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**CHERWELL DISTRICT LOCAL PLAN REVIEW  
Land at Little Wretchwick Farm, Bicester  
Semi-Detailed Survey**

**Agricultural Land Classification  
ALC Map and Report**

**December 1998**

**Resource Planning Team  
Eastern Region  
FRCA Reading**

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**AGRICULTURAL LAND CLASSIFICATION REPORT**  
**CHERWELL DISTRICT LOCAL PLAN**  
**LAND AT LITTLE WRETCHWICK FARM, BICESTER, OXFORDSHIRE**  
**SEMI-DETAILED SURVEY**

**INTRODUCTION**

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey of approximately 147 ha of land to the south-east of Bicester. The survey was carried out during November and December 1998.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)<sup>1</sup> on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The survey was carried out in connection with MAFF's statutory input to the Cherwell District Local Plan. An ALC survey was previously conducted on the site (FRCA Ref: 3301/034/83). The present survey supersedes this and any other 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 land use on the site was either grassland (both permanent and ley) or autumn sown cereals. The areas mapped as 'Other land' include residential and farm buildings, ponds, woodland, a drain and a farm road. The area shown as 'Not Surveyed' comprises an area where permission for access was not forthcoming in the timescale for this survey. It is not envisioned that land quality in this area would be substantially different from the remainder of the site.

**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.
7. The fieldwork was conducted at an average density of approximately 1 boring per 3 hectares of agricultural land. A total of 54 borings and 5 soil pits was described.
8. The entire site is classified as Subgrade 3b (moderate quality agricultural land) with soil wetness as the principal limitation.

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<sup>1</sup> FRCA is an executive agency of MAFF and the Welsh Office

**Table 1: Area of grades and other land**

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b	140.4	100	94.7
Other land	2.8	-	1.9
Agricultural land not surveyed	5.0	-	3.4
Total surveyed area	140.4	100	94.7
Total site area	148.2	-	100

9. Soils in the area comprise heavy clay loam topsoils lying over slowly permeable clay subsoils. Soil wetness reduces the versatility of the land in terms of access by machinery (e.g. for cultivations or harvesting) and grazing by livestock if damage to the soil is to be avoided. Soil wetness will also adversely affect seed germination and root growth and can therefore reduce the level and consistency of yields.

## FACTORS INFLUENCING ALC GRADE

### Climate

10. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.
11. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

**Table 2: Climatic and altitude data**

Factor	Units	Values		
		SP 597 208	SP 602 214	SP 603 219
Grid reference	N/A	70	64	66
Altitude	m, AOD	1426	1432	1429
Accumulated Temperature	day°C (Jan-June)	652	652	656
Average Annual Rainfall	mm	140	139	140
Field Capacity Days	days	106	106	106
Moisture Deficit, Wheat	mm	98	99	98
Moisture Deficit, Potatoes	mm			
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

12. 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.

13. 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.
14. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation and, therefore, the site is climatically Grade 1. However, climatic factors do interact with soil properties to influence soil wetness.

#### **Site**

15. The site lies between 60 and 70 m AOD. The majority of the site is flat. The slopes that are present are gentle and therefore do not adversely affect land quality. Other site factors such as microrelief are also not significant.

#### **Geology and soils**

16. The most detailed published geological information for the site (BGS, 1863) shows this area to be underlain by Oxford Clay.
17. The most detailed published soils information covering the area (SSEW, 1983) shows the survey area to comprise soils of the Denchworth and Wickham 2 Associations. Denchworth soils are mapped to the south-west of the site and are described as 'slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils' (SSEW, 1983). Wickham soils are found across the majority of the site and are described as 'slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils' (SSEW, 1983). Soils consistent with these descriptions were described throughout the site.

#### **AGRICULTURAL LAND CLASSIFICATION**

18. 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.
19. 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**

20. Land of moderate quality has been mapped over the whole site. The principal limitation is soil wetness and the soils are characterised by the pit observations 1P to 5P inclusive (see Appendix II).
21. The soils comprise heavy and medium clay loam topsoils overlying clay subsoils. Stone contents within the profiles were slight and did not exceed 2% flints by volume. The pits prove that the clay subsoil horizons are poorly structured and slowly permeable thereby resulting in impeded drainage. In most cases gleying was observed within 40 cm; this is indicative of sustained periods of waterlogging. The depth to gleying and to the slowly permeable clay subsoils has resulted in these soils being placed in Wetness Classes III and IV.

