A1

BASINGSTOKE AND DEANE BOROUGH LOCAL PLAN
SITE 19A: LAND WEST OF CHURCH ROAD, TADLEY
AGRICULTURAL LAND CLASSIFICATION
ALC MAP AND REPORT
JUNE 1993

AGRICULTURAL LAND CLASSIFICATION

BASINGSTOKE AND DEANE BOROUGH LOCAL PLAN

Site 19A: Land West of Church Road, Tadley

1. SUMMARY

1.1. ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on 22 sites around Basingstoke in Hampshire. The work forms part of MAFF's input to the Basingstoke and Deane Borough Local Plan.

1.2. 35.5 hectares of land relating to Site 19A at Tadley in Hampshire was surveyed during March 1993. The survey was undertaken at a detailed level of approximately one boring per hectare. At total of 29 borings and two soil inspection pits were described 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 agricultural use.

At the time of survey, the land was under permanent pasture.

1.3. The distribution of the grades and sub-grades 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 1:5000. It is accurate at this scale, but any enlargement may be misleading.

Distribution of Grades and Sub-grades

Grade	Area (ha)	% total agricultural land
3a	6.5	23.4
3b	21.3	76.6
		100
Total agricultural area	27.8	
Non agricultural	1.7	
Urban	3.8	
Woodland	2.2	
Total of area of site	35.5 ha	

1.4. Appendix 1 gives a general description of the grades and land use categories identified in this survey.

1.5. The soils encountered at this site were of moderate to poor quality, being most affected by a wetness limitation, exhibiting variable depths to a slowly permeable clay horizon. The reason for the division of grades is whether the slowly permeable layer begins within 43 cm, where sub-grade 3b is recorded or between 43 cm and 70 cm where sub-grade 3a is recorded. Virtually all the profiles were gleyed above 40 cm.

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.

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

2.3. A detailed assessment of the prevailing climate was made by interpolation from a 5 km gridpoint dataset (Met. Office, 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site.

2.4. No local climatic factors such as exposure or frost risk affect the site.

Climatic Interpolation

Grid Reference	SU 595608
Altitude (m. AOD)	85
Accumulated Temperature (°days, Jan-June)	1434
Average Annual Rainfall (mm)	737
Field Capacity Days	158
Moisture Deficit, wheat (mm)	102
Moisture Deficit, potatoes (mm)	92
Overall Climatic Grade	1

3. RELIEF

3.1. The majority of the site lies at an altitude of 81-87 metres AOD, land falling gently in altitude from the north. To the east of Church Road land rises steeply eastwards to an altitude of approximately 100 metres AOD. In places a slope gradient of 8.5° limits land to subgrade 3B.

4. GEOLOGY AND SOILS

4.1. British Geological Survey, Sheet 284, Basingstoke (1981) shows the majority of the site to be Tertiary Bagshot Beds with a small area of Alluvium extending into the site from the south. To the east coinciding with more steeply sloping land Tertiary Bracklesham Beds are mapped .

4.2. Soil Survey of England and Wales, Sheet 6 (1983) shows the site to be mapped as Burlesdon Association - "Deep fine loamy soils with slowly permeable subsoils ... Some slowly permeable seasonally waterlogged loamy over clayey soils ..." (SSEW, 1983).

5. AGRICULTURAL LAND CLASSIFICATION

5.1. Paragraph 1.3 and the table below provides details of the area measurements for each grade. The distribution of each grade is shown on the attached ALC map.

5.2. The location of the soil observation points is shown on the attached Auger Sample Point map.

Subgrade 3A

5.3. Land classified as subgrade 3A is mapped in a band to the south and east of the site area. Profiles typically comprise topsoils of medium clay loam containing 0-2% flints by volume over upper subsoils of heavy clay loam, occasionally medium clay loam with negligible stone content. Lower subsoils comprise slowly permeable stoneless clay. Soils are gleyed above 40 cm, often in the topsoil passing to a slowly permeable clay between 45-65 cm depth. Profiles are non calcareous throughout and poorly drained with a wetness class of III, consequently land is classified as subgrade 3A due to a wetness limitation. Occasionally better drained profiles were found but due to their limited number and extent they were included in this map unit.

