3304/009/97

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Land at Joint Service Command College, Watchfield, Oxfordshire

Agricultural Land Classification
February 1997

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

LAND AT JOINT SERVICE COMMAND COLLEGE, WATCHFIELD, OXFORDSHIRE

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 58 hectares of land located around the Joint Service Command College at Watchfield in Oxfordshire The survey was carried out during February 1997

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 an *ad-hoc* planning application The results of this survey supersede any previous ALC information for this land

3 Prior to 1 April 1997 the work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS After this date the work was completed by the same team as part of the Farming and Rural Conservation Agency (FRCA) Reading 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 most of the agricultural land on this site was in arable use (cereal stubble ploughed land and winter cereal) together with an area of permanent pasture to the east of the site The areas shown as Other Land comprise woodland scrub and recreational land

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)	% surveyed area	% site area
2	9 5	17 9	16 4
3a	15 6	29 4	26 9
3b	27 9	52 7	48 1
Other Land	5 0		8 6
Total surveyed area	53 0	100 0	
Total site area	58 0		100 0

7 The fieldwork was conducted at an average density of one boring per hectare A total of 56 borings and four soil pits were described

8 Approximately half of the land on this site has been classified as best and most versatile Grade 2 and Subgrade 3a Grade 2 (very good quality) land occurs in the south of the site All of this land is limited by minor soil wetness and/or workability limitations Land classified as Subgrade 3a (good quality) is limited by soil wetness These profiles are similarly drained to those assigned to Grade 2 However they have heavier topsoils which means that the resulting soil wetness limitations are slightly more severe Land on the lower slopes immediately to the east of Homeleaze Road is also limited by soil wetness Here the subsoils contain significant amounts of limestone fragments set in a clay matrix these profiles are also moderately well drained

9 Land between Majors Road and Bower Green is classified as Subgrade 3b (moderate quality) This land is limited by significant soil droughtiness arising from relatively shallow heavy clay loam soils developed in brashy limestone The interaction between the soil characteristics and the local climate leads to a restriction in water availability for plants in most years Consequently Subgrade 3b is appropriate on the basis of soil droughtiness

10 The lower-lying land flanking the Bower Brook and land adjacent to Meadow Road has also been classified as Subgrade 3b This land is subject to significant soil wetness and workability limitations In comparison to land classified as Grade 2 and Subgrade 3a the clay occurs at much shallower depths within the soil profile thereby impeding soil drainage This results in more severe restrictions on the flexibility of cropping stocking and cultivations

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 overleaf 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	Values
Grid reference	N/A	SU 247 905	SU 255 900
Altitude	m, AOD	100	90
Accumulated Temperature	day°C (Jan June)	1413	1424
Average Annual Rainfall	mm	665	663
Field Capacity Days	days	146	146
Moisture Deficit, Wheat	mm	104	105
Moisture Deficit, Potatoes	mm	95	96

15 The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation However climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations At this locality the climate is relatively dry in regional terms As a result the likelihood of soil droughtiness problems will be enhanced whilst soil wetness limitations may be reduced No local climatic factors such as exposure or frost risk, are believed to adversely affect the land quality on the site This site is climatically Grade 1

Site

16 The highest land on the site around Watchfield Folly lies at an altitude of 105 m AOD The land on the site is level to gently sloping (0-3°) and typically falls in a southerly or south easterly aspect to Bower Brook The Brook is the lowest point on the site and lies at an altitude of just below 90 m AOD Nowhere on the site do gradient or microrelief affect agricultural land quality

Geology and soils

17 The published geology map (BGS 1971) shows the lower lying land flanking the Bower Brook to be underlain by Corallian Beds of clay the slightly higher land in this area is shown to be underlain by Corallian Beds of sand The latter is also shown on the higher land around Watchfield Folly with the lower land shown to be underlain by Corallian Beds of clay The land in the north of the site between Meadow Road and Bower Green is shown to be underlain by Corallian Beds of limestone

18 The most detailed published soil map for this area (SSEW 1973) maps four soil types across the site Soils of the Kingston Series are shown in areas approximate to those underlain by the Corallian Beds of clay These soils are described as Slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with slowly permeable subsoils and slight seasonal waterlogging (SSEW 1973) Soils of the Shrivenham Series equate with land underlain by the Corallian Beds of sand These soils are described as Well drained loamy ferritic ferruginous loams (SSEW 1973) A very thin strip of land immediately adjoining the Bower Brook is mapped as the Hatford Kelmscot complex The Hatford Series is described as Very calcareous and humose mottled silty and/or loamy over peat soils (SSEW 1973) The Kelmscot Series is described as mottled gravelly silty or loamy or loamy over gravelly calcareous soils (SSEW 1973) Soils of the Sherborne Series are mapped in association with the Corallian Beds of limestone These soils are

described as Shallow calcareous brown loam, clay loam or clay soils over Jurassic limestone (SSEW 1973)

