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BASINGSTOKE AND DEANE BOROUGH LOCAL PLAN

SITE 22: LODGE FARM, OLD BASING

AGRICULTURAL LAND CLASSIFICATION

ALC MAP AND REPORT

JUNE 1993

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BASINGSTOKE AND DEANE BOROUGH LOCAL PLAN

Site 22: Lodge Farm, Old Basing

1. SUMMARY

1.1 In May 1993, a detailed Agricultural Land Classification (ALC) survey was made on approximately 46 hectares of land at Lodge Farm, near Old Basing in Hampshire.

1.2 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS in response to a commission by MAFF's Land Use Planning Unit to provide information on the quality of agricultural land affected by proposals within the Basingstoke and Deane Borough Local Plan.

1.3 The classification has been made using 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. This survey supersedes a previous classifiction of the site (ADAS Ref: 1501/27/87) carried out during 1987 under the previous system using Technical Report 11/1 (MAFF, 1978).

1.4 The fieldwork was carried out with an observation density of approximately one per hectare. A total of 45 borings and two soil inspection pits were examined.

1.5 The table below provides the details of the grades found across the site. The majority of the land is classified as moderate quality. The key limitation is soil wetness.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
3a	3.8	8.3	8.3
3b	42.0	91.3	91.7
Total Agricultural Area	45.8		100
Non Agricultural	0.2	0.4	
Total area of site	46.0	100	

1.6 The distribution of the ALC grades is shown on the attached map. The information is presented at a scale of 1:10000, it is accurate at this level but any enlargement would be misleading. This map replaces the previous ALC information for this site.

1.7 At the time of survey the land use on the site was a combination of cereal crops, beans, peas and grass leys.

1.8 A general description of the grades and sub-grades is provided as an appendix. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

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 as 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.

Table 2 : Climatic Interpolations

Grid Reference:	SU 670551	SU 669548	SU 665545
Altitude (m):	65	75	85
Accumulated Temperature (days):	1458	1447	1436
Average Annual Rainfall (mm):	719	738	748
Field Capacity (days):	154	158	160
Moisture Deficit, Wheat (mm):	108	106	105
Moisture Deficit, Potatoes (mm):	101	98	96
Overall Climatic Grade:	1	1	1

3. RELIEF

3.1 The land at this site lies between approximately 65 and 85 m AOD. It gently rises from the north to the south. At no point does gradient or altitude represent a limitation to land quality.

4. GEOLOGY AND SOIL

4.1 The published geological sheet (British Geological Survey, (1981), Basingstoke, Sheet 284) for the site, shows the underlying geology to be Tertiary London Clay.

4.2 The main soil type occurring on the site as shown by the Soil Survey map of South East England, Sheet 6 (SSEW, 1983), was found to be Wickham 4 Association, a seasonally waterlogged clayey soil with slowly permeable sub surface horizons.

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 is shown on the attached sample point map.

5.3 Grade 3A

Land of this quality covers a small area towards the north of the site. The soils in this area consist of a non-calcareous very slightly stony (up to 5% flints) medium clay loam topsoil, over a slightly stony (c.10% flints) heavy clay loam upper subsoil showing evidence of wetness in the form of gleying. This passes to a clay horizon between 50 and 65 cm. This horizon was found to be slowly permeable. Such drainage characteristics give rise to a wetness class of II. Land is therefore limited by wetness resulting in restrictions on cultivations, cropping and grazing such that Grade 3a is appropriate.

5.4 Grade 3B

Land of this quality covers the majority of the agricultural land on the site. The soils here are of two types. The most common consists of a non-calcareous slightly stony (up to 15% >2 cm flints) medium or heavy clay loam topsoil over a stoneless to very slightly stony (up to 5% flints) heavy clay loam or clay upper subsoil showing evidence of wetness in the form of gleying within 40 cm. This passes to a clay subsoil between 25 and 42 cm which was found from pit evidence to be slowly permeable. Profiles are assigned to wetness class IV and land will suffer a significant wetness limitation.

The less common soil type is broadly similar to the above except that the stone content in the upper subsoil may be sufficient to make them impenetrable to soil augers. However pit evidence showed these profiles also to pass to slowly permeable clay subsoils such that grade 3B was appropriate in these cases also. These poorly drained soils will give rise to difficulties in cultivations and grazing during the winter months and may be quite droughty during the summer.