Subgrade 3B

5.4. Land classified as subgrade 3B covers the majority of the site and comprises non-calcareous topsoils of medium clay loam containing 0-2% flints by volume. Subsoils comprise either slowly permeable clay containing negligible stone or a thin horizon of heavy clay loam which passes into slowly permeable clay. Profiles are poorly drained with a wetness class of IV as evidenced by gleying above 40 cm depth and slowly permeable layers of clay between 20-38 cm depth. Consequently land is classified as subgrade 3B due to wetness, the limitation reducing the ease and flexibility with which the land can be cultivated. Some better drained profiles were found, but again due to their limited number and extent these were included in this map unit.
Additionally, using a hand held optical clinometer a slope gradient of 8.5° was recorded on a small area of land to the east of the site (see paragraph 3.1) limiting land to this subgrade. A slope gradient of this nature restricts the safe and efficient operation of farm machinery.

Non Agricultural Land

5.5. Some gardens and land overgrown with weeds, bushes and trees bordering Church Brook to the north and adjacent to Church Road to the east were classified as non agricultural.

Urban

5.6. Metalled roads on the site were classified as urban as were houses and gardens with a predominance of built up or hard uses.

ADAS Ref No: 1501/034/93

MAFF Ref No: EL 15/144

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

BRITISH GEOLOGICAL SURVEY, 1981. 1:50,000 scale Solid and Drift edition Geological map sheet 284 (Basingstoke).

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

METEOROLOGICAL OFFICE, 1989. Climatological datasets for Agricultural Land Classification.

SOIL SURVEY OF ENGLAND AND WALES, 1983. 1:250,000 scale Soils Map Sheet 6, Soils of South East England and accompanying Legend.

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 on the 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.

Grade 3 : Good To Moderate Quality Agricultural Land

Land with moderate limitations which affect the choice of crops, 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.

Sub-grade 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 very 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 : housing, industry, commerce, education, transport, religious buildings, cemeteries. 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/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial 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

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for 31-90 days in most years.

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

(The number of days is not necessarily a continuous period. '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 database. This has commonly used notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF** : national 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 **HRT** : Horticultural Crops **PGR** : Permanent Pasture **LEY** : Ley Grass **RGR** : Rough Grazing
SCR : Scrub **CFW** : Coniferous Woodland **DCW** : Deciduous Woodland **HTH** : Heathland **BOG** : Bog or Marsh
FLW : Fallow **PLO** : Ploughed **SAS** : Set aside **OTH** : Other

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

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

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

6. **MB (WHEAT/POTS)** : Moisture Balance.

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

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

MREL : Microrelief limitation **FLOOD** : Flood risk **EROSN** : Soil erosion risk **EXP** : Exposure limitation **FROST** : Frost
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** : Soil Erosion Risk **WD** : Combined 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
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 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

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

6. STONE LITH : One of the following is used.

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

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

7. 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

8. 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

9. SUBS STR : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G : good M : moderate P : poor

10. POR : Soil porosity. If a soil horizon has less than 0.5% biopores > 0.5 mm, a 'Y' will appear in this column.

11. IMP : If the profile is impenetrable a 'Y' will appear in this column at the appropiate horizon.

12. SPL : Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

13. CALC : If the soil horizon is calcareous, a 'Y' will appear in this column.

14. 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 : BASINGSTOKE LP SITE 19A Pit Number : 1P

Grid Reference: SU59406070
Average Annual Rainfall : 737 mm
Accumulated Temperature : 1434 degree days
Field Capacity Level : 158 days
Land Use : Permanent Grass
Slope and Aspect : degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 26	MCL	10YR42 00	0	0		
26- 48	HCL	10YR63 64	0	0	M	MDCSAB
48- 75	C	25Y 63 00	0	0	M	WKCAB