Agricultural Land Classification

19 The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1 page 1

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

Grade 2

21 Grade 2 very good quality land occurs to the south of the College This land is limited by minor soil wetness and workability Approximately half of the profiles have heavy clay loam topsoils some of which are calcareous These overlie similarly textured and clay subsoils which are permeable and moderately structured These subsoils tend to be brownish in colour though some profiles are paler and gleyed at depth All of these profiles are well drained and have been assigned to Wetness Class I (see Appendix II) The heavy topsoils at this relatively dry locality means that this land will be limited by slight soil workability Elsewhere the profiles have slightly lighter topsoils of medium clay loam However these profiles overlie poorly structured plastic clay lower subsoils at approximately 60-65 cm depth The clay is slowly permeable and acts to impede drainage such that Wetness Class II is appropriate The interaction between the soil drainage and the lighter topsoils at this locality acts to impart both minor soil wetness and workability limitations All of the Grade 2 land will be subject to slight restrictions on the flexibility of cropping stocking and cultivations

Subgrade 3a

22 All of the land classified as Subgrade 3a good quality land is limited by soil wetness and workability Many of the profiles have non-calcareous heavy clay loam topsoils These overlie clay heavy clay loam and sandy clay upper subsoils The upper subsoils are permeable moderately structured and tend to be brownish in colour At approximately 60-75 cm depth these pass into plastic clay lower subsoils which are poorly structured and slowly permeable These profiles are assessed as being moderately well drained (Wetness Class II) as indicated by gleying from approximately 45-70 cm depth These profiles are represented by Pits 1 and 4 (see Appendix III) The interaction between these soil drainage characteristics and the heavy topsoils with the relatively dry local climate means that Subgrade 3a is appropriate Elsewhere the topsoils are lighter comprising medium clay loams However in these profiles the plastic clay occurs at shallower depths typically 40-60 cm, with gleying being present from between 30-45 cm depth These profiles are imperfectly drained (Wetness Class III) Although slightly less well drained the lighter topsoils means that this land is also classified as Subgrade 3a This land will have some restrictions on the flexibility of cropping stocking and cultivations

23 The land on the lower slopes of the Bower Brook immediately east of Homeleaze Road is limited by both soil wetness and droughtiness Profiles comprise heavy clay loam topsoils These overlie clay subsoils which contain limestone fragments Upper subsoils tend to be moderately stony (approximately 34% total stone) lower subsoils are slightly stonier

(approximately 50% total stone) Such profiles are represented by Pit 3 Profiles are gleyed within 40 cm but the limestone fragments improve the soil drainage such that the clay is not slowly permeable These profiles are assigned to Wetness Class II the heavy topsoils mean that Subgrade 3a is appropriate because of soil wetness limitations However soil droughtiness is equally limiting The interaction between the soil characteristics (soil texture and stone content) and the relatively dry climate results in the amount of soil water being inadequate to fully meet crop needs in some years This may cause crops to suffer drought stress and thereby adversely affect yield potential

Subgrade 3b

24 Land between Majors Road and Bower Green is classified as Subgrade 3b moderate quality This land is limited by significant soil droughtiness arising from relatively shallow heavy clay loam soils developed in brashy limestone Topsoils are moderately stony containing 12% of hard limestone fragments larger than 2 cm and 20% total hard limestone fragments Upper subsoils are very stony containing 55% total hard limestone fragments From Pit 2 which represents such profiles roots were observed to 50 cm depth Below this depth the limestone becomes less fragmented consequently it has been assumed that roots would not be able to significantly penetrate below this depth The interaction between the soil characteristics (but in particular the restricted rooting) and the relatively dry local climate leads to a restriction in water availability for plants in most years Consequently Subgrade 3b is appropriate on the basis of soil droughtiness This land will be subject to lower and less consistent crop yields

25 The lower-lying land flanking the Bower Brook and land adjacent to Meadow Road has also been classified as Subgrade 3b This land is subject to significant soil wetness and workability limitations Topsoils comprise heavy clay loams or clays These often overlie similarly textured permeable upper subsoils Slowly permeable layers generally begin at between 20 cm and 38 cm depth these profiles are poorly drained (Wetness Class IV) In some profiles the slowly permeable layers occur slightly deeper between 40 cm and 60 cm these profiles are imperfectly drained (Wetness Class III) The interaction between both soil drainage characteristics and the heavy topsoils with the local climate results in soil wetness