Occasional profiles within this map unit were of better quality but these were isolated and not sufficient to constitute a separate map unit.

5.5 The area marked as non-agricultural is a wide unmetalled track from the farm buildings to allow access to the western fields.

ADAS Ref: 1501/037/93

MAFF Ref: EL 15/144

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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.

Sub-grade 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

REFERENCES

* British Geological Survey (1978), Sheet No. 284, Basingstoke. 1:50,000

* 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 England and Wales (1983), Sheet No. 6, Soils of South East England, 1:250000

* Soil Survey of England and Wales (1984), Soils and their use in South East England. Bulletin No. 15.

APPENDIX III

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 IV

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 : LODGE FM BASING LP S 22 Pit Number : 1P

Grid Reference: SU66555455
Average Annual Rainfall : 738 mm
Accumulated Temperature : 1447 degree days
Field Capacity Level : 158 days
Land Use : Ley
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 21	HCL	10YR41 00	5	15	C	
21- 55	C	25Y 72 00	0	0	M	MCAB

Wetness Grade : 3B
Wetness Class : IV
Gleying : 0 cm
SPL :021 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 : LODGE FM BASING LP S 22 Pit Number : 2P

Grid Reference: SU66705482
Average Annual Rainfall : 738 mm
Accumulated Temperature : 1447 degree days
Field Capacity Level : 158 days
Land Use :
Slope and Aspect : 01 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MCL	10YR41 42	3	8		
25- 42	C	25Y 72 00	0	10	M	MDCSAB
42- 62	C	05GY61 00	0	10	M	MASSIV

Wetness Grade : 3B
Wetness Class : IV
Gleying :025 cm
SPL :042 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	SU66705520	PEA	E	01	025	035	4	3B	059	-47	059	-39	3B				WE	3B	PRBSPL35 IMP 4
1P	SU66555455	LEY			0	021	4	3B		0		0					WE	3B	
2	SU66805520	PEA	E		042	042	4	3B	132	26	109	11	2				WE	3B	SPL 42
2P	SU66705482	BNS	NE	01	025	042	4	3B		0		0					WE	3B	SPL 42
3	SU67105520	MZE			0	025	4	3B		0		0					WE	3B	SPL 25
4	SU66605510	PEA	NE	01	025	050	3	3A	123	17	103	5	2				WE	3A	SPL 50
5	SU66705510	PEA	E	01	024	024	4	3B		0		0					WE	3B	SPL 24
6	SU66805510	MZE			030	055	3	3A		0		0					WE	3A	SPL 55
7	SU66905510	MZE			028		2	2	087	-19	094	-4	3A				WE	3A	IMP 60 PRBSPL
8	SU67005510	MZE			025		2	2	094	-12	102	4	3A				WE	3A	IMP 65 SEE PIT
9	SU67105510	MZE			035	035	4	3B		0		0					WE	3B	SPL 35
10	SU66505500	BNS	S	01	000		1	2	052	-54	052	-46	4				DR	3B	IMP 32 SEE PIT
11	SU66605500	PEA	SE	01	030	030	4	3B		0		0					WE	3B	SPL 30
12	SU66705500	PEA			026	065	3	3A		0		0					WE	3A	SPL 65 IMP 100
13	SU66805500	MZE			030	040	4	3B		0		0					WE	3B	SPL 40
14	SU66905500	MZE			028	035	4	3B		0		0					WE	3B	SPL 35
15	SU67005500	MZE			025	025	4	3B		0		0					WE	3B	SPL 25
16	SU67105500	MZE			0	040	4	3B		0		0					WE	3B	SPL 40
17	SU66505490	BNS	E	01	027	027	4	3B		0		0					WE	3B	SPL 27
18	SU66605490	BNS	NE	01	030	037	4	3B		0		0					WE	3B	SPL 37
19	SU66705490	BNS	NE	01	025	025	4	3B		0		0					WE	3B	SPL 25
20	SU66805490	LEY			030	035	4	3B		0		0					WE	3B	SPL 35
21	SU66905490	LEY			0	025	4	3B		0		0					WE	3B	SPL 25
22	SU67005490	MZE			0	055	3	3A		0		0					WE	3A	SPL 55
23	SU66505480	ARA			025	040	4	3B		0		0					WE	3B	SPL 40
24	SU66605480	ARA			028	028	4	3B		0		0					WE	3B	SPL 28
25	SU66705480	ARA			028		2	2	074	-32	074	-24	3B				WE	3A	IMP 45 SEE PIT
26	SU66805480	LEY			0		2	2	084	-22	084	-14	3B				DR	3A	IMP 50 SEE PIT
27	SU66905480	LEY			0		2	2	057	-49	057	-41	3B				WE	3B	IMP 35 SEE PIT
28	SU67005480	LEY			025	035	4	3B		0		0					WE	3B	SPL 35
29	SU66505470	LEY	N	02	025	025	4	3B		0		0					WE	3B	SPL 25
30	SU66605470	BNS	N	02	025	025	4	3B		0		0					WE	3B	SPL 25
31	SU66705470	CER			0	035	4	3B		0		0					WE	3B	SPL 35
32	SU66805470	CER			025	035	4	3B		0		0					WE	3B	SPL 35
33	SU66905470	LEY			0	042	4	3B		0		0					WE	3B	SPL 42
34	SU67005470	LEY			025		3	3A	087	-19	090	-8	3A				WE	3A	IMP 55 PRB SPL
35	SU66405460	LEY	N	01	0		2	2	053	-53	053	-45	4				DR	4	IMP 32 SEE PIT
36	SU66505460	LEY	N	01	025		2	3A	050	-56	050	-48	4				DR	4	IMP 30 SEE PIT
37	SU66605460	LEY	N	01	0		2	3A	053	-53	053	-45	4				DR	4	IMP 32 SEE PIT
38	SU66705460	CER			0	020	4	3B		0		0					WE	3B	SPL 20
39	SU66805460	CER			000		2	2	043	-63	043	-55	4				WE	3B	IMP 25 SEE PIT
40	SU66905460	CER			025		2	2	063	-43	063	-35	3B				WE	3B	IMP 40 SEE PIT