Wetness Grade : 3A
Wetness Class : III
Gleying :026 cm
SPL :048 cm

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

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP SITE 19A Pit Number : 2P

Grid Reference: SU59406110
Average Annual Rainfall : 737 mm
Accumulated Temperature : 1434 degree days
Field Capacity Level : 158 days
Land Use : Permanent Grass
Slope and Aspect : degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 20	MCL	25Y 52 00	0	1	C	
20- 50	C	05Y 62 00	0	0	M	WKCSAB

Wetness Grade : 3B
Wetness Class : IV
Gleying :000 cm
SPL :020 cm

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

FINAL ALC GRADE : 3B
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	SU59306120	PGR			000	038	4	3B		0		0					WE	3B	
1P	SU59406070	PGR	S		026	048	3	3A		0		0					WE	3A	
2	SU59306110	PGR			000	024	4	3B		0		0					WE	3B	
2P	SU59406110	PGR	S		000	020	4	3B		0		0					WE	3B	
3	SU59406110	PGR			000	024	4	3B		0		0					WE	3B	
4	SU59506110	PGR			000	035	4	3B		0		0					WE	3B	
6	SU59406100	PGR			000	020	4	3B		0		0					WE	3B	
7	SU59506100	PGR			028	038	4	3B		0		0					WE	3B	
8	SU59606100	PGR			028	048	3	3A		0		0					WE	3A	
9	SU59206090	PGR	SW		000	035	4	3B		0		0					WE	3B	
10	SU59306090	PGR	SW	02	032	055	3	3A		0		0					WE	3A	
11	SU59406090	PGR	SW	02	075	085	1	1	147	45	112	20	1				WK	1	
12	SU59506090	PGR	SW	02	022	038	4	3B		0		0					WE	3B	
13	SU59606090	PGR	SW	02	018	032	4	3B		0		0					WE	3B	
15	SU59806090	PGR	NW		046	057	2	2	137	35	114	22	1				WE	2	
16	SU59206080	PGR	NW		000	030	4	3B		0		0					WE	3B	
17	SU59306080	PGR	NW		000	028	4	3B		0		0					WE	3B	
18	SU59406080	PGR	S	02	000	028	4	3B		0		0					WE	3B	
19	SU59506080	PGR	NW		025	038	4	3B		0		0					WE	3B	
20	SU59606080	PGR	NW		000	035	4	3B		0		0					WE	3B	
22	SU59806080	PGR	NW	05	050	075	2	2	141	39	117	25	1				WE	2	
24	SU59206070	PGR	SW		000	065	3	3A		0		0					WE	3A	
25	SU59306070	PGR	SW		000	065	3	3A		0		0					WE	3A	
26	SU59406070	PGR			027	045	3	3A		0		0					WE	3A	SPL QRY
27	SU59506070	PGR			000	055	3	3A		0		0					WE	3A	SPL QRY
29	SU59606070	PGR	N	01	030	065	3	3A	142	40	112	20	1				WE	3A	
30	SU59406060	PGR			000	038	4	3B		0		0					WE	3B	
31	SU59506060	PGR			028	037	4	3B		0		0					WE	3B	SPL 37Q
33	SU59706060	PGR	S	02	028	055	3	3A		0		0					WE	3A	
34	SU59506050	PGR	SW		025	045	3	3A		0		0					WE	3A	BDR 3B
35	SU59606050	PGR	SW		000	060	3	3A		0		0					WE	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	0-28	mcl	10YR53 00	10YR56 00	C			Y	0	0		0						
	28-38	hcl	25Y 64 00	75YR58 00	C			Y	0	0		0		M				
	38-60	c	25Y 62 00	75YR58 00	M			Y	0	0		0		P			Y	
1P	0-26	mcl	10YR42 00						0	0		0						
	26-48	hcl	10YR63 64	75YR58 00	M			Y	0	0		0	MDCSAB FM	M	Y			
	48-75	c	25Y 63 00	75YR58 00	M			Y	0	0		0	WKCAB FM	P	Y		Y	
2	0-24	mcl	25Y 52 00	75YR56 00	C			Y	0	0		0						
	24-60	c	25Y 62 00	05YR68 00	M			Y	0	0		0		P			Y	
2P	0-20	mcl	25Y 52 00	75YR56 00	C			Y	0	0	HR	1						
	20-50	c	05Y 62 00	75YR68 00	M		05Y 62	Y	0	0		0	WKCSAB FM	P	Y		Y	
3	0-24	mcl	10YR53 00	75YR56 00	C			Y	0	0	HR	2						
	24-60	c	25Y 62 00	75YR58 00	M			Y	0	0		0		P			Y	
4	0-25	mcl	10YR53 00	75YR56 00	C			Y	0	0	HR	1						
	25-35	hcl	25Y 52 00	75YR56 00	M		00MN00 00	Y	0	0		0		M				
	35-60	c	10YR63 00	75YR58 00	M			Y	0	0		0		P			Y	
6	0-20	mcl	10YR41 00	10YR46 00	C		00MM00 00	Y	0	0	HR	1						
	20-55	c	25Y 62 00	10YR56 00	M			Y	0	0		0		P			Y	
7	0-28	mcl	10YR42 31						0	0	HR	1						
	28-38	hcl	25Y 63 00	10YR56 00	M			Y	0	0	HR	1		M				
	38-65	c	25Y 63 00	10YR56 00	M			Y	0	0		0		P			Y	
8	0-28	mcl	10YR42 00						0	0	HR	1						
	28-48	mcl	25Y 63 00	10YR56 00	C			Y	0	0		0		M				
	48-70	c	25Y 63 00	10YR56 00	M			Y	0	0		0		P			Y	
9	0-20	mcl	75YR40 00	75YR46 00	C			Y	0	0	HR	2						
	20-35	hcl	75YR40 50	10YR56 00	C			Y	0	0		0		M				
	35-70	c	25Y 50 00	10YR58 00	M			Y	0	0		0		P			Y	
10	0-32	mcl	10YR42 00						0	0	HR	2						
	32-55	hcl	10YR52 53	10YR46 56	C			Y	0	0		0		M				
	55-90	c	25Y 52 62	10YR58 00	M			Y	0	0		0		P			Y	
11	0-25	mcl	10YR42 00						0	0	HR	1						
	25-75	msl	10YR53 64						0	0		0		M				
	75-85	scl	75YR58 00	10YR52 53	C			Y	0	0		0		M				
	85-110	sc	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	
	110-120	c	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	
12	0-22	mcl	10YR42 00						0	0	HR	2						
	22-38	hcl	10YR53 51	10YR46 56	C			Y	0	0		0		M				
	38-80	c	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	