26 Soil wetness can adversely affect seed germination and survival and can inhibit the development of a good root system It also influences the sensitivity of soil to structural damage and is therefore a major factor in determining the number of days when cultivation, trafficking or grazing can take place Subgrade 3b land is capable of producing moderate yields of a narrow range of crops such as 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

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SOURCES OF REFERENCE

British Geological Survey (1971) *Sheet No 253 Abingdon 1 63 360*
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 (1973) *Sheet 253 1 63 360 and accompanying legend.*
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 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 sandston	**GS**	gravel with porous (soft) stones
SI	soft weathered igneous/metamorphic rock		

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

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

degree of development	**WK** weakly developed	**MD** moderately developed
	ST strongly developed	
ped size	**F** fine	**M** medium
	C coarse	**VC** very 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 **VF** very friable **FR** friable **FM** firm **VM** very firm
EM extremely firm **EH** extremely hard

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

SOIL PIT DESCRIPTION

Site Name WATCHFIELD SHRIVENHAM Pit Number 1P

Grid Reference SU24909050

Average Annual Rainfall 0 mm
Accumulated Temperature 0 degree days
Field Capacity Level 0 days
Land Use Cereals
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	SCL	10YR44 58	1	1	HR					
30- 50	HCL	10YR44 00	0	0		F	MDCSAB	FR	M	
50- 58	SCL	10YR56 00	0	0		C	MDCSAB	FR	M	
58- 68	HCL	25Y 63 00	0	0		C	WDCSAB	FM	P	
68-120	C	05GY61 00	0	0		C	WDCAB	FM	P	

Wetness Grade 2

Wetness Class II
Gleying 058 cm
SPL 068 cm

Drought Grade 1

APW 137mm MBW 32 mm
APP 112mm MBP 16 mm

FINAL ALC GRADE 2
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name WATCHFIELD SHRIVENHAM Pit Number 2P

Grid Reference SU25809080 Average Annual Rainfall 0 mm
Accumulated Temperature 0 degree days
Field Capacity Level 0 days
Land Use Cereals
Slope and Aspect 01 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 26	HCL	10YR44 00	12	20	HR					Y
26- 50	HCL	10YR46 00	0	55	HR				M	Y

Wetness Grade 2 Wetness Class I
Gleying cm
SPL No SPL

Drought Grade 3B APW 57 mm MBW -48 mm
APP 57 mm MBP -39 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name WATCHFIELD SHRIVENHAM Pit Number 3P

Grid Reference SU25338990

Average Annual Rainfall 0 mm
Accumulated Temperature 0 degree days
Field Capacity Level 0 days
Land Use Cereals
Slope and Aspect 01 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	HCL	10YR43 00	1	3	HR					
30- 55	C	10YR53 00	0	34	HR	M	WKCSAB	FM	P	Y
55- 80	C	25Y 52 00	0	50	HR	M		FM	P	Y

Wetness Grade 3A

Wetness Class II
Gleying 030 cm
SPL No SPL

Drought Grade 3B

APW 82 mm MBW -22 mm
APP 85 mm MBP -10 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name WATCHFIELD SHRIVENHAM Pit Number 4P

Grid Reference SU25709020 Average Annual Rainfall 0 mm
Accumulated Temperature 0 degree days
Field Capacity Level 0 days
Land Use
Slope and Aspect 01 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	HCL	10YR42 00	0	0						
30- 40	C	10YR43 00	0	0			MDCSAB	FR	M	
40- 60	C	10YR53 54	0	0		M	MDCSAB	FR	M	
60- 85	C	25Y 62 00	0	0		M	WKCOAB	FM	P	

