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Arun District Local Plan
Site 36 : Land between Lake Lane and Barnham Lane, Barnham
Agricultural Land Classification Report
May 1994

AGRICULTURAL LAND CLASSIFICATION REPORT.

ARUN DISTRICT LOCAL PLAN
SITE 36: LAND BETWEEN LAKE LANE AND BARNHAM LANE, BARNHAM

1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in the Arun District of West Sussex. The work forms part of MAFF's statutory input to the preparation of the Arun District Local Plan.

1.2 Approximately 6 hectares of land relating to Site 36, north east of the village of Barnham in West Sussex was surveyed in May 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 9 borings and two soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on its use for agriculture.

1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.

1.4 At the time of the survey the agricultural land had been recently drilled for maize. The Urban area shown comprises a farm track.

1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement would be misleading. This map supersedes any previous survey information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
3a	3.3	54.1	55.0
3b	2.7	44.3	45.0
Urban	0.1	1.6	100% (6.0 ha)
Total area of Site	6.1	100%	

1.6 The agricultural land at this site has been classified as Subgrades 3a and 3b with soil wetness and droughtiness being the main limitations. Subgrade 3a land comprises very slightly stony coarse/fine silty soils overlying very slightly to

moderately stony, poorly structured, slowly permeable clay in the lower subsoil Drainage of water through these soils is impaired and land is classified as Subgrade 3a due to a moderate wetness limitation. A small area to the east of the site is limited to Subgrade 3a due to moderate soil droughtiness with freely draining sandy soils restricting water reserves in the soil profile. Subgrade 3b land comprises very slightly stony coarse silty and fine loamy soils overlying slowly permeable clay in the upper subsoil. Water drainage through these soils is more severely impaired than that of Subgrade 3a and as a result land is classified as Subgrade 3b due to a significant wetness limitation

2. Climate

2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

Table 2 :Climatic Interpolation

Grid Reference	SU962046
Altitude, (m, AOD)	5
Accumulated Temperature (°days, Jan-June)	1542
Average Annual Rainfall (mm)	766
Field Capacity Days	157
Moisture deficit, wheat (mm)	118
Moisture deficit, potatoes (mm)	115

2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 It should be noted that climatic characteristics do interact with soil properties to influence soil wetness and droughtiness. Additionally, at this locality the climate is comparatively dry with high moisture deficits which can partially offset the degree of soil wetness found on this particular site.

3. Relief

3.1 The site lies at an altitude of approximately 5-9 metres with land dropping very gently south. Nowhere on the site do relief or gradient affect agricultural land quality.

4. Geology and Soils

4.1 The published geology map for the site area, (BGS, 1972 Sheet 317 (Drift) : Chichester) shows the majority of the site to be underlain by brickearth. Towards the eastern boundary is mapped deposits of London Clay.

4.2 The published soils information for the area (SSGB 1967, Sheet SU90, Bognor Regis, 1:25,000) shows the site to comprise five distinct soil types which are orientated north to south. The north of the site comprises soils of the Hook Series which are described as "Brown earths developed in shallow silty drift over flinty head" (SSGB, 1967). This passes to soils of the Park Gate Series, described as "Gley soils developed in brickearth" (SSGB,1967) which in turn passes to Calcetto Series soils-"Loamy non calcareous gley soils developed in loamy pebbly marine drift..." (SSGB, 1967). South of this are soils of the Titchfield Complex-"A range of poorly and imperfectly drained surface water gley soils developed in Eocene Clay" (SSGB, 1967). Finally, at the southern tip of the site is mapped soils of the the Gade Complex which are described as "Soils developed in freshwater alluvium overlying gravel...moderate to poor drainage" (SSGB,1967). A detailed inspection of soils on the site found them to be generally imperfectly drained with stony slowly permeable clay at various depths.

5. Agricultural Land Classification

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points are shown on the attached sample point map.

Subgrade 3a

5.3 Good quality land is mapped mostly to the west of the site. Profiles typically comprise silt loam, occasionally medium clay/silty clay loam topsoils with 1-3% total flints. Upper subsoils consist of heavy, sometimes medium, silty clay loams containing 1-5% total flints. This passes to lower subsoils of moderately structured silty clay which, in turn, passes to poorly structured slowly permeable clay with 1-20% total small flints. Soil Pit 2 is typical of these soils. Profiles are imperfectly drained showing signs of wetness problems in the form of gleying from 25-35 cm depth caused by slowly permeable horizons of clay from 48-70 cm depth in the profile. Soils are assigned to Wetness Class III accordingly and this in combination with a light, workable topsoil and climatic factors results in a classification of Subgrade 3a, land being limited due to a moderate wetness limitation. The imperfect drainage of these soils restricts the flexibility with which the land can be cultivated , especially during the wetter periods of the year. A

small area of land towards the eastern boundary is limited to Subgrade 3a due to moderate soil droughtiness. Light, sandy, freely draining textures in the lower subsoil retain little water which can have an adverse effect on plant growth when crops require moisture during the drier parts of the year. Some profiles of better quality were found within this map unit but not mapped separately due to their limited number and distribution.

