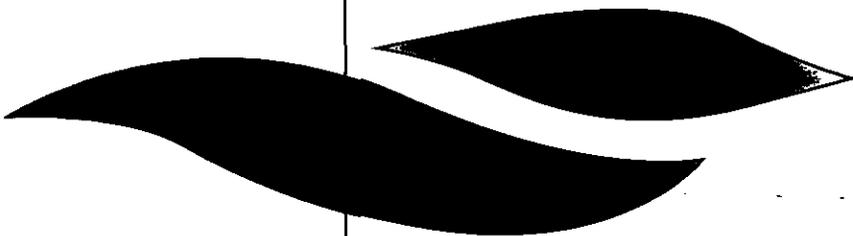
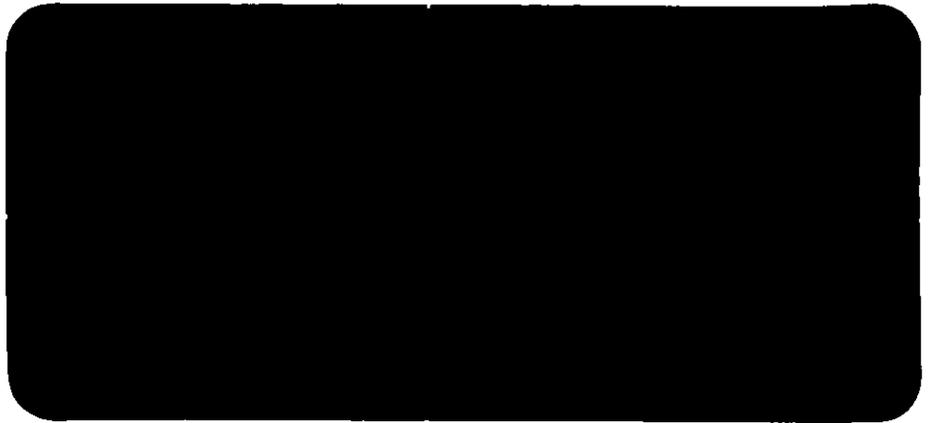


3303/131/97



FARMING AND RURAL CONSERVATION AGENCY

An Executive Agency of the Ministry of Agriculture, Fisheries and Food and the Welsh Office

A1

**DIDCOT DEVELOPMENT 2001-2011
LOCAL PLANNING STUDY
Site B, Willington Down Farm, Didcot
Oxfordshire**

**Agricultural Land Classification
Reconnaissance Survey
ALC Map and Report
October 1997**

**Resource Planning Team
Eastern Region
FRCA Reading**

**RPT Job Number: 3304/131/97
FRCA Reference:EL 33/01754**

AGRICULTURAL LAND CLASSIFICATION REPORT

DIDCOT DEVELOPMENT 2001-2011 LOCAL PLANNING STUDY SITE B, WILLINGTON DOWN FARM

RECONNAISSANCE SURVEY

INTRODUCTION

1. This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of 77.6 ha of land at Willington Down Farm, north east of Didcot. The survey was carried out during October 1997.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)¹ on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Didcot Local Planning Study for the period 2001-2011. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the land use on the site was a mixture of winter sown cereals and permanent grassland grazed by sheep and cattle. The areas mapped as 'Other land' include farm buildings, tracks and private gardens.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:20,000. 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.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b	75.5	100.0	97.3
Other land	2.1	-	2.7
Total surveyed area	75.5	100.0	97.3
Total site area	77.6	-	100.0

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

7. The fieldwork was conducted at an average density of slightly less than 1 boring per 2 hectares of agricultural land. A total of 35 borings and 2 soil pits was described.

8. All the agricultural land at the site has been classified as Subgrade 3b (moderate quality). The key limitations are soil wetness and soil droughtiness. Most of the site is limited by soil wetness. Typically, soil profiles comprise non-calcareous stoneless clays to depth. The clay upper subsoils, impede drainage and this in combination with the prevailing climate leads to Subgrade 3b being appropriate.

