Y	Y	
	90-120	scl	10YR62 72	75YR58 00	M			Y	0	0	SLST	10		M			Y	Y	V. Calc
27	0-27	hcl	10YR32 00						2	0	HR	2						Y	
	27-120	c	10YR52 00	10YR56 00	M			Y	0	0		0		P			Y	Y	