

**A1**

**DIDCOT DEVELOPMENT STUDY  
Land Around Shortlands Farm, Didcot,  
Oxfordshire  
Semi-Detailed Survey**

**Agricultural Land Classification  
ALC Map and Report**

**August 1998**

**Resource Planning Team  
Eastern Region  
FRCA Reading**

**RPT Job Number: 3303/073/98  
FRCA Reference: EL 33/1754**

**AGRICULTURAL LAND CLASSIFICATION REPORT**  
**DIDCOT DEVELOPMENT STUDY**  
**LAND AROUND SHORTLANDS FARM, DIDCOT, OXFORDSHIRE**

**SEMI-DETAILED SURVEY**

**INTRODUCTION**

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey of 42.4 hectares of land to the north of Shortlands Farm, east of Didcot, in Oxfordshire. The survey was carried out during August 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) in connection with MAFF's statutory input to the Didcot Development 2001-2011, Local Planning Study. 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 was in a combination of winter wheat (in the process of being harvested) and stubble (following a crop of winter cereals and peas). Parts of the land had recently been ploughed. The areas mapped as 'Other land' include allotment gardens, a recreation ground and a tree-lined track.

**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 overleaf.
7. The fieldwork was conducted at an average density of 1 borings per 2 hectare of agricultural land. A total of 19 borings and 2 soil pits was described.
8. The agricultural land on the site has been classified as Grade 1 (excellent quality) and Grade 2 (very good quality). The soil profiles are variable across the site and the principal limitations are soil wetness and soil droughtiness.
9. The southern part of the site has been mapped as Grade 1 (excellent quality agricultural land). The soils in this area comprise deep, well drained, loamy and silty profiles which become slightly heavier and stonier at depth. The topsoils are light in texture comprising fine sandy silt loams and are easily worked, though there is some indication that parts of the site may be

---

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

prone to surface capping (but this was not considered to be significant). The combination of these soil properties and the prevailing climate results in the land having very minor or no limitations to its use for agriculture.

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

Grade/Other land	Area (hectares)	% surveyed area	% site area
1	10.1	26.7	23.8
2	27.7	73.3	65.3
Other land	4.6	N/A	10.9
Total surveyed area	37.8	100	89.1
Total site area	42.4	-	100

10. The remainder of the site has been mapped as Grade 2 (very good quality agricultural land). The soil profiles within this unit are variable in nature as a result of the complex, interbedded, underlying geological deposits (Upper Greensand). The soil profiles comprise two main types. Some soils are deep and clayey, with very little stone, and suffer from a combination of minor soil wetness and soil droughtiness restrictions. A minor soil wetness restriction will slightly affect crop growth or impose restrictions on cultivations or grazing by livestock. Other soils are restricted by soil droughtiness alone where the profiles are shallower and/or stonier, and often become impenetrable to the soil auger at moderate depths. These soil properties, together with the prevailing climate, restrict the amount of moisture in the soil such that there will be insufficient water in some years to fully meet the needs of the crop, and yields will be affected as a result. Given the complexity and variability of the soils within this Grade 2 unit, this land will include borings of both better and worse quality.

## **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.
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.

**Table 2: Climatic and altitude data**

Factor	Units	Values	
		SU 534 888	SU 532 892
Grid reference	N/A	SU 534 888	SU 532 892
Altitude	m, AOD	60	65
Accumulated Temperature	day°C (Jan-June)	1452	1446
Average Annual Rainfall	mm	574	576
Field Capacity Days	days	122	123
Moisture Deficit. Wheat	mm	115	114
Moisture Deficit. Potatoes	mm	109	108
Overall climatic grade	N/A	Grade 1	Grade 1

15. The combination of rainfall and temperature at this site mean that the area is relatively dry and warm. Other local climatic factors such as exposure and frost risk are not believed to have a significant effect on the site. The site is climatically Grade 1.

**Site**

16. The agricultural land at this site lies at an altitude of 55-66m AOD and is flat or gently undulating. Flooding restrictions do not affect land quality.