9. The effect of prolonged soil wetness is to adversely affect seed germination and survival, partly by a reduction in soil temperature and partly because of anaerobism. This also inhibits the development of a good root system and can affect crop growth. In addition, the heavy topsoils restrict the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

10. Land restricted by a soil droughtiness limitation is found on the higher ground to the east of the site. Here, soil profiles are typically, non-calcareous and moderately deep silty clay loams overlying a fine soft sandstone parent material. The existence of very stony soils over a soft fine sandstone severely reduces the amount of available water for plants to exploit, thus restricting the land to Subgrade 3b.

11. A moderate soil droughtiness limitation results in lower and less consistent crop yields because sufficient moisture is not available throughout the growing period.

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).

Table 2: Climatic and altitude data

Factor	Units	Values	
		SU 540 923	SU 546 915
Grid reference	N/A	SU 540 923	SU 546 915
Altitude	m, AOD	53	78
Accumulated Temperature	day°C (Jan-June)	1458	1430
Average Annual Rainfall	mm	574	583
Field Capacity Days	days	121	123
Moisture Deficit, Wheat	mm	115	111
Moisture Deficit, Potatoes	mm	109	104
Overall climatic grade	N/A	Grade 1	Grade 1

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. Local climatic factors, such as exposure and frost risk do not affect land quality at this location. The site is climatically grade 1. However, climatic factors do interact with soil properties to influence soil wetness and soil droughtiness. At this locality the climate is relatively warm and dry, in national terms. The likelihood of soil droughtiness problems may therefore be enhanced.

Site

17. The site lies at altitudes in the range 50-80 m AOD. The lowest land is found in the north, west and south. From here, land rises to the highest area in the east where it flattens out into a plateau. The land is not affected by any site restrictions (i.e., gradient, micro-relief or flooding).

Geology and soils

18. The most detailed published geological information for the site (BGS, 1980) shows the survey area to be underlain by three lithologies which are coincident with the topography of the site. The lowest land is underlain by Gault Clay, the sloping land is covered by Head deposits and the highest land is mapped as Upper Greensand (Malmstone).

19. The most detailed published soils information covering the area (SSEW, 1983) shows the majority of it to comprise soils of the Denchworth association. These soils are described as, 'slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils with slight seasonal waterlogging and some slowly permeable calcareous clayey soils' (SSEW, 1983). Soils consistent with this description were observed on the slopes and lower lying land; slowly permeable clayey soils or fine loamy over slowly permeable clayey soils. The remainder of the site comprises soil of the Charity 1 association. These soils are described as, 'well drained fine silty and fine silty over clayey soils, locally very flinty, some shallow over flint gravel' (SSEW, 1983). However, soils on the higher land did not conform to this description. Instead, fine silty over clayey soils becoming impenetrable to the auger over hard sandstone were observed.

AGRICULTURAL LAND CLASSIFICATION

20. 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.

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

Subgrade 3b

22. All the land on this site is mapped as moderate quality. The principal limitations are soil wetness and soil droughtiness.

23. The majority of the site suffers from a significant soil wetness limitation, since the predominant geology is Gault Clay and Head deposits. Soils typically comprise heavy clay loam or clay topsoils, some of which are calcareous and are estimated to contain up to 2% hard sandstone by volume. These directly overlie slowly permeable clayey subsoils which may contain up to 10% by volume hard sandstone. Soil pit 1 (see Appendix II) is typical of these soils. These profiles are all gleyed within 40 cm, evidence of severely impeded drainage caused by slowly permeable horizons between 24 and 35 cm. This degree of wetness places these soils into wetness class III. The calcareous nature of the soil may improve the drainage of these soils, but the heavy nature of the topsoil (which has been assessed as having greater than 50% clay content) confirms the significant workability/wetness limitation. Given the prevailing climate, these wet and heavy soils cannot be classified higher than Subgrade 3b.