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
41	SU66505450	LEY		025		2	3A	051	-55	051	-47	4				DR	4	IMP 30 SEE PI
42	SU66605450	LEY		025		2	2	050	-56	050	-48	4				DR	4	IMP 29 SEE PI
43	SU66705450	LEY		030	030	4	3B		0		0					WE	3B	SPL 30
44	SU66905450	CER		025		4	3B	062	-44	062	-36	3B				WE	3B	IMP 40 SPL 35
45	SU66705440	LEY S	01	030	030	4	3B		0		0					WE	3B	SPL 30

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
1	0-25	mcl	10YR42 00						0	0	HR	10						
	25-35	mcl	10YR43 00	10YR46 00	C			Y	0	0	HR	15		M				
	35-40	c	10YR62 00	10YR56 00	M			Y	0	0	HR	30		P	Y		Y	
1P	0-21	hcl	10YR41 00	10YR46 00	C			Y	5	0	HR	15						
	21-55	c	25Y 72 00	10YR56 00	M			Y	0	0		0	MCAB FM	P	Y		Y	
2	0-35	mcl	10YR42 00	10YR46 00	F				0	0	HR	3						
	35-42	hcl	10YR54 00	10YR56 00	F				0	0		0		M				
	42-120	c	10YR53 00	10YR56 00	M			Y	0	0		0		P	Y		Y	
2P	0-25	mcl	10YR41 42						3	0	HR	8						
	25-42	c	25Y 72 00	10YR56 00	M		00MN00 00	Y	0	0	HR	10	MDCSAB FR	M				
	42-62	c	05GY61 00	10YR68 00	M		00MN00 00	Y	0	0	HR	10	MASSIV FM	P	Y		Y	
3	0-25	hcl	10YR52 00	000C00 00	C			Y	0	0	HR	5						
	25-55	c	25Y 52 00	000C00 00	C			Y	0	0		0		P	Y		Y	
4	0-25	mcl	10YR42 00						0	0	HR	5						
	25-50	hcl	10YR63 61	10YR56 00	M		00MN00 00	Y	0	0	HR	3		M				
	50-100	c	05Y 61 00	10YR66 00	M		00MN00 00	Y	0	0	HR	20		P	Y		Y	
	100-120	c	05Y 61 00	10YR66 00	M			Y	0	0	HR	10		P	Y		Y	
5	0-24	mcl	10YR42 00						0	0	HR	5						
	24-70	c	10YR63 61	10YR66 00	M			Y	0	0		0		P	Y		Y	
6	0-30	mcl	10YR43 00	000C00 00	C				0	0	HR	2						
	30-55	hcl	25Y 64 00	000C00 00	M			Y	0	0		0		M				
	55-75	c	25Y 63 00	000C00 00	M			Y	0	0		0		P	Y		Y	
7	0-28	mcl	10YR52 00						0	0	HR	5						
	28-50	hcl	25Y 63 00	000C00 00	M			Y	0	0	HR	10		M				
	50-60	c	25Y 52 00	000C00 00	M		00MN00 00	Y	0	0	HR	10		M				
8	0-25	mcl	10YR42 00						0	0	HR	2						
	25-65	hcl	25Y 52 00	000C00 00	M			Y	0	0	HR	10		M				
9	0-35	hcl	*10YR42 00 00*						*0*	*0*	HR	1						
	35-55	c	25Y 52 00	000C00 00	C			Y	0	0	HR	1		P	Y		Y	
10	0-32	hcl	10YR42 00						0	0	HR	10						
11	0-30	mcl	10YR42 00						0	0	HR	3						
	30-80	c	25Y 53 00	75YR56 00	M			Y	0	0		0		P	Y		Y	