**Geology and soils**

17. The most detailed published geological information (BGS, 1978) maps the entire site as Upper Greensand.
18. The most recently published soil information for the site shows the entire site to be mapped as Harwell Association (SSEW, 1983). This is described as ‘well drained loamy soils over sandstone and some similar soils with slight seasonal waterlogging. Shallow stony soils locally. Some slowly permeable seasonally waterlogged fine loamy or fine silty over clayey soils mainly on scarp slopes. Risk of water erosion’ (SSEW, 1983).

**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.
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 II.

**Grade 1**

21. The southern part of the site has been classified as Grade 1 (excellent quality agricultural land). The soils in this area are deep and free-draining and comprise very slightly stony (up to 3% fine soft sandstone) fine sandy silt loam topsoils which overly similar or slightly heavier upper subsoils. Lower subsoils are variable in nature as a result of the interbedded parent material that they are derived from but generally consist of medium or heavy clay loam or silty clay loam textures. The lower subsoils tend to become more stony with depth (containing up

to 20% total fine soft sandstone and siltstone) and are occasionally gleyed. The soils area assessed as Wetness Class I. Soil pit 2P is representative of these soil types. Moisture balance calculations indicate that, even in this low rainfall area, the available water capacity of the soils is sufficient to provide crops with adequate moisture to prevent drought stress in most years. This land therefore has very minor or no limitations to its agricultural use.

## Grade 2

22. The majority of the area is mapped as very good quality agricultural land (Grade 2). The land is affected mainly by soil droughtiness with soil wetness being equally or more restricting in places. The soils are variable depending on the degree of weathering and the sequence of horizons. The majority of profiles comprise stoneless or very slightly stony (0–5% fine soft sandstone) fine sandy silt loam or medium clay loam topsoils. These tend to overlie clay loam or clay subsoils which are often gleyed. Where soil droughtiness is overriding the profiles are impenetrable to the auger at variable depths in the range 45–90cm over hard and dry soil material which contains up to 40% fine soft sandstone. The combination of soil texture and the amount of soft sandstone and siltstone restricts the water available to crops such that there is a very slight risk of drought stress to the plants in most years. This will result in a reduction in the level and consistency of yields. Where soil wetness is equally or more limiting to soil droughtiness profiles have poorly structured, slowly permeable, clay horizons which occur at depths in the range 23–68cm (1P is representative of these soil types). The variability in drainage of these soil profiles means that a Wetness Class of I, II or III has been assigned to these soils depending on the existence of, and depth to, slowly permeable horizons. A slight wetness limitation such as this will affect crop growth and development as well as restricting the opportunities for landwork and grazing. Occasional borings of better or worse quality occur within the Grade 2 mapping unit but were too few and far between to be mapped separately at this scale.

Sharron Cauldwell  
Resource Planning Team  
Eastern Region  
FRCA

## SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No. 254, Henley on Thames.*  
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

### 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 descriptions**

**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. **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:

<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
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT	
1	SU53108924	CER			42	1	1	126	11	122	13	2					
2	SU53708930	CER	NE	1				126	11	111	2	2			DR	2	I90 DRY SEE 2P
3	SU53208920	CER			48	48	2	1	154	39	120	11	1		DR	2	I100 SEE 1P
4	SU53408920	CER			39	58	3	2	146	31	117	8	2			1	SEE 1P
5	SU53588918	PLO			38	38	3	2	130	15	117	8	2		WD	2	SEE 1P
															WD	2	I100 SEE 1P
6	SU53308910	PLO			35	35	3	2	148	33	115	6	2		WD	2	SEE 1P
7	SU53508910	PLO			28	40	3	2	151	36	119	10	1		WE	2	SEE 1P
8	SU53708910	CER			68	68	2	2	138	23	115	6	2		WD	2	SEE 1P
9	SU53208900	PLO					1	1	114	-1	103	-6	3A		DR	2	I50 DRY SEE 2P
10	SU53408900	PLO					1	1	156	41	125	16	1			1	SEE 2P
11	SU53608900	CER					1	1	86	-29	86	-23	3B		DR	3A	I45 HARD Q GR2
12	SU53268889	PLO			50		1	1	137	22	129	20	2			1	I93 DRY SEE 2P
13	SU53508890	PLO	S	1	28	28	3	2	139	24	108	-1	2		WD	2	SEE 1P
14	SU53708890	CER					1	1	101	-14	105	-4	3A		DR	3A	I60 Q GR2
15	SU53208884	PLO					1	1	145	30	130	21	1			1	SEE 2P
16	SU53408881	PLO			70		1	1	160	45	126	17	1			1	SEE 2P
17	SU53528877	PLO	S	1			1	1	103	-12	92	-17	3A		DR	3A	I40 HARD Q GR2
18	SU53608880	CER					1	1	121	6	116	7	2		DR	2	I90 QGR1 SEE2P
19	SU53508870	PLO					1	1	168	53	143	34	1			1	
1P	SU53588918	PLO			23	23	3	2	144	29	111	2	2		WD	2	
2P	SU53208884	PLO					1	1	162	47	129	20	1			1	HARD/DRY