24. The effect of prolonged soil wetness is to impede drainage which adversely affects seed germination and survival, partly by a reduction in soil temperature and partly because of anaerobism. This also inhibits the development of a good root system and can affect crop growth. In addition, the heavy topsoils restrict the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

25. A small area of land associated with the flatter, higher land to the east of the site suffers from a significant soil droughtiness limitation. All the soil profiles proved to be impenetrable to the auger from approximately 48 cm due to high stone contents. Pit 2 (see Appendix II) was used to describe this mapping unit. Soils are typically non-calcareous, comprising medium silty clay loam or heavy clay loam topsoils, with up to 5% by volume fine soft sandstone. These overlie heavy silty clay loam or clay upper subsoils with up to 51% by volume fine soft sandstone. Lower subsoils are similar with up to 65% soft fine sandstone and drought calculations are summed to approximately 90 cm where roots were considered to be few. These very stony subsoils severely restrict the amount of water available in the profile. Moisture balance calculations, which take into account the interaction of soil properties and climate in this locality, confirm that these soils are very droughty and that Subgrade 3b is the appropriate classification.

26. The effect of a significant drought limitation will result in depressed crop growth and crop yield particularly in drier years.

Colin Pritchard
Resource Planning Team
Eastern Region
FRCA Reading

SOURCES OF REFERENCE

British Geological Survey (1980) *Sheet No. 254, Henley-on-Thames*, 1:50,000.
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*, 1:250,000 .
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
SSEW: Harpenden

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2: Very Good Quality Agricultural Land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1 land.

Grade 3: Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When more demanding crops are grown, yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a: Good Quality Agricultural Land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b: Moderate Quality Agricultural Land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4: Poor Quality Agricultural Land

Land with severe limitations which significantly restrict the range of crops and/or the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5: Very Poor Quality Agricultural Land

Land with severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL DATA

Contents:

Sample location map

Soil abbreviations - explanatory note

Soil boring descriptions (boring and horizon levels)

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.

2. **USE:** Land use at the time of survey. The following abbreviations are used:

ARA: Arable	WHT: Wheat	BAR: Barley
CER: Cereals	OAT: Oats	MZE: Maize
OSR: Oilseed rape	BEN: Field beans	BRA: Brassicae
POT: Potatoes	SBT: Sugar beet	FCD: Fodder crops
LIN: Linseed	FRT: Soft and top fruit	FLW: Fallow
PGR: Permanent pasture	LEY: Ley grass	RGR: Rough grazing
SCR: Scrub	CFW: Coniferous woodland	OTH: Other
DCW: Deciduous woodland	BOG: Bog or marsh	SAS: Set-Aside
HTH: Heathland	HRT: Horticultural crops	PLO: Ploughed

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

4. **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	ST: Topsoil Stoniness
FR: Frost Risk	GR: Gradient	MR: Microrelief
FL: Flood Risk	TX: Topsoil Texture	DP: Soil Depth
CH: Chemical	WE: Wetness	WK: Workability
DR: Drought	ER: Erosion Risk	WD: Soil Wetness/Droughtiness
EX: Exposure		

Soil Pits and Auger Borings

1. **TEXTURE:** soil texture classes are denoted by the following abbreviations:

S:	Sand	LS:	Loamy Sand	SL:	Sandy Loam
SZL:	Sandy Silt Loam	CL:	Clay Loam	ZCL:	Silty Clay Loam
ZL:	Silt Loam	SCL:	Sandy Clay Loam	C:	Clay
SC:	Sandy Clay	ZC:	Silty Clay	OL:	Organic Loam
P:	Peat	SP:	Sandy Peat	LP:	Loamy Peat
PL:	Peaty Loam	PS:	Peaty Sand	MZ:	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F:	Fine (more than 66% of the sand less than 0.2mm)
M:	Medium (less than 66% fine sand and less than 33% coarse sand)
C:	Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M:** Medium (<27% clay) **H:** Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.
3. **MOTTLE ABUN:** Mottle abundance, expressed as a percentage of the matrix or surface described:
F: few <2% **C:** common 2-20% **M:** many 20-40% **VM:** very many 40% +
4. **MOTTLE CONT:** Mottle contrast:
F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: prominent - mottling is conspicuous and one of the outstanding features of the horizon
5. **PED. COL:** Ped face colour using Munsell notation.
6. **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 | FSST: | soft, fine grained sandstone |
| ZR: | soft, argillaceous, or silty rocks | CH: | chalk |
| MSST: | soft, medium grained sandstone | GS: | gravel with porous (soft) stones |
| SI: | soft weathered igneous/metamorphic rock | GH: | gravel with non-porous (hard) stones |