Subgrade 3b

5.4 Moderate quality land is mapped to the east of the site. Here, soil profiles typically comprise silt loam or medium clay loam topsoils containing 1-2% total flints over poorly structured slowly permeable clay containing 10-15% total flints. Occasionally, there is a thin horizon of medium silty clay loam between the topsoil and the clay. Soils are poorly drained and assigned to Wetness Class IV with gleying present from 25-35 cm depth caused by horizons of slowly permeable clay from 35-40 cm depth in the profile. Water drainage through these soils is severely impaired due to the presence of slowly permeable clay so near to the surface, and land is classified as Subgrade 3b due to a significant wetness limitation. Excessive soil wetness such as this can adversely affect seed germination, root development leading to reduced yields. Cropping, cultivations and grazing may also be restricted to the drier parts of the year

REFERENCES

* British Geological Survey (1972), Sheet No. 317 (Drift Edition), Chichester, 1:63,360 scale.

* MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

* Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

* Soil Survey of Great Britain (1967), Bulletin No.3, Soils of the West Sussex Coastal Plain and accompanying maps.

APPENDIX I

DESCRIPTION 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 (eg. 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.

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religous buildings, cemetries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

Open Water

Includes lakes, ponds and rivers as map scale permits.

Land Not Surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

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.

Definition of Soil Wetness Classes

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.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

[1]The number of days specified is not necessarily a continuous period.
[2]'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

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

Boring Header Information

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

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

ARA : Arable	**WHT** : Wheat	**BAR** : Barley
CER : Cereals	**OAT** : Oats	**MZE** : Maize
OSR : Oilseed rape	**BEN** : Field Beans	**BRA** : Brassicae
POT : Potatoes	**SBT** : Sugar Beet	**FCD** : Fodder Crops
LIN : Linseed	**FRT** : Soft and Top Fruit	**FLW** : Fallow
PGR : Permanent Pasture	**LEY** : Ley Grass	**RGR** : Rough Grazing
SCR : Scrub	**CFW** : Coniferous Woodland	**DCW** : Deciduous Wood
HTH : Heathland	**BOG** : Bog or Marsh	**FLW** : Fallow
PLO : Ploughed	**SAS** : Set aside	**OTH** : Other
HRT : Horticultural Crops		

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

4. **GLEY/SPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.

5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)

7. **DRT** : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

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

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

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

Soil Pits and Auger Borings

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

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

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

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

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

2. **MOTTLE COL** : Mottle colour using Munsell notation.

3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

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

4. **MOTTLE CONT** : *Mottle contrast*

F : faint - indistinct mottles, evident only on close inspection
D : distinct - mottles are readily seen
P : prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL** : Ped face colour using Munsell notation.

6. **GLEY** : If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH** : Stone Lithology - One of the following is used.

HR :	all hard rocks and stones	**SLST** :	soft oolitic or dolimitic limestone
CH :	chalk	**FSST** :	soft, fine grained sandstone
ZR :	soft, argillaceous, or silty rocks	**GH** :	gravel with non-porous (hard) stones
MSST :	soft, medium grained sandstone	**GS** :	gravel with porous (soft) stones
SI :	soft weathered igneous/metamorphic rock		

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

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

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

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 appropiate 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 : ARUN LP SITE 36 Pit Number : 1P

Grid Reference: SU96400490 Average Annual Rainfall : 766 mm
Accumulated Temperature : 1542 degree days
Field Capacity Level : 157 days
Land Use : Maize
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	ZL	10YR43 00	0	1	HR	F				
25- 40	MZCL	10YR52 00	0	1	HR	C	MDCSAB	FM	M	
40- 60	C	10YR53 54	0	15	HR	M	WKCSAB	FM	P	

Wetness Grade : 3B Wetness Class : IV
Gleying :025 cm
SPL :040 cm

Drought Grade : APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : ARUN LP SITE 36 Pit Number : 2P

Grid Reference: SU96200480 Average Annual Rainfall : 766 mm
Accumulated Temperature : 1542 degree days
Field Capacity Level : 157 days
Land Use : Maize
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	MZCL	10YR42 00	0	2	HR					
25- 30	MZCL	10YR41 00	0	2	HR	C			M	
30- 48	HZCL	10YR53 54	0	3	HR	M	MDCSAB	FR	M	
48- 80	C	10YR53 00	0	20	HR	M	WKCSAB	FM	M	
80-120	MCL	10YR72 00	0	45	HR				M	Y