Wetness Grade 3A Wetness Class II
Gleying 060 cm
SPL 060 cm

Drought Grade APW mm MBW 0 mm
APP mm MBP 0 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	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU25509080	CER	S	01			1	2	47	-61	47	-52	4				DR	3B	Imp35 see2P
1P	SU24909050	CER			058	068	2	2	137	32	112	16	1				WE	2	In 3a unit
2	SU25609080	CER	S	02			1	2	46	-59	46	-50	4				DR	3B	Imp30 see2P
2P	SU25809080	CER	S	01			1	2	57	-48	57	-39	3B				DR	3B	TO 50
3	SU25709080	CER	S	02			1	2	43	-60	43	-51	4				DR	3B	Imp30 see2P
3P	SU25338990	CER	SE	01	030		2	3A	82	-22	85	-10	3B				WD	3A	Pit to 80
4	SU25809080	CER	S	02			1	2	49	-54	49	-45	4				DR	3B	Imp35 see 2P
4A	SU25829066	CER	E	01			1	3A	62	-43	62	-34	3B				DR	3B	Imp40 see 2P
4P	SU25709020	STB	SE	01	060	060	2	3A		0		0					WE	3A	Plastic C 60
5	SU25909080	CER			030		2	2	65	-40	65	-31	3B				DR	3B	Imp40 see 2P
6	SU26009080	CER					1	2	57	-48	57	-39	3B				DR	3B	Imp35 see 2P
7	SU25009070	CER	E	02	045	060	2	3A		0		0					WE	3A	Plastic C 60
8	SU25409070	CER			070		1	2	152	47	111	15	1				WK	2	Sandyish
9	SU25509070	CER					1	2	78	-27	78	-18	3B				DR	3B	Imp47 see 2P
10	SU25609070	CER	S	01			1	1	83	-22	91	-5	3B				DR	3A	I60 sl deeper
11	SU25909070	CER			035		2	3B		0		0					WE	3B	Impen 60
12	SU24909060	CER	SE	02	035	055	3	3A		0		0					WE	3A	Plastic 55
13	SU25009060	CER	N	02	045	045	3	3B		0		0					WE	3B	Plastic 50
14	SU25109060	SAS	SE	02	0	025	4	3B		0		0					WE	3B	
15	SU25209060	SAS					1	2	141	36	117	21	1				WE	2	
16	SU25409060	CER	E	02			1	2	63	-42	63	-33	3B				DR	3B	Imp37 see 2P
17	SU25509060	CER					1	2	67	-38	67	-29	3B				DR	3B	Imp42 see 2P
18	SU24909050	CER	W	01	065	065	2	3A		0		0					WE	3A	Plastic 65
19	SU25109050	STB			035	035	4	3B		0		0					WE	3B	I60 gravelly
20	SU25309055	CER			048	048	3	3A		0		0					WE	3A	Sl gleyed 35
22	SU25909050	PGR			030		1	2	141	36	111	15	1				WK	2	Sl gleyed 30
23	SU24709040	CER	SW	02	060	060	2	3A		0		0					WE	3A	Sl gleyed 50
24	SU24809040	CER	SW	02	070	070	2	3B		0		0					WE	3B	Sl gleyed 50
25	SU24909040	CER	E	02			1	3A		0		0					WK	3A	Sl gleyed 55
26	SU25909040	PGR			048	055	2	2		0		0					WE	2	Plastic 55
27	SU26009040	PGR			035	060	3	3B		0		0					WE	3B	Plastic 60
28	SU24809030	CER	SW	02	065		1	2	123	18	113	17	2				WK	2	Sl gleyed 65
29	SU25809030	PGR	SE	01	045	090	1	1	145	40	116	20	1					1	Sl gleyed 45
30	SU25909030	PGR			040	050	3	3A		0		0					WE	3A	Plastic 50
31	SU25709020	STB	SE	01	045	060	2	3A		0		0					WE	3A	Plastic 60
32	SU25809020	PGR	SE	02	040	040	3	3A		0		0					WE	3A	Plastic 40
33	SU25509010	PLO	SE	02			1	2	151	46	120	24	1				WK	2	
34	SU25609010	STB	S	02	045	070	2	3A		0		0					WE	3A	Plastic 70
35	SU25709010	STB	SE	01	027	050	3	3B		0		0					WE	3B	Plastic 50
36	SU25809010	STB			027	035	4	3B		0		0					WE	3B	Plastic 35
37	SU25909010	PLO			020	020	4	3B		0		0					WE	3B	Plastic 20
38	SU25238998	CER	S	03	065	065	2	3A		0		0					WE	3A	Plastic 65