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT:** the degree of development, size and shape of soil peds are described using the following notation:

Degree of development	WK: weakly developed	MD: moderately developed
	ST: strongly developed	
Ped size	F: fine	M: medium
	C: coarse	
Ped shape	S: single grain	M: massive
	GR: granular	AB: angular blocky
	SAB: sub-angular blocky	PR: prismatic
	PL: platy	

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

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

10. **SUBS STR:** Subsoil structural condition recorded for the purpose of calculating profile droughtiness:
G: good M: moderate P: poor

11. **POR:** Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.
12. **IMP:** If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.
13. **SPL:** Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.
14. **CALC:** *If the soil horizon is calcareous, a 'Y' will appear in this column.*
15. Other notations:

APW:	available water capacity (in mm) adjusted for wheat
APP:	available water capacity (in mm) adjusted for potatoes
MBW:	moisture balance, wheat
MBP:	moisture balance, potatoes

SAMPLE NO.	GRID REF	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	
1	SU54009230	PLO		25	25	3	3B		0		0			WE	3B	SEE PIT 1	
2	SU54209230	PLO		28	28	3	3B		0		0			WE	3B	SEE PIT 1	
3	SU54409230	PLO		25	25	3	3B		0		0			WE	3B	SEE PIT 1	
4	SU54009210	PGR		0	22	3	3B		0		0			WE	3B	SEE PIT 1	
5	SU54209210	PGR		0	24	3	3B		0		0			WE	3B	SEE PIT 1	
6	SU54409210	LEY N	1	25	25	3	3B		0		0			WE	3B	SEE PIT 1	
7	SU54509210	PLO N	2	30	30	3	3B		0		0			WE	3B	SEE PIT 1	
8	SU54009190	CER		30	30	3	3B		0		0			WE	3B	SEE PIT 1	
9	SU54209190	CER W	1	30	30	3	3B		0		0			WE	3B	SEE PIT 1	
10	SU54409190	CER NW	5	30	30	3	3A	85	-30	97	-12	3B		DR	3B	SEE PIT 2	
11	SU54209180	CER W	1	34	34	3	3B	92	-23	103	-6			WE	3B	SEE PIT 1	
12	SU54309180	CER W	6	27	27	3	3B		-27		-9			WE	3B	SEE PIT 1	
13	SU54409180	CER W	5	29		2	3A	88	-27	100	-9	3B		DR	3B	SEE PIT 2	
14	SU54009170	CER		30	30	3	3B		0		0			WE	3B	SEE PIT 1	
15	SU54109170	CER		35	35	3	3B	97	-18	102	-7	3A		WE	3B	SEE PIT 1	
16	SU54209170	CER W	4	30	30	3	3A	98	-17	103	-6	3A		WE	3A	SEE PIT 1	
17	SU54309170	CER W	5	26	26	3	3B	121	6	96	-13	3A		WE	3B	SEE PIT 1	
18	SU54409170	CER W	1	28		2	2	115	0	119	10	3A		DR	3A	SEE PIT 2	
19	SU54509170	CER W	1	28		2	2	103	-12	113	4	3A		DR	3A	SEE PIT 2	
20	SU54109160	CER		32	32	3	3B	90	-25	102	-7	3B		WE	3B	SEE PIT 1	
21	SU54209160	CER W	5	27	27	3	3B	88	-27	100	-9	3B		WE	3B	SEE PIT 1	
22	SU54309160	CER W	4	31		2	3A	102	-13	111	2	3A		WD	3A	SEE PIT 2	
23	SU54409160	CER W	1	29	29	3	3A	123	8	105	-4	2		DR	3B	SEE PIT 2	
24	SU54509160	CER W	1	29	50	3	3A	120	5	120	11	2		DR	3B	SEE PIT 2	
25	SU54009150	CER		30	30	3	3B		0		0			WE	3B	SEE PIT 1	
26	SU54109150	CER W	1	30	30	3	3B	124	9	100	-9	2		WE	3B	SEE PIT 1	
27	SU54209150	CER W	4	30		2	3A	110	-5	114	5			DR	3B	SEE PIT 2	
28	SU54309150	CER W	1	26		2	2	103	-12	114	5			DR	3B	SEE PIT 2	
29	SU54409150	CER		31	31	3	3A	94	-21	104	-5			WE	3A	SEE PIT 1/2	
30	SU54509150	CER		35	35	3	3A	112	-3	115	6	3A		WE	3A	SEE PIT 1/2	
31	SU54609150	CER		30	30	3	3A	107	-8	121	12	3A		WE	3A	SEE PIT 1/2	
32	SU54009130	CER		30	30	3	3B		0		0			WE	3B	SEE PIT 1	
33	SU54209130	CER W	3	30	45	3	3B		0		0			WE	3B	SEE PIT 1	
34	SU54009110	PGR		26	26	3	3B		0		0			WE	3B	SEE PIT 1	
35	SU54209110	PGR		0	30	3	3B		0		0			WE	3B	SEE PIT 1	
36	SU54009100	PGR		30	30	3	3B		0		0			WE	3B	SEE PIT 1	
37	SU54209100	PGR		28	28	3	3B	118	3	98	-11	3A		WE	3B	SEE PIT 1	
1P	SU54109170	CER		28	28	3	3B	131	16	114	5			WE	3B	PIT70AUGER120	
2P	SU54409170	CER W	1	29		2	2	93	-22	91	-18	3B		DR	3B	ROOTS90CM	