In the local climate the combination of poor soil drainage and observed topsoil textures result in this area being classified as Subgrade 3b on the basis of soil wetness.

22. Excessive soil wetness may adversely affect crop growth and development. It can also reduce the number of days when the soil is in a suitable condition for cultivation or for carrying livestock and therefore the flexibility of the land is reduced.

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## SOURCES OF REFERENCE

British Geological Survey (1863) *Sheet No. 45 S.E., Banbury. 1:63,360 scale.*  
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 scale.*  
SSEW: Harpenden.

Soil Survey of England and Wales (1983) *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 pit and 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:

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

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

4. **GLEYS/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:

<b>MREL:</b>	Microrelief limitation	<b>FLOOD:</b>	Flood risk	<b>EROSN:</b>	Soil erosion risk
<b>EXP:</b>	Exposure limitation	<b>FROST:</b>	Frost prone	<b>DIST:</b>	Disturbed land
<b>CHEM:</b>	Chemical limitation				

9. **LIMIT:** The main limitation to land quality. The following abbreviations are used:

<b>OC:</b>	Overall Climate	<b>AE:</b>	Aspect	<b>ST:</b>	Topsoil Stoniness
<b>FR:</b>	Frost Risk	<b>GR:</b>	Gradient	<b>MR:</b>	Microrelief
<b>FL:</b>	Flood Risk	<b>TX:</b>	Topsoil Texture	<b>DP:</b>	Soil Depth
<b>CH:</b>	Chemical	<b>WE:</b>	Wetness	<b>WK:</b>	Workability
<b>DR:</b>	Drought	<b>ER:</b>	Erosion Risk	<b>WD:</b>	Soil Wetness/Droughtiness
<b>EX:</b>	Exposure				

### Soil Pits and Auger Borings

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

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

<b>F:</b>	Fine (more than 66% of the sand less than 0.2mm)
<b>M:</b>	Medium (less than 66% fine sand and less than 33% coarse sand)
<b>C:</b>	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:

<b>HR:</b>	all hard rocks and stones	<b>FSST:</b>	soft, fine grained sandstone
<b>ZR:</b>	soft, argillaceous, or silty rocks	<b>CH:</b>	chalk
<b>MSST:</b>	soft, medium grained sandstone	<b>GS:</b>	gravel with porous (soft) stones
<b>SI:</b>	soft weathered igneous/metamorphic rock	<b>GH:</b>	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	<b>WK:</b> weakly developed	<b>MD:</b> moderately developed
	<b>ST:</b> strongly developed	
Ped size	<b>F:</b> fine	<b>M:</b> medium
	<b>C:</b> coarse	
Ped shape	<b>S:</b> single grain	<b>M:</b> massive
	<b>GR:</b> granular	<b>AB:</b> angular blocky
	<b>SAB:</b> sub-angular blocky	<b>PR:</b> prismatic
	<b>PL:</b> platy	

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

<b>L:</b> loose	<b>FM:</b> firm	<b>EH:</b> extremely hard
<b>VF:</b> very friable	<b>VM:</b> very firm	
<b>FR:</b> friable	<b>EM:</b> 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:**