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
39	SU25309000	CER	S	03	060	060	2	3A		0		0					WE	3A	Plastic 60
40	SU25409000	CER	S	03	052	052	2	3A		0		0					WE	3A	Plastic 52
41	SU25509000	PLO	SE	02	040	040	3	3B		0		0					WE	3B	Plastic 40
42	SU25609000	PLO			035	035	4	3B		0		0					WE	3B	Wat table60
43	SU25709000	PLO			030	040	3	3B		0		0					WE	3B	Plastic 40
44	SU25809000	PLO			025	025	4	3B		0		0					WE	3B	Plastic 25
45	SU25909000	PLO			045	065	2	2	137	32	114	18	1				WE	2	Some CS 65
46	SU26009000	PLO			040	040	3	3A		0		0					WE	3A	Plastic 40
47	SU25238990	CER	SE	01			1	2	60	-45	60	-36	3B				WD	3A	Imp35 see 3P
48	SU25308990	CER					1	2	65	-40	65	-31	3B				WD	3A	Imp40 see 3P
49	SU25408990	CER	SE	02			1	2	93	-12	102	6	3A				DR	3A	Imp62 see 3P
50	SU25508990	RGR			025	025	4	3B		0		0					WE	3B	Plastic 25
51	SU25608990	CER	N	01	030	062	3	3A		0		0					WE	3A	Plastic 62
52	SU25708990	PLO			058	058	2	2	138	33	115	19	2				WE	2	Plastic 58
53	SU25808990	PLO					1	1	138	33	115	19	1					1	Sandyish
54	SU25508980	CER	N	01	040	040	3	3B		0		0					WE	3B	S1 gleyed 28
55	SU25608980	CER	N	01			1	2	143	38	119	23	1				WK	2	
56	SU25508970	CER	W	01	075	075	2	3A		0		0					WE	3A	S1 gleyed 58

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS				
AMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
1	0-28	hcl	10YR44 00						4	0	HR	18						Y	
	28-35	hcl	25Y 63 62						0	0	HR	55		M				Y	Imp35 1st frags
1P	0-30	scl	10YR44 58						1	0	HR	1							psd=scl hand=hcl
	30-50	hcl	10YR44 00	10YR56 00	F				0	0		0	MDCSAB	FR	M				
	50-58	scl	10YR56 00	10YR68 00	C			S	0	0		0	MDCSAB	FR	M				Sl gleyed
	58-68	hcl	25Y 63 00	10YR58 00	C			Y	0	0		0	WDCSAB	FM	P				
	68-120	c	05GY61 00	75YR58 00	C			Y	0	0		0	WDCAB	FM	P	Y		Y	
2	0-25	hcl	10YR44 00						2	0	HR	12						Y	
	25-30	hcl	10YR46 00						0	0	HR	20		M				Y	Imp35 1st frags
2P	0-26	hcl	10YR44 00						12	6	HR	20						Y	
	26-50	hcl	10YR46 00						0	0	HR	55		M				Y	Q bedrock 50
3	0-25	hcl	10YR44 00						12	0	HR	20						Y	
	25-30	hcl	10YR44 46						0	0	HR	25		M				Y	
3P	0-30	hcl	10YR43 00						1	0	HR	3							
	30-55	c	10YR53 00	10YR58 00	M	00MN00 00		Y	0	0	HR	34	WKCSAB	FM	P			Y	wet sieved
	55-80	c	25Y 52 00	10YR58 00	M	00MN00 00		Y	0	0	HR	50		FM	P			Y	wet sieved
4	0-25	hcl	10YR44 00						12	0	HR	20						Y	
	25-35	hcl	10YR46 00						0	0	HR	25		M				Y	Imp35 1st frags
4A	0-32	c	10YR43 00						3	0	HR	5							
	32-40	c	10YR44 00						0	0	HR	20		M				Y	Imp40 1st frags
4P	0-30	hcl	10YR42 00						0	0		0							
	30-40	c	10YR43 00						0	0		0	MDCSAB	FR	M				
	40-60	c	10YR53 54	75YR58 00	M	10YR62 00		Y	0	0		0	MDCSAB	FR	M				Friable
	60-85	c	25Y 62 00	75YR68 00	M			Y	0	0		0	WKCOAB	FM	P	Y		Y	Plastic
5	0-30	hcl	10YR44 00						4	0	HR	7						Y	
	30-40	c	10YR53 00	75YR56 00	C	10YR52 00		Y	0	0	HR	10		M				Y	Imp40 1st frags
6	0-30	hcl	10YR43 53						2	0	HR	8						Y	
	30-35	c	10YR54 00						0	0	HR	10		M				Y	Imp35 1st frags
7	0-25	hcl	10YR36 00						0	0	HR	1							
	25-45	c	10YR36 00						0	0		0		M					
	45-60	c	10YR53 00	10YR56 00	M			Y	0	0		0		M					Friable
	60-80	c	05Y 51 00	10YR56 00	M			Y	0	0		0		P			Y		Plastic
8	0-25	hcl	10YR44 00						0	0	HR	2							
	25-35	hcl	10YR44 46						0	0	HR	2		M					
	35-70	scl	10YR46 00						0	0	HR	2		M					
	70-120	sc	10YR46 00	75YR46 00	C	00MN00 00		S	0	0		0		M					Q spl