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED	-----STONES-----			STRUCT/	SUBS					
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL
1	0-25	C	25Y 41						0	0	HR	2					
	25-70	C	25Y 5152	10YR58		M D		Y	0	0		0		P			Y
2	0-28	C	25Y 41						0	0	HR	2					
	28-70	C	05Y 5161	10YR66		C F		Y	0	0	FSST	3		P			Y
3	0-25	C	25Y 41						0	0	HR	2					
	25-70	C	05Y 5262	10YR5868		C D		Y	0	0	FSST	3		P			Y
4	0-22	C	25Y 31	10YR46		C D		Y	0	0	HR	2					
	22-70	C	05Y 61	10YR66		M D		Y	0	0		0		P			Y
5	0-24	C	25Y 31	10YR46		C D		Y	0	0	HR	2					
	24-70	C	05Y 61	10YR68		M D		Y	0	0		0		P			Y
6	0-25	C	25Y 41						0	0	HR	2					
	25-70	C	05Y 5161	10YR66		C F		Y	0	0	FSST	3		P			Y
7	0-30	C	25Y 41						0	0	HR	2					
	30-70	C	05Y 5161	10YR6668		C F		Y	0	0	FSST	2		P			Y
8	0-30	C	25Y 41						0	0	HR	2					
	30-70	C	05Y 51	10YR66		M D		Y	0	0	FSST	2		P			Y
9	0-30	C	25Y 41						0	0	HR	2					
	30-55	C	05Y 51	10YR66		C F		Y	0	0		0		P			Y
	55-80	C	05Y 61	10YR66		C F		Y	0	0	FSST	5		P			Y Y
10	0-30	C	25Y 51						0	0	HR	2					
	30-45	C	05Y 51	10YR66		C F		Y	0	0	FSST	5		P			Y Y
	45-70	HZCL	05Y 6171	75YR58		C D		Y	0	0	FSST	5		P			Y Y IMP FSST
11	0-34	C	25Y 41	10YR46		C D			0	0	HR	2					
	34-70	C	25Y 52	10YR46		M D		Y	0	0	HR	2		P			Y
12	0-27	C	25Y 41						0	0	HR	2					
	27-59	C	05Y 52	25Y 66		C F		Y	0	0	HR	2		P			Y
	59-70	C	05Y 62	10YR58		C		Y	0	0	HR	2		P			Y
13	0-29	HCL	05Y 52						0	0	HR	5					
	29-45	HZCL	05Y 72	10YR56		C		Y	0	0	HR	5		M			Y
	45-55	MZCL	05Y 72	10YR56		C		Y	0	0	HR	2		M			Y IMP FSST
14	0-30	C	25Y 41						0	0	HR	2					
	30-70	C	05Y 51	10YR5868		C D		Y	0	0	FSST	5		P			Y
	70-80	SCL	05Y 52	75YR58		M D		Y	0	0	FSST	25		M			Y IMP FSST
15	0-35	C	05Y41						0	0	HR	2					
	35-80	C	05Y62	25Y56		C F		Y	0	0	HR	5		P			Y