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

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRONT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT	
6	SP60402200	LEY		25	25	4	3B		0		0			WE	3B		
7	SP60082187	PGR		18	18	4	3B		0		0			WE	3B		
14	SP60202180	PGR		24	24	4	3B		0		0			WE	3B		
16	SP60402180	PGR		28	28	4	3B		0		0			WE	3B		
18	SP60602180	CER		20	20	4	3B		0		0			WE	3B		
20	SP60802180	CER		26	26	4	3B		0		0			WE	3B		
32	SP60002160	PGR		30	30	4	3B	94	-12	106	8	3A		WE	3B		
34	SP60202160	PGR		28	28	4	3B	100	-6	105	7	3A		WE	3B	4P LOCATION	
36	SP60402160	PGR		28	28	4	3B		0		0			WE	3B		
38	SP60602160	CER		27	27	4	3B		0		0			WE	3B		
40	SP60802160	CER		27	27	4	3B		0		0			WE	3B		
42	SP61002160	CER		26	26	4	3B		0		0			WE	3B		
54	SP59802140	PGR		23	30	4	3B	100	-6	105	7	3A		WE	3B		
56	SP60002140	PGR		35	35	4	3B	100	-6	105	7	3A		WE	3B		
58	SP60202140	PGR		10	20	4	3B	95	-11	100	2	3A		WE	3B		
60	SP60402140	CER		25	25	4	3B		0		0			WE	3B		
62	SP60602140	CER		26	26	4	3B		0		0			WE	3B		
64	SP60802140	CER		32	32	4	3B		0		0			WE	3B		
70	SP60202130	CER		0	30	4	3B	93	-13	105	7	3A		WE	3B		
72	SP60402130	PGR		28	28	4	3B		0		0			WE	3B	RIDGE & FURROW	
76	SP59202120	PGR		25	25	4	3B	99	-7	104	6	3A		WE	3B		
78	SP59402120	PGR		30	30	4	3B	101	-5	106	8	3A		WE	3B		
80	SP59602120	PGR		22	30	4	3B	99	-7	104	6	3A		WE	3B	3P LOCATION	
82	SP59802120	PGR		25	25	4	3B	99	-7	104	6	3A		WE	3B		
84	SP60002120	PGR		0	28	4	3B	100	-6	105	7	3A		WE	3B		
85	SP60102120	PGR		30	30	3	3B		0		0			WE	3B		
86	SP60202120	LEY		20	20	4	3B	79	-27	82	-16	3B		WE	3B		
89	SP60502120	PGR		20	20	4	3B	88	-18	100	2	3A		WE	3B	2P LOCATION	
91	SP60702120	PGR		25	25	4	3B	92	-14	104	6	3A		WE	3B		
94	SP59372104	PGR	NE	1	45	45	3	3B	113	7	111	13	2	WE	3B		
99	SP59902110	LEY		20	20	4	3B	79	-27	82	-16	3B		WE	3B		
100	SP60002110	PGR		25	30	4	3B	100	-6	105	7	3A		WE	3B	1P LOCATION	
101	SP60102110	LEY		20	20	4	3B	79	-27	82	-16	3B		WE	3B		
103	SP60302110	PGR		35	35	4	3B	97	-9	109	11	3A		WE	3B	WET@50	
105	SP60502110	PGR		20	20	4	3B	77	-29	80	-18	3B		WE	3B		
107	SP60702110	PGR		20	20	4	3B	82	-24	88	-10	3B		WE	3B	H2 PLASTIC	
109	SP59572095	ARA	E	2	28	28	4	3B	116	10	108	10	2	WE	3B	IMP HR 100	
111	SP59762104	ARA		25	25	4	3B	92	-14	104	6	3A		WE	3B		
112	SP59902100	PLO		25	25	4	3B	99	-7	104	6	3A		WE	3B		
115	SP60202100	PGR		20	20	4	3B	79	-27	82	-16	3B		WE	3B		
117	SP60402100	PGR		20	20	4	3B	79	-27	82	-16	3B		WE	3B		
119	SP60602100	PGR		20	20	4	3B	79	-27	82	-16	3B		WE	3B		