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	
9	0-30	hcl	10YR43 00						0	0	HR	3						Y	
	30-47	c	10YR42 43						0	0	HR	8		M				Y	Imp47 1st frags
10	0-25	mcl	10YR44 00						3	0	HR	12						Y	
	25-60	c	10YR46 00						0	0	HR	10		M				Y	Imp60 1st frags
11	0-35	c	10YR43 53						0	0	HR	1							
	35-48	c	10YR53 00	75YR58 00	C		00MN00 00	Y	0	0		0		M					
	48-60	c	25Y 64 00	10YR56 00	C		00MN00 00	Y	0	0	HR	15		M				Y	
12	0-25	scl	10YR46 00						0	0	HR	1							
	25-35	sc	10YR46 00						0	0		0		M					
	35-55	sc	10YR53 00	10YR56 00	M			Y	0	0		0		M					Friable
	55-70	c	05Y 01 00	10YR56 00	C			Y	0	0		0		P			Y		Plastic
13	0-25	hcl	10YR44 00						1	0	HR	1							
	25-35	c	10YR44 00						0	0		0		M					
	35-45	c	25Y 54 00						0	0		0		M					
	45-50	c	25Y 53 00	75YR56 00	C			Y	0	0		0		P			Y		Firm
	50-70	c	05Y 51 00	10YR56 00	M			Y	0	0		0		P			Y		Plastic
14	0-25	c	10YR53 00	10YR56 00	C			Y	0	0	HR	2							
	25-35	c	10YR53 54	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		Plastic
	35-70	c	10YR53 52	10YR68 00	M		00MN00 00	Y	0	0		0		P			Y		Plastic
15	0-30	hcl	10YR43 33						0	0	HR	1							
	30-50	c	10YR44 00						0	0	HR	1		M					
	50-75	c	10YR44 00	10YR46 00	F				0	0	HR	1		M					
	75-120	c	10YR44 00	10YR56 00	C			S	0	0	HR	1		M					Q spl
16	0-33	hcl	10YR43 00						3	0	HR	5						Y	
	33-37	c	10YR44 00						0	0	HR	5		M				Y	Imp37 1st frags
17	0-30	hcl	10YR43 00						5	3	HR	10						Y	
	30-42	c	10YR44 00						0	0	HR	5		M				Y	Imp42 1st frags
18	0-28	hcl	10YR44 00						0	0		0							
	28-45	hcl	10YR44 00	000C00 00	F				0	0		0		M					
	45-65	sc	25Y 56 00	10YR46 00	C			S	0	0		0		M					Friable
	65-120	c	10Y 06 00	10YR56 00	C			Y	0	0		0		P	Y		Y		Plastic
19	0-25	c	10YR53 00	75YR58 00	F				0	0	HR	2							
	25-35	c	10YR44 00	75YR58 00	C			S	0	0	HR	2		M					Q spl
	35-55	c	10YR52 53	75YR58 00	C		00MN00	Y	0	0		0		P			Y		Firm
	55-60	c	10YR52 53	75YR58 00	C		00MN00	Y	0	0	HR	20		P			Y	Y	Imp60 gravelly
20	0-23	hcl	10YR43 00						0	0	HR	4						Y	
	23-35	c	10YR44 00				00MN00 00		0	0	HR	4		M				Y	
	35-48	c	10YR43 44	10YR58 00	C		00MN00 00	S	0	0	HR	2		M					Sl gleyed
	48-85	c	10YR62 43	10YR58 00	C		00MN00 00	Y	0	0	HR	1		P			Y		Firm
	85-100	c	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	5		P			Y		Firm

