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CRAWLEY FARM, CRAWLEY,
WITNEY, OXFORDSHIRE
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
AUGUST, 1993

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AGRICULTURAL LAND CLASSIFICATION REPORT

1.0 Summary

1.1 In August, 1993, an Agricultural Land Classification (ALC) was completed on approximately 78 hectares of land around Crawley Farm, Crawley, north of Witney in Oxfordshire.

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 the development of a golf course.

1.3 The classification has been made using MAFF's revised guidelines and criteria for grading the quality of agricultural land. 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.

1.4 The fieldwork was carried out with an observation density of approximately one per 2 hectares. A total of 38 borings and 4 soil pits was examined.

1.5 The table below provides the details of the grades found across the site. The majority of the land is classified as Sub-grade 3B with a minor area of Sub-grade 3A. The key limitation is soil droughtiness related to very stony and often shallow soils over limestone with limited opportunity for crop roots to extra sufficient moisture.

Table 1 : Distribution of Grades and Sub-grades

Grade	Area (ha)	%of Site	% of Agricultural Area
3A	1.0	1.3	1.3
3B	66.5	86.4	89.1
4	7.2	9.2	9.6
Non-agric	1.2	1.5	100% (74.7 ha)
Urban	0.4	0.5	
Farm Bldgs	0.8	1.0	
Woodland	0.8	1.0	
TOTAL	77.9	100%	

1.6 The distribution of the ALC grades is shown on the attached map. The information is presented at a scale of 1:5,000; it is accurate at this level but any enlargement would be misleading. This map supercedes any previous ALC information for this site.

1.7 At the time of survey the land use on the site was mostly cereals and oilseed rape with grass on the steeper slopes.

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.

2.0 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 conditiions.

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 5km gridpoint dataset. 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 :	SP342128	SP345128	SP346123
Altitude (m) :	115	98	90
Accumulated Temperature (days) :	1383	1402	14121
Average Annual Rainfall (mm) :	719	710	708
Field Capacity (days) :	159	158	157
Moisture Deficit, Wheat (mm) :	96	99	100
Moisture Deficit, Potatoes (mm) :	86	89	91
Overall Climatic Grade :	1	1	1

3.0 Relief

3.1 A series of dry valley features traverse the site with steep slopes on the valley sides. The rest of the land is gently sloping with a south-easterly aspect.

4.0 Geology and Soil

4.1 The relevant geological sheet for the site shows the underlying geology to be a mixture of Forest Marble Clays, Forest Marble Clays with Limestone and White Limestone, with a minor area of Alluvium in the valley bottoms.

4.2 This range of geology has given rise to very stony subsoils often with solid limestone occurring at shallow depths.

5.0 Agricultural Land Classification

5.1 Table 1 provides the details of the area measuements 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 Sub-grade 3A : a very small area of this grade is mapped in the noth-east of the site in the base of a minor dry valley. Pit 4 is located in this map unit and describes clay topsoils and subsoils with no significant evidence of wetness but

with hard limestone rock from approximately 60 cm. This band of rock occurs deeper hree than elsewhere on the site, allowing extra reserves of moisture in the rooting zone to be extracted by crops.

5.4 Sub-grade 3B : the majority of the site is placed in this grade. Three soil pits have been described and illustrate the range of characteristics that occur. During augering, the soils are consistently impenetrable to the auger at shallow depths occasionally with evidence of flaggy limestone on the surface. Pit 3 illustrates the poorest example with limestone rock occurring just below the topsoil. It was difficult to excavate into this rock and it has been assumed that there is only shallow rooting into this layer. These soils are severely restricted in terms of their ability to extract moisture and only just qualify for Sub-grade 3B with soil droughtiness as the key limitation. At Pit 1 the limestone occurs from approximately 48 cm but at Pit 2 the soil resource extends to 75cm. Here, there is sufficient available water to qualify for Sub-grade 3A but no separate map unit has been delineated due to the variability that clearly exists across the site. Sub-grade 3B is considered to be the most appropriate grade to reflect the quality of these soils.

5.5 Grade 4 : areas of steep slopes on the valley sides are placed in this grade where the gradients are in the range 11-18 degrees.

5.6 The areas marked as Urban include a house and garden.

5.7 The areas marked as Non-agricultural include areas of scrub and ponds.

ADAS REFERENCE : 3305/71/93
MAFF REFERENCE : EL 33/327

Resource Planning Team
Guildford Statutory Group

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 sclae 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

* 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.