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS		
			GRONT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP		DIST	LIMIT
125	SP60102090	PGR		20	20	4	3B	77	-29	80	-18	3B			WE	3B	
129	SP60502090	PGR		20	20	4	3B	79	-27	82	-16	3B			WE	3B	
131	SP59802080	PGR		20	20	4	3B	79	-27	82	-16	3B			WE	3B	
132	SP59902080	PGR		20	20	4	3B	79	-27	82	-16	3B			WE	3B	
134	SP60062079	PLO		24	24	4	3B		0		0				WE	3B	
135	SP60202080	PGR		20	20	4	3B	79	-27	82	-16	3B			WE	3B	
137	SP60402080	PGR		20	20	4	3B	79	-27	82	-16	3B			WE	3B	
138	SP59802070	PGR		20	20	4	3B		0		0		Y		WE	3B	RIDGE & FURROW
141	SP60102070	PLO	W	1	22	22	4	3B	83	-23	89	-9	3B		WE	3B	
143	SP60302070	CER		30	30	4	3B	93	-13	105	7	3A			WE	3B	
144	SP59902065	PLO		24	24	4	3B		0		0				WE	3B	
147	SP60202020	CER		30	30	4	3B	101	-5	106	8	3A			WE	3B	5P LOCATION
1P	SP60002110	LEY		29	29	4	3B	85	-21	90	-8	3B			WE	3B	PIT58 @ ASP100
2P	SP60502120	PGR		22	22	4	3B	84	-22	91	-7	3B			WE	3B	PIT62 @ ASP 89
3P	SP59602120	PGR		13	23	4	3B	82	-24	88	-10	3B			WE	3B	PIT60 @ ASP 80
4P	SP60202160	PGR		26	26	4	3B	98	-8	104	6	3A			WE	3B	PIT78 @ ASP 34
5P	SP60202020	CER		25	25	4	3B	95	-11	104	6	3A			WE	3B	PIT75 @ ASP147