Wetness Grade : 3A Wetness Class : III
Gleying :025 cm
SPL :048 cm

Drought Grade : 2 APW : 130mm MBW : 12 mm
APP : 113mm MBP : -2 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	SU96200490	MZE		025			2	2	155	37	131	16	1					WE	2	
1P	SU96400490	MZE		025	040		4	3B		0		0						WE	3B	PIT TO60
2	SU96300490	MZE		035	070		3	3A		0		0						WE	3A	BORDER3A2
2P	SU96200480	MZE		025	048		3	3A	130	12	113	-2	2					WE	3A	PIT80
3	SU96400490	MZE		025	035		4	3B		0		0						WE	3B	
4	SU96200480	MZE		035	060		3	3A	120	2	117	2	3A					WD	3A	AS 2P
5	SU96300480	MZE		035	035		4	3B		0		0						WE	3B	
6	SU96200470	MZE		035	045		3	2	137	19	108	-7	2					WD	2	
7	SU96200460	MZE		025	060		3	3A	113	-5	111	-4	3A					WE	3A	
8	SU96180498	MZE					1	1	125	7	122	7	2					DR	2	IMP 90
9	SU96300471	MZE		030			2	2	117	-1	101	-14	3A					DR	3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0-25	zl	10YR43 00						0	0	HR	1							
	25-35	mzcl	10YR52 00	10YR56 00	C			Y	0	0		0		M					
	35-45	mzcl	10YR44 00				00MN00 00		0	0	HR	1		M					
	45-60	hzcl	10YR53 54	10YR56 00	C			Y	0	0	HR	1		M					
	60-90	zc	10YR53 54	10YR56 00	C			Y	0	0		0		M					FRIABLE
	90-120	zc	10YR53 54	10YR56 00	C			Y	0	0	HR	10		M					FRIABLE
1P	0-25	zl	10YR43 00	10YR56 00	F				0	0	HR	1							
	25-40	mzcl	10YR52 00	10YR56 00	C			Y	0	0	HR	1	MDCSAB FM	M					
	40-60	c	10YR53 54	10YR56 00	M		00MN00 00	Y	0	0	HR	15	WKCSAB FM	P	Y		Y		PIT TO 60
2	0-35	zl	10YR43 00						0	0	HR	1							
	35-55	hzcl	10YR53 54	10YR56 00	C			Y	0	0	HR	1		M					
	55-70	zc	10YR53 54	10YR56 00	C			Y	0	0	HR	1		M					FRIABLE
	70-120	c	10YR53 54	10YR56 00	C		00MN00 00	Y	0	0	HR	15		P			Y		STIFF SPL CLAY
2P	0-25	mzcl	10YR42 00						0	0	HR	2							
	25-30	mzcl	10YR41 00	10YR46 00	C			Y	0	0	HR	2		M					
	30-48	hzcl	10YR53 54	10YR58 00	M			Y	0	0	HR	3	MDCSAB FR	M					
	48-80	c	10YR53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	20	WKCSAB FM	M	Y		Y		
	80-120	mcl	10YR72 00						0	0	HR	45		M				Y	PIT 80 AUGER 120
3	0-25	zl	10YR43 00	10YR56 00	F				0	0	HR	2							
	25-35	mzcl	10YR52 00	10YR56 00	C			Y	0	0	HR	2		M					
	35-50	c	10YR53 54	10YR56 00	C		00MN00 00	Y	0	0	HR	20		P			Y		IMP 50
4	0-35	mzcl	10YR42 52						0	0	HR	3							
	35-60	hzcl	10YR53 54	10YR58 00	C		00MN00 00	Y	0	0	HR	3		M					
	60-80	c	25Y 53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	20		P			Y		
	80-120	mcl	10YR72 00						0	0	HR	70		P				Y	
5	0-35	mcl	10YR42 00	10YR56 00	F				0	0	HR	2							
	35-50	c	10YR53 00	10YR56 00	M		00MN00 00	Y	0	0	HR	10		P			Y		IMP 50
6	0-35	fsl	10YR42 00						0	0	HR	3							
	35-45	msl	25Y 53 63	10YR58 00	C			Y	0	0	HR	2		M					
	45-70	c	25Y 53 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
	70-85	msl	25Y 53 00	75YR58 00	M			Y	0	0		0		M					
	85-120	c	25Y 51 52	75YR68 00	M			Y	0	0		0		P			Y		
7	0-25	mcl	10YR42 00						0	0	HR	2							
	25-40	mcl	10YR41 00	10YR46 00	C			Y	0	0	HR	3		M					
	40-60	hcl	10YR53 00	10YR58 00	M			Y	0	0	HR	5		M					
	60-90	c	25Y 53 00	10YR58 00	M			Y	0	0		0		P			Y		IMP 90
8	0-30	mzcl	10YR43 42						0	0	HR	2							
	30-65	mzcl	10YR43 44						0	0	HR	2		M					
	65-80	hzcl	10YR53 63	10YR56 00	F		00MN00 00		0	0	HR	5		M					
	80-90	c	10YR54 00	10YR58 00	F				0	0	HR	15		M					IMP 90

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
9	0-30	mcl	10YR42 00						0	0	HR	3						
	30-50	hcl	10YR41 00	10YR46 00	C			Y	0	0	HR	5		M				
	50-60	sc	25Y 53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	15		P				
	60-70	lms	25Y 53 00	10YR58 00	M			Y	0	0		0		M				
	70-100	lms	25Y 63 00	10YR58 00	M			Y	0	0		0		M				
	100-120	lms	10YR53 00	75YR58 00	M			Y	0	0	HR	15		M				