12	0-26	mcl	10YR42 00						0	0	HR	3						
	26-65	hcl	10YR53 52	10YR66 00	C			Y	0	0		0		M				
	65-100	c	05Y 61 00	10YR56 00	M		00MN00 00	Y	0	0	HR	10		P	Y		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	0-30	mcl	10YR42 00						0	0	HR	2						
	30-40	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	2		M				
	40-60	c	25Y 52 00	000C00	00	M		Y	0	0		0		P	Y		Y	
14	0-28	mcl	10YR42 00						0	0	HR	2						
	28-35	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	2		M				
	35-55	c	25Y 63 00	000C00	00	M		Y	0	0		0		P	Y		Y	
15	0-25	mcl	10YR42 00						0	0	HR	2						
	25-55	c	25Y 52 00	000C00	00	M		Y	0	0		0		P	Y		Y	
16	0-28	mcl	10YR52 00	000C00	00	C		Y	0	0		0						
	28-40	hcl	25Y 52 00	000C00	00	M		Y	0	0		0		M				
	40-55	c	25Y 52 00	000C00	00	M		Y	0	0		0		P	Y		Y	
17	0-27	mcl	10YR42 00						0	0	HR	5						
	27-70	c	10YR53 00	10YR56	00	M		Y	0	0		0		P	Y		Y	
18	0-30	hcl	10YR42 43						0	0	HR	3						
	30-37	c	10YR53 00	10YR56	00	C		Y	0	0	HR	15		M				
	37-80	c	25Y 62 00	10YR56	00	M		Y	0	0		0		P	Y		Y	
19	0-25	mcl	10YR42 52						0	0	HR	5						
	25-80	c	25Y 62 63	10YR56	00	M		Y	0	0	HR	2		P	Y		Y	
20	0-30	mcl	10YR42 00						0	0	HR	5						
	30-35	hcl	25Y 52 00	000C00	00	M		Y	0	0	HR	10		M				
	35-55	c	25Y 63 00	000C00	00	M		Y	0	0		0		P	Y		Y	
21	0-25	mcl	10YR42 00	000C00	00	C		Y	0	0	HR	5						
	25-55	c	25Y 52 00	000C00	00	M		Y	0	0	HR	2		P	Y		Y	
22	0-30	mcl	10YR42 00	000C00	00	C		Y	0	0	HR	1						
	30-40	hcl	10YR53 00	000C00	00	C		Y	0	0		0		M				
	40-55	c	75YR63 00	000C00	00	M		Y	0	0		0		M				
	55-70	c	75YR63 00	000C00	00	M		Y	0	0		0		P	Y		Y	
23	0-25	mcl	10YR52 00						0	0	HR	5						
	25-40	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	5		M				
	40-60	c	25Y 63 00	000C00	00	M		Y	0	0	HR	2		P	Y		Y	
24	0-28	mcl	10YR42 00						0	0	HR	2						
	28-55	c	25Y 63 00	000C00	00	M		Y	0	0		0		P	Y		Y	
25	0-28	mcl	10YR42 00						0	0	HR	5						
	28-45	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	5		M				
26	0-28	mzcl	10YR42 00	000C00	00	C		Y	0	0	HR	2						
	28-50	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	10		M				