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/		SUBS		CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR	
6	0-25	HCL	10YR42	10YR46	C	D		Y	0	0	0					
	25-45	C	25Y 51	10YR58	M	D		Y	0	0	0				Y	FIRM
	45-60	C	05Y 51	10YR58	M	D		Y	0	0	0				Y	PLASTIC
7	0-18	OZL	10YR42						0	0	0					
	18-28	C	25Y 52	10YR46	M	D		Y	0	0	0				Y	
	28-60	C	25Y 63	10YR58	M	D		Y	0	0	0				Y	
14	0-24	OZL	10YR42	10YR46	C	D		Y	0	0	0					
	24-44	HCL	25Y 52	10YR56	M	D		Y	0	0	0		M		Y	
	44-60	C	25Y 51	10YR56	M	D		Y	0	0	0		P		Y	
16	0-28	HCL	25Y 53	10YR46	C	D		Y	0	0	0					
	28-46	C	25Y 64	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
	46-70	C	05Y 52	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
18	0-20	HZCL	10YR42	10YR46	C	D		Y	0	0	0					
	20-50	C	25Y 63	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
20	0-26	HCL	10YR42	10YR46	M	D		Y	0	0	0					
	26-50	C	25Y 62	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
32	0-30	HCL	10YR42	10YR56	F	D			0	0	0					
	30-70	C	25Y 53 52	10YR58	M	D	FEW MN	Y	0	0	0		P		Y	
34	0-28	HCL	10YR42	10YR56	C	D		Y	0	0	0					4P LOCATION
	28-45	C	10YR42 51	10YR56	C	D	FEW MN	Y	0	0	0		P		Y	
	45-80	C	25Y 52 61	10YR58	M	D		Y	0	0	0		P		Y	
36	0-28	HCL	10YR42	10YR46	C	D		Y	0	0	0					
	28-42	C	25Y 51 53	10YR58	M	D		Y	0	0	0		P		Y	FIRM
	42-60	C	25Y 62	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
38	0-27	HZCL	10YR42	10YR46	C	D		Y	0	0	0					
	27-50	C	25Y 62	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
40	0-27	HCL	10YR42	10YR46	C	F		Y	0	0	0					
	27-50	C	25Y 62	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
42	0-26	HCL	10YR42	10YR46	C	F		Y	0	0	0				Y	
	26-50	C	25Y 51 53	10YR58	M	D		Y	0	0	0		P		Y	PLASTIC
54	0-23	HCL	10YR42						0	0	0					
	23-30	HCL	25Y 63	10YR66	C	D	FEW MN	Y	0	0	0		M			
	30-60	C	25Y 53	10YR58	M	D	FEW MN	Y	0	0	0		P		Y	
	60-80	C	25Y 63	10YR58	M	D		Y	0	0	0		P		Y	
56	0-10	MZCL	10YR32						0	0	0					
	10-25	HCL	10YR42						0	0	0		M			
	25-35	C	10YR42	10YR66	F	D			0	0	0		M			
	35-80	C	25Y 53	10YR58	C	D	FEW MN	Y	0	0	0		P		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES-----			STRUCT/ CONSIST	SUBS			CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	
58	0-10	MZCL	10YR32	75YR46	F	D			0	0	0					
	10-20	HCL	10YR42	75YR46	C	D		Y	0	0	0	M				
	20-40	C	25Y 61	10YR56	C	D		Y	0	0	0	P		Y		
	40-80	C	25Y 61	10YR58	M	D		Y	0	0	0	P		Y	SL. SANDY	
60	0-25	HCL	10YR42						0	0	0					
	25-38	C	25Y 51 53	10YR58	M	D		Y	0	0	0	P		Y	FIRM	
	38-50	C	25Y 62	10YR58	M	D		Y	0	0	0	P		Y	PLASTIC	
62	0-26	HZCL	10YR42	10YR46	M	D		Y	0	0	0			Y		
	26-50	C	25Y 51 53	10YR58	M	D		Y	0	0	0	P		Y	PLASTIC	
64	0-32	HCL	10YR42	10YR46	C	D		Y	0	0	0					
	32-50	C	25Y 51 53	10YR58	M	D		Y	0	0	0	P		Y	PLASTIC	
70	0-30	MCL	10YR42	10YR58	C	D		Y	0	0	0					
	30-70	C	05Y 51	10YR58	M	D	COM MN	Y	0	0	0	P		Y		
72	0-28	HCL	10YR42	10YR58	C	D		Y	0	0	0					
	28-55	HCL	25Y 62	10YR58	M	D		Y	0	0	0	M		Y		
	55-70	C	25Y 62	10YR58	M	D	MANY MN	Y	0	0	0	P		Y		
76	0-25	HCL	10YR42						0	0	0					
	25-45	C	10YR52	10YR58	C	D	FEW MN	Y	0	0	0	P		Y		
	45-80	C	25Y 53 51	10YR58	M	D		Y	0	0	0	P		Y		
78	0-30	HCL	10YR32	75YR46	F	D			0	0	0					
	30-45	C	25Y 61	10YR68	M	D		Y	0	0	0	P		Y		
	45-80	C	25Y 41	10YR56	C	D		Y	0	0	0	P		Y		
80	0-22	HCL	10YR32						0	0	0					
	22-30	HCL	10YR42	75YR46	C	D		Y	0	0	0	M				
	30-60	C	25Y 64	10YR68	M	D	MANY MN	Y	0	0	0	P		Y		
	60-80	C	25Y 62	10YR58	M	D		Y	0	0	0	P		Y		
82	0-25	HCL	10YR42						0	0	0					
	25-60	C	25Y 63	10YR68	C	D		Y	0	0	0	P		Y		
	60-80	C	25Y 61	10YR58	M	D		Y	0	0	0	P		Y		
84	0-28	HCL	10YR42	10YR56	C	D		Y	0	0	0					
	28-50	C	25Y 53	10YR58	M	D	FEW MN	Y	0	0	0	P		Y		
	50-80	C	25Y 61 63	10YR58	M	D		Y	0	0	0	P		Y		
85	0-30	HCL	10YR42						0	0	0					
	30-55	HCL	10YR41	10YR56	C	D		Y	0	0	0	M		Y		
	55-80	C	25Y 52	10YR58	C	D		Y	0	0	0	P		Y		
86	0-20	HCL	10YR42	10YR56	C			Y	0	0	0					
	20-55	C	25Y 52	10YR56	M			Y	0	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
89	0-20	MCL	10YR52	10YR58	M	D			Y	0	0	HR	2				
	20-70	C	05Y 52 62	10YR58	M	D	COM MN		Y	0	0		0	P			Y
91	0-25	HCL	10YR51 52	10YR58	C	D			Y	0	0		0				
	25-70	C	05Y 61 62	10YR58	M	D	COM MN		Y	0	0		0	P			Y
94	0-30	HCL	10YR42							0	0		0				
	30-45	HCL	10YR42	10YR68	F	D				0	0		0	M			
	45-60	C	25Y 61	10YR58	M	D	FEW MN		Y	0	0		0	P			Y
	60-90	C	25Y 61	10YR58	M	D			Y	0	0		0	P			Y
99	0-20	HCL	10YR42							0	0		0				
	20-45	C	25Y 52	10YR56	M				Y	0	0		0	P			Y
	45-55	C	25Y 63	10YR56	M				Y	0	0		0	P			Y
100	0-25	HCL	10YR42	10YR66	F	F			N	0	0		0				
	25-30	HCL	10YR42	10YR56	C	D			Y	0	0		0	M			
	30-80	C	25Y 53	10YR58	M	D	MANY MN		Y	0	0		0	P			Y
101	0-20	HCL	10YR42							0	0		0				
	20-55	C	25Y 52	10YR56	M				Y	0	0		0	P			Y
103	0-35	HCL	10YR32 42	10YR58	C	D			Y	0	0		0				
	35-70	C	25Y 52 42	10YR58	M	D			Y	0	0		0	P			Y
105	0-20	C	10YR52	10YR56	C				Y	0	0		0				
	20-55	C	25Y 52	10YR56	M				Y	0	0		0	P			Y
107	0-20	HCL	10YR51	10YR58	C	D			Y	0	0		0				
	20-60	C	25Y 52 62	10YR58	M	D			Y	0	0		0	P			Y
109	0-28	MCL	10YR43	10YR56	C	D			Y	0	0	HR	2				
	28-55	HCL	25Y 53 51	10YR58	M	D	FEW MN		Y	0	0	HR	5	M			Y
	55-100	C	25Y 64 62	10YR58	M	D	FEW MN		Y	0	0	HR	10	P			Y
111	0-25	HCL	10YR53							0	0		0				
	25-35	C	25Y 51 53	10YR58	C	D			Y	0	0		0	P			Y
	35-70	C	05Y 51	10YR58	M	D	FEW MN		Y	0	0		0	P			Y
112	0-25	HCL	10YR42	10YR66	F	F				0	0		0				
	25-65	C	25Y 53	10YR58	C	D			Y	0	0		0	P			Y
	65-80	C	25Y 61	10YR68	M	D			Y	0	0		0	P			Y
115	0-20	HCL	10YR53	10YR56	C				Y	0	0		0				
	20-55	C	25Y 52	10YR56	C				Y	0	0		0	P			Y
117	0-20	HCL	10YR53	10YR56	C				Y	0	0		0				
	20-55	C	25Y 63	10YR56	M				Y	0	0		0	P			Y