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED COL.	-----STONES-----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEY	>2	>6		LITH	TOT	STR	POR	IMP	SPL
16	0-30	C	05Y41							0	0	0					Y
	30-80	C	05Y62	10YR56	C	F		Y	0	0	0		P			Y	
17	0-26	C	05Y41							0	0	HR	2				
	26-55	ZC	05Y62	25Y56	C	F		Y	0	0	0		P			Y	Y
	55-120	ZC	05Y62	75YR56	C	F		Y	0	0	0		P			Y	Y
18	0-28	MZCL	25Y 42							0	0	HR	5				Y
	28-55	HZCL	25Z 63	10YR56	M			Y	0	0	HR	5	M			Y	
	55-80	HZCL	25Y 72	10YR56	C			Y	0	0	HR	5	M			Y	IMP FSST
19	0-28	MZCL	25Y 42							0	0	HR	3				
	28-55	HZCL	25Y 63	10YR56	C			Y	0	0	HR	2	M				
	55-65	MZCL	25Y 72	10YR56	C			Y	0	0	HR	2	M			Y	IMP FSST
20	0-32	C	25Y42							0	0	HR	2				
	32-70	C	25Y62	10YR56	C	F		Y	0	0	HR	2	P			Y	
21	0-27	C	05Y41							0	0	HR	2				
	27-70	C	05Y52	10YR56	C	F		Y	0	0	HR	2	P			Y	
22	0-31	C	05Y42							0	0	HR	2				
	31-45	C	05Y52	10YR56	C			Y	0	0	HR	2	M				
	45-75	HZCL	05Y62	10YR56	C			Y	0	0	HR	2	M			Y	IMP FSST
23	0-29	MZCL	25Y42							0	0	HR	5				
	29-55	C	05Y62	10YR56	C			Y	0	0	HR	2	P			Y	
	55-75	C	05Y62	10YR56	C			Y	0	0	HR	2	P			Y	
	75-120	HZCL	05Y62	10YR56	C			Y	0	0	HR	2	P			Y	Y
24	0-29	MZCL	25Y42							0	0	HR	2				
	29-50	HZCL	05Y42	10YR56	C			Y	0	0	HR	2	M				
	50-90	C	05Y63	10YR56	C			Y	0	0	HR	2	P			Y	Y
25	0-30	C	25Y 41							0	0	HR	2				
	30-70	C	05Y 5161	10YR66	C	F		Y	0	0		0	P			Y	
	70-80	C	05Y 61	10YR66	C	F		Y	0	0	FSST	2	P			Y	Y
26	0-30	HCL	25Y 41							0	0	HR	2				
	30-60	C	05Y 52	10YR66	C	D		Y	0	0	FSST	10	P			Y	
	60-85	C	05Y 6261	75YR68	C	D		Y	0	0	FSST	20	P			Y	
	85-120	C	05Y 61	10YR68	C	D		Y	0	0		0	P			Y	Y
27	0-30	HCL	05Y42							0	0	HR	4				
	30-42	C	05Y52	10YR56	C	F		Y	0	0	HR	2	M			Y	
	42-80	HZCL	05Y52	10YR56	C			Y	0	0	HR	2	M				IMP FSST
28	0-26	MZCL	05Y42							0	0	HR	4				
	26-65	HZCL	05Y52	10YR56	C			Y	0	0		0	M				IMP FSST