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES-----			STRUCT/	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH		TOT	CONSIST	STR		POR
1	0-28	FSZL	10YR32						0	0	HR	3					
	28-42	MCL	10YR42						0	0	FSST	3		M			
	42-65	HCL	10YR53	10YR58	C	D		Y	0	0	FSST	10		M			WEATHERED FSST+C
	65-90	MCL	05Y53						0	0	FSST	30		M			+5% HR FSST
2	0-20	MCL	25Y 42						0	0	FSST	3					T/S BORDER HCL
	20-100	HZCL	25Y 5342						0	0	FSST	15		M			I100 DRY
3	0-27	FSZL	10YR42						0	0	HR	3					
	27-48	MCL	25Y 42						0	0	FSST	5		M			
	48-65	C	25Y 53	10YR58	C	F		Y	0	0	FSST	3		P	Y	Y	PLASTIC/DENSE
	65-75	HZCL	25Y 53	10YR56	F	D			0	0	FSST	10		M			
	75-120	HZCL	25Y 53	10YR56	C	D		Y	0	0	FSST	10		M			MIXED C+FSST
4	0-25	FSZL	10YR42						0	0	FSST	3					
	25-39	MCL	25Y 42						0	0	FSST	10		M			
	39-58	HCL	25Y 53	10YR56	C	D		Y	0	0	FSST	15		M			MIXED FSST+C
	58-95	C	05Y 53	10YR5658	C	D		Y	0	0	FSST	3		P		Y	PLASTIC/DENSE
	95-120	MCL	25Y 53	10YR56	C	D		Y	0	0	FSST	10		M			WEATHERED FSST
5	0-30	FSZL	10YR42						0	0	FSST	3					SEE 1P
	30-38	HCL	25Y 53						0	0	FSST	10		M			
	38-75	C	05Y 53	10YR56	C	F		Y	0	0	FSST	3		P		Y	DENSE/PLASTIC
	75-100	HZCL	25Y 53	10YR46	F	F			0	0	FSST	20		M			WEATHERED FSST
6	0-35	FSZL	25Y 42						0	0	FSST	5					
	35-70	ZC	25Y 5343	10YR56	C	D		Y	0	0	FSST	5		P		Y	DENSE/PLASTIC
	70-120	HZCL	25Y 5343						0	0	FSST	20		M			WEATHERED FSST
7	0-28	FSZL	10YR31						0	0	HR	1					
	28-40	HCL	25Y 63	10YR56	C			Y	0	0		0		M			LOOSE
	40-75	C	25Y 63	10YR56	C			Y	0	0		0		P		Y	DENSE
	75-120	HZCL	05Y 63	10YR56	F				0	0	FSST	15		M			WEATHERED FSST
8	0-25	MCL	10YR42						0	0	HR	1					
	25-50	HZCL	25Y 52						0	0	FSST	2		M			
	50-68	HZCL	05Y 63						0	0	FSST	20		M			WEATHERED FSST
	68-120	C	05Y 63	10YR56	C			Y	0	0	FSST	2		P		Y	DENSE
9	0-30	FSZL	25Y 3242						0	0	HR	2					
	30-50	MCL	25Y 42						0	0	FSST	15		M			I HARD, DRY SEE2P
10	0-30	FSZL	25Y 42						0	0	FSST	3					
	30-80	MZCL	25Y 4243						0	0	FSST	15		M			
	80-120	HCL	25Y 53						0	0	FSST	20		M			WEATHERED FSST+C
11	0-28	FSZL	10YR31						0	0		0					
	28-40	MZCL	25Y63						0	0	FSST	20		M			MALMSTONE
	40-45	MZCL	25Y63						0	0	FSST	20		M			IMP HARD, Q FSST