SPL - SEE 3P





SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES-----			STRUCT/ CONSIST	SUBS				CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	IMP		SPL
3P	0-13	MCL	10YR41						0	0	0							PIT @ ASP 80
	13-23	HCL	10YR52	10YR56	C	D	25Y 62	Y	0	0	0	MDCAB	FR	M	Y			
	23-39	C	25Y 62	10YR56	C	D		Y	0	0	0	WDCAB	FR	P	Y		Y	
	39-60	C	25Y 61	10YR58	C	D	25Y 62	Y	0	0	0	MDCAB	FM	P	Y		Y	PLASTIC
4P	0-26	HCL	10YR41	10YR46	F	D			0	0	0							PIT @ ASP 34
	26-44	C	25Y 52	10YR58	C	D	FEW MN	Y	0	0	0	WKCAB	FM	P	Y		Y	
	44-58	C	25Y 62	10YR58	M	D	FEW MN	Y	0	0	0	WKCPR	FM	P	Y		Y	SL. SANDY
	58-78	C	25Y 61	10YR58	M	D		Y	0	0	0	WKCPR	VM	P	Y		Y	
5P	0-25	HCL	10YR42						0	0	0							PIT @ ASP 147
	25-45	C	25Y 64	10YR68	C	D	25Y 53	Y	0	0	0	MDCPR	FR	P	Y		Y	
	45-75	C	25Y 61	10YR58	M	D	25Y 52	Y	0	0	0	MDCPL	FM	P	Y		Y	