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
22	0-30	hcl	10YR43 53						0	0	HR	10						Y	
	30-40	c	10YR54 00	75YR46 00	C			S	0	0	HR	10		M				Y	Sl gleyed
	40-80	hcl	10YR52 00	75YR46 00	C			Y	0	0	HR	2		M					
	80-120	c	10YR44 00	75YR46 00	C			S	0	0		0		M					Sl gleyed
23	0-30	hcl	10YR43 00						0	0		0							
	30-50	c	10YR44 00						0	0	HR	2		M					
	50-60	c	10YR44 00	10YR58 00	C			S	0	0	HR	2		M					Sl gleyed
	60-80	c	10YR53 00	75YR58 00	M		00MN00 00	Y	0	0		0		P		Y			Plastic
24	0-30	c	10YR43 00						0	0	HR	1							
	30-50	c	10YR44 00	10YR56 00	F				0	0		0		M					
	50-70	scl	10YR54 00	10YR58 00	C			S	0	0		0		M					Sl gleyed
	70-90	c	05Y 71 00	75YR58 00	C			Y	0	0		0		P		Y			
25	0-30	c	10YR44 00						0	0	HR	1							
	30-55	c	10YR36 00						0	0		0		M					
	55-80	c	10YR46 00	10YR56 00	C		00MN00 00	S	0	0		0		M					Sl gleyed
	80-120	sc	10YR46 00	10YR56 00	C		00MN00 00	S	0	0		0		M					Sl gleyed
26	0-30	mcl	10YR43 00						0	0		0							
	30-48	c	10YR44 00	10YR56 00	F		00MN00 00		0	0		0		M					
	48-55	c	10YR53 54	75YR58 00	C			Y	0	0		0		M					
	55-80	c	10YR53 00	75YR58 00	M			Y	0	0		0		P		Y			
27	0-27	hcl	10YR43 00						0	0		0							
	27-35	c	10YR54 56						0	0		0		M					
	35-60	c	25Y 53 00	75YR56 00	C		00MN00 00	Y	0	0		0		M					Friable
	60-90	c	25Y 63 00	75YR58 00	M		10YR61 00	Y	0	0		0		P		Y			Plastic
28	0-30	hcl	10YR46 00						1	0	HR	1							
	30-65	scl	10YR44 00						0	0		0		M					
	65-90	scl	10YR56 00	10YR52 68	C		00MN00 00	S	0	0		0		M					Sl gleyed
29	0-25	mcl	10YR44 00						0	0	HR	2							
	25-45	hcl	10YR46 00						0	0		0		M					
	45-65	hcl	10YR56 00	10YR68 00	C			S	0	0		0		M					Sl gleyed
	65-90	hcl	25Y 52 00	75YR58 00	C		00MN00 00	Y	0	0		0		M					
	90-120	c	25Y 62 00	75YR56 58	M			Y	0	0		0		P		Y			Plastic
30	0-28	mcl	10YR36 00						0	0		0							
	28-40	hcl	10YR54 00	10YR56 00	F				0	0		0		M					
	40-50	c	25Y 54 00	75YR56 00	C			Y	0	0		0		M					Friable
	50-80	c	25Y 53 62	75YR56 00	M		00MN00 00	Y	0	0		0		P		Y			Plastic
31	0-30	hcl	10YR43 00						0	0		0							
	30-45	c	10YR44 46	75YR46 00	F		00MN00 00		0	0		0		M					
	45-60	c	10YR52 00	75YR56 00	C			Y	0	0		0		M					Friable
	60-80	c	10YR53 00	75YR68 00	M			Y	0	0		0		P		Y			Plastic

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	CALC
32	0-20	mcl	10YR43 00						0	0		0						
	20-30	hcl	10YR44 00						0	0		0		M				
	30-40	c	10YR44 00						0	0		0		M				
	40-70	c	25YR52 51	75YR58 00	M		00MN00 00	Y	0	0		0		P		Y		Plastic
33	0-40	hcl	10YR44 46						0	0		0						
	40-85	hcl	75YR46 56						0	0		0		M				
	85-120	c	75YR46 56						0	0		0		M				
34	0-32	hcl	10YR36 00						0	0		0						
	32-45	c	10YR34 00						0	0		0		M				
	45-70	c	10YR53 54	10YR58 00	C			Y	0	0		0		M				Friable
	70-90	c	25Y 54 00	75YR68 00	M		25 Y52 00	Y	0	0		0		P		Y		Plastic
35	0-27	hcl	10YR43 00						0	0		0						
	27-50	c	10YR53 00	75YR46 00	C			Y	0	0		0		M				Friable
	50-75	c	10YR63 00	75YR58 00	M			Y	0	0		0		P		Y		Plastic
36	0-27	hcl	10YR34 00						0	0		0						
	27-35	c	10YR53 00	10YR46 00	C			Y	0	0		0		M				Friable
	35-60	c	25Y 42 00	10YR46 00	M			Y	0	0		0		P		Y		Plastic
37	0-20	mcl	10YR44 00						0	0	HR	2						
	20-60	c	25Y 51 00	10YR68 58	M			Y	0	0	HR	2		P		Y		Plastic
38	0-30	hcl	10YR44 00						0	0	HR	0						
	30-65	hcl	10YR56 00						0	0		0		M				
	65-120	c	25Y 61 00	75YR68 58	M			Y	0	0		0		P		Y		Plastic
39	0-30	hcl	10YR44 00						0	0		0						
	30-40	hcl	10YR46 00						0	0		0		M				
	40-60	c	10YR46 00						0	0		0		M				
	60-80	c	25Y 61 00	75YR68 58	M			Y	0	0		0		P		Y		Plastic
40	0-30	hcl	10YR44 00						0	0		0						
	30-52	hcl	10YR46 00						0	0		0		M				
	52-60	c	25Y 52 00	75YR68 00	M			Y	0	0		0		P		Y		Plastic
	60-80	c	05Y 62 00	10YR58 00	M			Y	0	0		0		P		Y		Plastic
41	0-25	hcl	10YR44 00						0	0		0						
	25-40	c	10YR44 54						0	0		0		M				
	40-50	c	25Y 52 00	10YR68 58	M		00MN00 00	Y	0	0		0		P		Y		Plastic
	50-70	c	05Y 62 00	10YR68 00	M			Y	0	0		0		P		Y		Plastic
42	0-35	hcl	10YR31 32						0	0	HR	1						
	35-60	c	05Y 61 62	10YR58 00	M		00MN00 00	Y	0	0		0		P		Y		Wat table 60+
43	0-30	hcl	10YR43 00						0	0		0						
	30-40	c	10YR53 00	10YR58 00	C			Y	0	0		0		M				Friable
	40-70	c	25Y 62 00	10YR58 00	M		00MN00 00	Y	0	0		0		P		Y		Plastic