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES-----			STRUCT/ CONSIST	SUBS			CALC			
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR		POR	IMP	SPL
12	0-35	FSZL	25Y 4232						0	0	HR	2						
	35-50	MCL	25Y 42						0	0	FSST	10		M				
	50-65	HZCL	25Y 32	10YR46	C	F		Y	0	0	FSST	15		M			WEATHERED FSST+C	
	65-93	HZCL	25Y 53						0	0	FSST	10		M			I HARD, DRY SEE2P	
13	0-28	FSZL	25Y 42						0	0	FSST	5						
	28-85	ZC	05Y 53	10YR56	C	F		Y	0	0	FSST	5		P		Y	DENSE, SEE 1P	
	85-120	HZCL	25Y 53	10YR46	F	F			0	0	FSST	20		M			FE CONCS/MALMST	
14	0-30	FSZL	25Y 42						0	0	HR	5						
	30-50	MCL	25Y42	10YR56	F				0	0	FSST	10		M				
	50-60	MCL	25Y 53						0	0	FSST	30		M			IMP HARD, Q FSST	
15	0-35	FSZL	25Y 3242						0	0	HR	2					SEE 2P	
	35-60	MCL	25Y 42						0	0	FSST	2		M				
	60-75	MCL	25Y 42	10YR46	F	D			0	0	FSST	10		M			FE CONCS	
	75-100	HZCL	25Y 4353						0	0	FSST	20		M			I HARD, DRY SEE2P	
16	0-28	FSZL	25Y 3242						0	0	FSST	2						
	28-70	MCL	25Y 42						0	0	FSST	5		M				
	70-120	HZCL	25Y 53	10YR5658	C	D		Y	0	0	FSST	10		M			WEATHERED FSST+C	
17	0-28	FSZL	25Y 42						0	0	HR	5						
	28-45	MZCL	25Y 53						0	0	FSST	40		M			IMP FSST/DRY	
18	0-30	FSZL	25Y 4243						0	0	HR	5						
	30-50	MZCL	25Y 42						0	0	FSST	20		M				
	50-90	HZCL	25Y 53	10YR46	F	D			0	0	FSST	40		M			IMP HARD, DRY	
19	0-33	FSZL	10YR32						0	0	FSST	3						
	33-70	FSZL	25Y 53						0	0	FSST	10		M				
	70-79	HCL	25Y 53	10YR4656	C	D			0	0	FSST	10		M				
	79-120	ZC	05Y 5361	10YR56	C	D		Y	0	0	FSST	5		P	Y	Y	DENSE	
1P	0-23	FSZL	10YR32						0	0	FSST	5						
	23-60	C	05Y53	75YR44	C	D		Y	0	0	FSST	2	MDCPR	FM	P	Y	Y	DENSE, FIRM
	60-120	HZCL	25Y53	10YR46	F	D			0	0	FSST	15	MDCSAB	FR	M	Y		MIXED FSST, ZR+C
2P	0-35	FSZL	25Y31						0	0	FSST	3						
	35-78	MCL	25Y42						0	0	FSST	5	MDCSAB	FR	M			HARD, DRY
	78-120	HZCL	25Y4243	10YR46	F	F			0	0	FSST	20	MDCSAB	FR	M			WEATHD SST, ZR+C