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
13	0-18	mcl	10YR41 42						0	0		0						
	18-32	hcl	10YR53 52	10YR46 00	C			Y	0	0		0		M				
	32-80	c	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	
15	0-30	mcl	10YR42 00						0	0		0						
	30-46	mcl	10YR64 00						0	0		0		M				
	46-57	mcl	25Y 63 64	75YR56 00	C			Y	0	0		0		M				
	57-120	c	25Y 63 64	75YR58 00	M			Y	0	0		0		P			Y	
16	0-30	hcl	25Y 52 00	75YR56 00	C			Y	0	0		0						
	30-60	c	25Y 63 00	75YR56 00	M		00MN00 00	Y	0	0		0		P			Y	
17	0-28	hcl	10YR42 00	75YR56 00	C			Y	0	0		0						
	28-60	c	10YR62 00	75YR56 00	M			Y	0	0		0		P			Y	
18	0-28	mcl	25Y 52 00	75YR56 00	C			Y	0	0		0						
	28-60	c	25Y 63 00	75YR56 58	M			Y	0	0		0		P			Y	
19	0-25	mcl	10YR42 00	75YR56 00	F				0	0		0						
	25-38	mcl	25Y 64 00	75YR58 00	C			Y	0	0		0		M				
	38-60	c	25Y 62 72	75YR58 00	M			Y	0	0		0		P			Y	
20	0-25	mcl	10YR41 00	75YR56 00	C			Y	0	0		0						
	25-35	hcl	10YR64 00	75YR58 00	C			Y	0	0		0		M				
	35-60	c	25Y 63 64	05YR68 00	M			Y	0	0	HR	8		P			Y	
22	0-25	mcl	10YR42 00						0	0		0						
	25-30	msl	10YR64 00						0	0		0		M				
	30-50	mcl	10YR43 00						0	0		0		M				
	50-75	hcl	10YR43 53	10YR56 00	C			Y	0	0		0		M				
	75-120	c	25Y 62 72	75YR58 00	M			Y	0	0		0		P			Y	
24	0-20	mcl	75YR40 00	75YR46 00	C			Y	0	0	HR	2						
	20-35	hcl	75YR40 50	10YR46 00	C			Y	0	0		0		M				
	35-65	hcl	25Y 52 00	10YR58 00	M			Y	0	0		0		M				
	65-90	c	25Y 52 62	10YR58 00	M			Y	0	0		0		P			Y	
25	0-25	mcl	75YR40 00	75YR46 00	C			Y	0	0		0						
	25-40	hcl	25Y 50 00	10YR46 00	M			Y	0	0		0		M				
	40-65	hcl	25Y 62 00	10YR68 00	M			Y	0	0		0		M				
	65-100	c	25Y 60 00	10YR58 68	M			Y	0	0		0		P			Y	
26	0-27	mcl	10YR42 00	000C00 00	F				0	0	HR	1						
	27-45	mcl	10YR64 00	10YR56 00	C			Y	0	0		0		M				
	45-70	c	25Y 63 00	10YR56 00	M			Y	0	0		0		P			Y	
27	0-28	mcl	10YR41 00	10YR46 00	C			Y	0	0	HR	1						
	28-55	hcl	25Y 63 00	10YR56 00	C			Y	0	0		0		M				
	55-100	c	25Y 63 00	10YR56 00	M			Y	0	0		0		P			Y	