* British Geological Survey (1982), Sheet No.236, Witney, 1:50,000

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 Abbreviations : Explanatory Note
* Soil Pit Descriptions
* Database Printout : Boring Level Information
* Database Printout : Horizon Level Information

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 : CRAWLEY FARM GC OXON Pit Number : 1P

Grid Reference:

Average Annual Rainfall : 710 mm
Accumulated Temperature : 1402 degree days
Field Capacity Level : 158 days
Land Use : Bare Soil
Slope and Aspect : 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 22	HCL	10YR43 00	2	7		
22- 32	C	75YR46 00	0	18		
32- 48	HCL	25Y 66 00	0	2		WM

Wetness Grade : 2

Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 3B

APW : 076mm MBW : -23 mm
APP : 076mm MBP : -13 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : CRAWLEY FARM GC OXON Pit Number : 2P

Grid Reference:

Average Annual Rainfall : 710 mm
Accumulated Temperature : 1402 degree days
Field Capacity Level : 158 days
Land Use : Bare Soil
Slope and Aspect : 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 22	HCL	10YR43 00	2	7		
22- 38	C	75YR56 00	0	1		
38- 50	HCL	25 Y66 00	0	5	C	
50- 75	C	25Y 64 00	0	2	C	MDCSAB

Wetness Grade : 3A

Wetness Class : II
Gleying :038 cm
SPL : No SPL

Drought Grade : 3A

APW : 101mm MBW : 2 mm
APP : 112mm MBP : 23 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : CRAWLEY FARM GC OXON Pit Number : 3P

Grid Reference:

Average Annual Rainfall : 710 mm
Accumulated Temperature : 1402 degree days
Field Capacity Level : 158 days
Land Use : Bare Soil
Slope and Aspect : degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	C	10YR43 00	5	7		
25- 55	SLST	00ZZ00 00	0	0		

Wetness Grade : 3A

Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade :

APW : 000mm MBW : 0 mm
APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : CRAWLEY FARM GC OXON Pit Number : 4P

Grid Reference:

Average Annual Rainfall : 710 mm
Accumulated Temperature : 1402 degree days
Field Capacity Level : 158 days
Land Use : Bare Soil
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 20	C	10YR43 00	2	7		
20- 32	C	10YR43 00	0	8		MCSAB
32- 59	C	75YR46 00	0	12		MMSAB

Wetness Grade : 3A

Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 3A

APW : 097mm MBW : -2 mm
APP : 101mm MBP : 12 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	DRT	M.REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SP345 134	CER	NW	01	000		1	2	057	-42	057	-32	3B				DR	3B	
1P	SP34631292	PLO	SE	02	000		1	2	076	-23	076	-13	3B				DR	3B	ROCK48
2	SP346 134	CER	E	01	000		1	2	040	-59	040	-49	4				DR	3B	
2P	SP34571303	PLO	SE	02	038		2	3A	101	2	112	23	3A				DR	3A	IMP75
3	SP347 134	CER	E	01	000		1	2	040	-59	040	-49	4				DR	3B	
3P	SP34571303	PLO	SE		000		1	3A	000	0	000	0					DR	3B	BEDRK 25
4P	SP34571303	PLO			000		1	3A	097	-2	101	12	3A				DR	3A	POSS GR2
5	SP344 133	CER	W	02	045	045	3	3B	000	0	000	0					WE	3B	
6	SP345 133	CER	NE	01	070	070	2	3A	108	9	108	19	2				WE	3A	
7	SP346 133	CER	E	01	000		1	2	050	-49	050	-39	3B				DR	3B	
8	SP347 133	CER	SE	01	000		1	2	038	-61	038	-51	4				DR	3B	PROB
9	SP348 133	BAR			000		1	2	092	-7	104	15	3A				DR	2	IMPQDR
10	SP349 440	CER	W	05	035	035	4	3B	109	10	109	20	2				WE	3B	SPL 40
13	SP347 132	BAR			000		1	2	055	-44	055	-34	3B				DR	3A	QDR
14	SP348 132	BAR			042	042	3	3B	086	-13	092	3	3A				WE	3A	SPL
15	SP349 132	BAR			000		1	3A	108	9	112	23	2				WE	3A	
16	SP344 130	CER	W	07	000		1	2	063	-36	063	-26	3B				DR	3B	POSS 3A
17	SP345 130	BAR	S	02	000		1	3A	058	-41	058	-31	3B				DR	3A	IX2DR
18	SP346 130	BAR			000		1	3A	076	-23	076	-13	3B				WE	3A	IMP
19	SP347 130	BAR			000		1	3A	057	-42	057	-32	3B				DR	3A	IMPX2QDR
20	SP348 130	BAR			000		1	2	050	-49	050	-39	3B				DR	3A	IMPX2QDR
23	SP343 129	WHT	E	05	000		1	1	037	-62	037	-52	4				DR	3B	IMP 22
24	SP344 129	BAR	W	02	000		1	2	088	-11	098	9	3A				DR	3A	IMP 55
28	SP345 130	WHT			000		1	3A	039	-60	039	-50	4				DR	3B	IMP
31	SP342 128	WHT	SW	01	000		1	1	034	-65	034	-55	4				DR	3B	IMP 20
32	SP343 128	WHT	E	02	000		1	1	034	-65	034	-55	4				DR	3B	IMP 20
35	SP345 130	CER			000		1	2	039	-60	039	-50	4				DR	4	IMPEN 20
37	SP347 130	WHT			000		1	3A	041	-58	041	-48	4				DR	3B	IMPX3
38	SP341 127	WHT	S	02	000		1	2	054	-45	054	-35	3B				DR	3B	IMP 40
39	SP342 127	WHT	SW	01	000		1	2	037	-62	037	-52	4				DR	3B	IMP 22
40	SP343 27	WHT	E		000		1	2	059	-40	059	-30	3B				DR	3B	IMP 37
45	SP344 130	CER			000		1	2	042	-57	042	-47	4				DR	4	IMPEN 25
47	SP341 126	WHT	NE	02	000		1	2	053	-46	054	-35	3B				DR	3B	IMP 50
48	SP347 130	PLO			000		1	2	052	-47	052	-37	3B				DR	3B	IMPEN 35
52	SP347 130	BAR	O		000		1	3A	034	-65	034	-55	4				DR	3B	IMP 20
53	SP341 124	OSR	SE	01	000		1	2	047	-52	047	-42	4				DR	3B	IMP25
55	SP343 125	PLO	W	01	000		1	3A	035	-64	035	-54	4				DR	3B	IMP22 X3
56	SP344 125	PLO	W	01	000		1	3A	056	-43	056	-33	3B				DR	3B	IMP-35
57	SP345 125	PLO			000		1	2	041	-58	041	-48	4				DR	4	IMPEN 25
58	SP346 125	PLO			000		1	2	154	55	118	29	1				WK	2	
64	SP344 124	PLO			000		1	2	034	-65	034	-55	4				DR	4	IMPEN 20
66	SP346 124	PLO			000		1	2	059	-40	059	-30	3B				DR	3B	IMPX2