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		IMP
29	0-31	MZCL	25Y42						0	0	HR	2					
	31-58	C	05Y62	10YR56	C			Y	0	0	HR	2		P		Y	
	58-65	HZCL	05Y63	10YR56	C			Y	0	0	HR	2		M			IMP FSST
30	0-35	MZCL	25Y42						0	0	HR	2					
	35-55	C	05Y62	10YR56	C			Y	0	0	HR	5		P		Y	
	55-80	HZCL	05Y63	10YR56	C			Y	0	0	HR	2		M			IMP FSST
31	0-30	MZCL	25Y42						0	0	HR	1					
	30-55	C	25Y63	10YR56	C			Y	0	0	HR	1		P		Y	
	55-70	HZCL	05Y63	10YR56	C			Y	0	0	HR	1		M			IMP FSST
32	0-30	C	25Y 42						0	0	HR	2					
	30-60	C	25Y 52	10YR68	C F			Y	0	0		0		P		Y	
	60-75	C	25Y 52	10YR68	C D			Y	0	0	FSST	10		P		Y	
	75-80	C	05Y 52	75YR68	C D			Y	0	0	FSST	20		P		Y	Y
33	0-30	C	25Y 42	10YR46	F D				0	0		0					
	30-45	HZCL	05Y 61	10YR66	C F			Y	0	0		0		M			
	45-70	C	05Y 5161	10YR66	C F			Y	0	0		0		P		Y	
	70-120	HZCL	05Y 71	10YR66	C F			Y	0	0		0		M			Y
34	0-26	HCL	25Y 4142	10YR46	F D				0	0	HR	2					
	26-75	C	05Y 51	10YR66	C F			Y	0	0	FSST	5		P		Y	
	75-90	SCL	05Y 61	75YR58	M D			Y	0	0	FSST	25		M			IMP FSST
35	0-30	HCL	25Y 42	10YR46	C D			Y	0	0		0					
	30-55	C	05Y 52	10YR58	C D			Y	0	0	FSST	5		P		Y	
	55-70	C	25Y 61	10YR58	C D			Y	0	0	FSST	20		P		Y	IMP FSST
36	0-30	C	25Y 41	10YR46	F F				0	0	HR	2					
	30-60	C	25Y 51	10YR66	C F			Y	0	0	FSST	10		P		Y	
	60-80	SCL	05Y 61	10YR68	C D			Y	0	0	FSST	15		M			Y
37	0-28	C	25Y 3141	10YR46	F F				0	0		0					
	28-70	C	25Y 51	10YR66	C F			Y	0	0	FSST	10		P		Y	
	70-120	C	25Y 51	10YR66	C F			Y	0	0	FSST	20		P		Y	
1P	0-28	C	25Y41						0	0	HR	2					
	28-70	C	05Y51	10YR66	C F	05Y52		Y	0	0		0	STCAB	FR M	Y	Y	
	70-90	C	05Y62	10YR6656	M D			Y	0	0	FSST	3		P		Y	PIT70 AUG120
	90-120	C	05Y62	10YR66	M D			Y	0	0	FSST	15		P		Y	Y
2P	0-29	MZCL	25Y42						2	0	FSST	5					
	29-48	HZCL	05Y62	00FE00	C D	25Y41		Y	0	0	FSST	51		M			
	48-90	HZCL	05Y83	00FE00	F D	25Y41		Y	0	0	FSST	65		M			