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	
44	0-25	hcl	10YR44 00						0	0		0							
	25-60	c	25Y 51 00	10YR68 00	M			Y	0	0		0		P			Y		Plastic
45	0-25	mcl	10YR44 00						0	0	HR	2							
	25-45	mcl	10YR56 00						0	0	HR	2		M					
	45-65	hcl	10YR53 54	10YR68 00	M		00MN00 00	Y	0	0		0		M					
	65-120	c	25Y 51 00	10YR68 58	M		00MN00 00	Y	0	0		0		P			Y		Plastic
46	0-28	mcl	10YR44 00						0	0	HR	2							
	28-40	mcl	10YR56 00						0	0		0		M					
	40-70	c	25Y 51 00	10YR68 00	M			Y	0	0		0		P			Y		Plastic
47	0-35	hcl	10YR43 00						0	0	HR	5						Y	Imp35 1st frags
48	0-35	c	10YR43 00						0	0	HR	4						Y	
	35-40	c	10YR44 00						0	0	HR	10		M				Y	Imp40 1st frags
49	0-30	hcl	10YR43 00						0	0	HR	4						Y	
	30-62	c	10YR44 00						0	0	HR	2		M				Y	Imp62 1st frags
50	0-25	c	10YR43 44						0	0	HR	2							
	25-60	c	10YR51 44	10YR58 00	M			Y	0	0		0		P			Y		Plastic
51	0-30	mcl	10YR34 00						0	0		0							
	30-62	c	25Y 63 52	75YR56 00	C			Y	0	0		0		M					Friable
	62-90	c	25Y 53 51	75YR56 00	M			Y	0	0		0		P			Y		Plastic
52	0-35	mcl	10YR43 44						0	0		0							
	35-58	hcl	10YR43 00	75YR58 00	C		00MN00 00	S	0	0		0		M					Sl gleyed
	58-120	c	25Y 62 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y		Plastic
53	0-30	mcl	75YR54 00						0	0		0							
	30-60	hcl	75YR56 00						0	0		0		M					
	60-120	c	75YR54 00	75YR58 00	M		00MN00 00	S	0	0		0		P					Sl gleyed
54	0-28	hcl	10YR44 00						0	0		0							
	28-40	c	75YR56 66	75YR68 00	C			S	0	0		0		M					Sl gleyed
	40-70	c	25Y 61 00	75YR68 00	M			Y	0	0		0		P			Y		
55	0-35	hcl	10YR44 00						0	0		0							
	35-45	hcl	10YR46 00						0	0		0		M					
	45-120	c	75YR56 00	00MN00 00	C				0	0		0		M					
56	0-35	hcl	10YR44 00						0	0		0							
	35-58	hcl	10YR46 00						0	0		0		M					
	58-75	sc	10YR46 00	10YR56 00	C		00MN00 00	S	0	0		0		M					Sl gleyed
	75-95	sc	25 Y61 63	10YR56 00	M			Y	0	0		0		P			Y		
	95-105	scl	25 Y61 63	10YR56 00	M			Y	0	0		0		M			Y		
	105-120	c	25 Y61 63	10YR56 00	M			Y	0	0		0		P			Y		