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	DRT	M.REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
59	SP343 123	PLO	W	05	000		1	3A	042	-57	042	-47	4				DR	3B	IMP25 X2

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	hcl	10YR43 00						0	0	HR	5						Y
	28-35	c	10YR44 00						0	0	HR	20		M				Y
1P	0-22	hcl	10YR43 00						2	0	HR	7						Y
	22-32	c	75YR46 00						0	0	SLST	18		M				Y
	32-48	hcl	25Y 66 00						0	0	SLST	2	WM	FR M				Y
2	0-25	hcl	10YR43 00						0	0	HR	15						Y
	25-26	hcl	10YR43 00						0	0	HR	15		M				Y
2P	0-22	hcl	10YR43 00						2	0	HR	7						Y
	22-38	c	75YR56 00						0	0	SLST	1		M				Y
	38-50	hcl	25 Y66 00	25Y 63 00	C			Y	0	0	SLST	5		M				Y
	50-75	c	25Y 64 00	25Y 62 00	C		25Y 63 00	Y	0	0	SLST	2	MDCSAB	FM M	Y			Y
3	0-25	hcl	10YR43 00						0	0	HR	15						Y
	25-26	hcl	10YR43 00						0	0	HR	15		M				Y
3P	0-25	c	10YR43 00						5	0	SLST	7						Y
	25-55	slst	00ZZ00 00						0	0		0		K P				Y
4P	0-20	c	10YR43 00						2	0	SLST	7						Y
	20-32	c	10YR43 00						0	0	SLST	8	MCSAB	FR M				Y
	32-59	c	75YR46 00						0	0	SLST	12	MMSAB	FR G				Y
5	0-28	hcl	10YR43 00						0	0	HR	2						Y
	28-45	c	75YR58 00	75YR68 00	F				0	0		0		M				
	45-90	c	75YR58 00	75YR68 00	C		00MN00 00	Y	0	0		0		M			Y	
6	0-25	hcl	10YR43 00						0	0	HR	5						Y
	25-70	c	10YR56 00	75YR56 00	F		00MN00 00		0	0	HR	10		M				Y
	70-90	c	10YR53 00	75YR56 00	C		00MN00 00	Y	0	0	HR	10		M			Y	Y
7	0-26	hcl	10YR43 00						0	0	HR	5						Y
	26-30	c	10YR44 00						0	0	HR	10		M				Y
8	0-20	hcl	10YR43 00						0	0	HR	10						Y
	20-25	c	10YR44 00						0	0	HR	30		M				Y
9	0-20	c	10YR43 00						0	0	SLST	2						
	20-50	c	75YR43 00						0	0	SLST	2		M				
	50-65	c	75YR43 00						0	0	SLST	5		M				
10	0-25	hcl	25 Y53 00						0	0	HR	10						Y
	25-35	c	10YR56 00	10YR58 00	C		25 Y72 00		0	0	HR	10		M				Y
	35-90	c	25 Y64 00	75YR58 00	C		25 Y72 00	Y	0	0	HR	5		M			Y	Y
13	0-25	hcl	10YR43 00						0	0	SLST	2						
	25-32	mcl	10YR64 00						0	0	SLST	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
14	0-20	c	10YR43 00						2	0	SLST	2						
	20-42	c	10YR46 00						0	0	SLST	2		M				
	42-60	c	10YR54 00	000C00	00	C	10YR53 00	Y	0	0		0		P	Y		Y	
15	0-25	c	10YR43 00						0	0	SLST	5						
	25-60	c	75YR44 00						0	0	SLST	2		M				
	60-85	c	75YR46 00						0	0	SLST	2		M				