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
27	0-25	mcl	10YR52 00	000C00	00	C		Y	0	0	HR	5						
	25-35	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	15		M				
28	0-25	mcl	10YR42 00						0	0	HR	5						
	25-35	c	25Y 63 00	000C00	00	M		Y	0	0	HR	2		M				
	35-55	c	25Y 63 00	000C00	00	M		Y	0	0	HR	1		P	Y		Y	
29	0-25	mcl	10YR42 00						0	0	HR	3						
	25-80	c	25Y 62 00	10YR56	00	M		Y	0	0	HR	2		P	Y		Y	
30	0-25	hcl	10YR42 00						0	0	HR	5						
	25-57	c	25Y 62 00	10YR56	00	M		Y	0	0		0		P	Y		Y	
	57-65	c	25Y 62 00	10YR56	00	M		Y	0	0	HR	15		P	Y		Y	
31	0-25	mcl	10YR42 00	000C00	00	C		Y	0	0	HR	5						
	25-35	hcl	10YR52 00	000C00	00	M		Y	0	0	HR	5		M				
	35-55	c	25Y 63 00	000C00	00	M		Y	0	0		0		P	Y		Y	
32	0-25	mcl	10YR53 00	00					0	0	HR	5						
	25-35	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	5		M				
	35-52	c	25Y 63 00	000C00	00	M		Y	0	0	HR	2		P	Y		Y	
33	0-25	mcl	10YR53 00	000C00	00	C		Y	0	0	HR	2						
	25-42	c	10YR52 00	000C00	00	M		Y	0	0	HR	10		M				
	42-55	c	25Y 52 00	000C00	00	M		Y	0	0	HR	2		P	Y		Y	
34	0-25	mcl	10YR42 00						0	0	HR	2						
	25-40	hcl	10YR52 00	000C00	00	C		Y	0	0	HR	2		M				
	40-50	c	25Y 63 00	000C00	00	M		Y	0	0	HR	2		M				
	50-55	c	25Y 63 00	000C00	00	M		Y	0	0	HR	2		P	Y			
35	0-25	mcl	10YR42 52	10YR56	00	C		Y	0	0	HR	3						
	25-32	hcl	10YR53 00	10YR56	00	C		Y	0	0	HR	15		M				
36	0-25	hcl	10YR42 00						0	0	HR	5						
	25-30	hcl	10YR53 52	10YR56	00	C		Y	0	0	HR	15		M				
37	0-25	hcl	10YR52 00	10YR66	00	C		Y	0	0	HR	5						
	25-32	hcl	10YR53 51	10YR66	00	C		Y	0	0	HR	15		M				
38	0-20	hcl	10YR42 00	000C00	00	C		Y	0	0	HR	5						
	20-55	c	25Y 52 00	000C00	00	M		Y	0	0	HR	1		P	Y		Y	
39	0-25	mcl	10YR53 00						0	0	HR	5						
40	0-25	mcl	10YR53 00						0	0	HR	10						
	25-40	hcl	25Y 63 00	000C00	00	M		Y	0	0	HR	10		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
41	0-25	hcl	10YR42 00						0	0	HR	3						
	25-30	c	10YR63 00	10YR66 00	C			Y	0	0	HR	10		M				
42	0-25	mcl	10YR42 00						0	0	HR	3						
	25-29	c	10YR62 00	10YR56 00	C			Y	0	0	HR	10		M				
43	0-30	hcl	10YR42 52						0	0	HR	3						
	30-90	c	10YR62 00	10YR56 66	M			Y	0	0		0		P	Y		Y	
44	0-25	mcl	10YR42 00						0	0	HR	10						
	25-35	hcl	25Y 63 00	000C00 00	M			Y	0	0	HR	10		M				
	35-40	c	25Y 63 00	000C00 00	M			Y	0	0	HR	2		P				
45	0-30	hcl	10YR42 00						0	0	HR	3						
	30-80	c	10YR63 61	10YR66 00	M			Y	0	0	HR	2		P	Y		Y	