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
29	0-30	mcl	10YR42 00						0	0	HR	2						
	30-65	scl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	65-120	sc	25Y 52 00	10YR58 00	M			Y	0	0		0		P			Y	
30	0-27	mcl	10YR42 00	10YR46 00	C			Y	0	0	HR	1						
	27-38	hcl	25Y 52 00	10YR46 00	M			Y	0	0		0		M				
	38-80	c	25Y 63 00	10YR56 00	M			Y	0	0		0		P			Y	
31	0-28	mcl	10YR42 00						0	0	HR	1						
	28-37	hcl	10YR64 00	10YR56 00	C			Y	0	0		0		M				
	37-70	c	25Y 73 00	75YR58 00	M			Y	0	0		0		P			Y	
33	0-28	mcl	10YR42 00						0	0		0						
	28-55	mcl	25Y 52 00	10YR56 00	M			Y	0	0		0		M				
	55-90	c	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	
34	0-25	mcl	10YR42 00						0	0	HR	1						
	25-45	mcl	10YR52 53	10YR56 00	C			Y	0	0		0		M				
	45-80	c	25Y 52 62	10YR58 00	M			Y	0	0		0		P			Y	
35	0-26	mcl	75YR40 00	75YR46 00	C			Y	0	0	HR	2						
	26-42	mcl	75YR40 50	10YR46 00	C			Y	0	0		0		M				
	42-60	hcl	25Y 62 00	10YR58 00	M			Y	0	0		0		M				
	60-100	sc	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	