16	0-30	hcl	25 Y42 43						0	0	HR	10						Y
	30-40	c	10YR44 00						0	0	HR	15		M				Y
17	0-25	c	10YR42 00						0	0	SLST	2						
	25-35	c	25 Y54 00	000C00	00	C			0	0	SLST	2		M				
18	0-20	c	10YR43 00						0	0	SLST	2						
	20-30	c	10YR46 00						0	0	SLST	2		M				
	30-48	c	10YR54 00						0	0	SLST	10		M				
19	0-20	hcl	10YR43 00						0	0	SLST	5						
	20-35	mcl	10YR64 00						0	0	SLST	10		M				
20	0-25	hcl	10YR43 00						0	0	HR	5						
	25-30	mcl	25 Y66 00						0	0	HR	10		M				
23	0-22	mcl	10YR43 00						5	0	HR	10						Y
	22-32	hr	00ZZ00 00						0	0		0		P				Y
24	0-28	hcl	10YR43 00						0	0	HR	5						Y
	28-55	c	10YR44 00						0	0	HR	15		M				Y
	55-65	c	10YR44 00						0	0	HR	20		M				Y
28	0-25	c	10YR43 00						0	0	SLST	10						
31	0-20	mcl	10YR43 00						0	0	HR	10						Y
	20-30	hr	00ZZ00 00						0	0		0		P				Y
32	0-20	mcl	10YR43 00						0	0	HR	10						Y
	20-30	hr	00ZZ00 00						0	0		0		M				Y
35	0-25	c	10YR43 00						0	0	HR	10						
37	0-25	c	10YR43 00						0	0	SLST	5						
38	0-27	hcl	10YR43 00						0	0	HR	5						Y
	27-35	c	10YR54 00						0	0	HR	70		M				Y
	35-40	slst	00ZZ00 00						0	0		0		P				Y
	40-50	hr	00ZZ00 00						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
39	0-22	hcl	10YR43 00						0	0	HR	10						Y
	22-32	hr	00ZZ00 00						0	0		0		P				Y
40	0-32	hcl	10YR43 00						0	0	HR	5						Y
	32-37	c	10YR44 00						0	0	HR	70		M				Y
	37-47	hr	00ZZ00 00						0	0		0		P				Y
45	0-25	hcl	10YR43 00						0	0	HR	8						
47	0-23	hcl	10YR43 00						0	0	HR	5						
	23-30	c	10YR54 64						0	0	SLST	70		M				Y
	30-50	slst	10YR72 00						0	0		0		P				Y
	50-60	hr	00ZZ00 00						0	0		0		P				Y
48	0-20	hcl	10YR44 00						10	0	HR	10						
	20-35	c	75YR56 00						0	0	HR	20		M				
52	0-20	hcl	10YR43 00						2	0	SLST	7						Y
53	0-25	hcl	10YR43 00						2	0	SLST	7						
	25-35	slst	00ZZ00 00						0	0		0		P				
55	0-22	c	10YR43 00						2	0	HR	7						Y
56	0-35	c	10YR43 00						2	0	HR	7						
57	0-25	hcl	10YR43 00						0	0	HR	10						
58	0-30	hcl	10YR43 00						2	0	SLST	5						
	30-45	hcl	10YR53 00						0	0	SLST	2		M				
	45-120	mzcl	10YR81 00						0	0		0		M				Y
64	0-20	hcl	10YR43 00						0	0	HR	5						
66	0-28	hcl	10YR43 00						0	0	SLST	5						
	28-35	c	10YR54 00						0	0	SLST	5		M				
69	0-20	hcl	10YR43 00						1	0	SLST	4						Y
	20-25	c	10YR44 00						0	0	SLST	10		M				