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WEST OXFORDSHIRE LOCAL PLAN
SITE 230 : CHIPPING NORTON
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
AUGUST 1993

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AGRICULTURAL LAND CLASSIFICATION REPORT

1.0 Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on 8 sites in West Oxfordshire. The work forms part of MAFF's statutory input to the West Oxfordshire Local Plan.

1.2 Approximately 58 hectares of land relating to site 230 at Chipping Norton, Oxfordshire was surveyed during August 1993. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 29 soil auger borings and 2 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 longterm limitations on its use for agriculture.

At the time of the survey land was in a number of uses including set-aside, cereal stubble, grass and oilseed rape.

1.3 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 1:5000. It is accurate at this scale, but any enlargement would be misleading.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Agricultural Area
3a	21.4	75.6
3b	6.9	24.4
Total agricultural area	28.3	100%
Non agricultural	10.2	
Urban	0.5	
Woodland	0.4	
Agric. buildings	0.8	
Not surveyed	17.5	
Total area of site	57.7	

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

1.5 The land is classified as Subgrades 3a and 3b, limited by soil droughtiness caused by the presence of very high volumes of hard limestone fragments in the subsoil. The difference in grade being the depth to which limestone is encountered, shallow in the case of Subgrade 3b and deeper in the case of Subgrade 3a. Such high stone volumes severely restrict profile available water for plant growth as well as reducing the rooting depth of crops.

1.6 A large area of land is classified as not surveyed. This was due to the advanced stage of growth of an oilseed rape crop and the attendant access difficulties.

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 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 5km gridpoint dataset (Met. Office 1989). The details are given in the table below and these show that there is an overall climatic limitation of grade 2 affecting the site. However this is not the most limiting factor of land quality.

2.4 No local climatic factors such as exposure or frost risk affect the site. However climatic factors do interact with soil properties to affect soil wetness, and in the case of this site, soil droughtiness. It should also be noted that the climatic regime for the site area is quite cool in a regional context with low accumulated temperature and moisture deficits for wheat and potatoes.

Table 2 : Climatic Interpolation

Grid Reference :	SU 323 272
Altitude (m) :	210
Accumulated Temperature (days) :	1269
Average Annual Rainfall (mm) :	731
Field Capacity (days) :	163
Moisture Deficit, Wheat (mm) :	84
Moisture Deficit, Potatoes (mm) :	69
Overall Climatic Grade :	2

3.0 Relief

3.1 The site is level and lies at an altitude of approximately 210-213 metres. Nowhere on the site does relief or gradient affect agricultural land quality.

4.0 Geology and Soil

4.1 The relevant geological sheet for the site, Sheet 218 Chipping Norton (BGS, 1968) shows the underlying geology to be Jurassic Chipping Norton Limestone with an area in the centre mapped as Jurassic Great Oolite Limestone.

4.2 The published soils information for the area, Sheet 6 "Soils of South East England" (SSEW, 1983) shows the site to be mapped as the Aberford association to the north -"Shallow, locally brashy, well drained calcareous fine loamy soils over limestone. Some deeper calcareous soils in colluvium" (SSEW, 1983) . The central part of the site is mapped as the Oxpasture asociation -"Fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged clayey soils" (SSEW, 1983). Finally to the south is mapped the Elmton 2 association -"Shallow well drained brashy calcareous fine loamy soils over limestone. Some similar deeper soils and non calcareous and calcareous clayey soils" (SSEW, 1983). A detailed inspection of soils over the site revealed the presence of brashy soils over weathered limestone.

5.0 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 covers the majority of the site. Profiles are calcareous throughout, typically comprising topsoils of medium, occasionally heavy, clay loam containing 0-10% total hard limestones by volume (with 0-5% >2cm). Upper subsoils consist of medium clay loam or clay containing 2-50% total hard limestone fragments. Underlying this at a depth of 62 cm, in the case of Pit 2 (which is typical of these soils) is medium clay loam containing 70%+ total limestone fragments. Pit observations found effective rooting to penetrate only 10 cm into this horizon due to the very hard, platy nature of the limestone. Profiles showed no wetness imperfections with a wetness class of I, but due to the high stone volumes in the lower subsoil and the severly restricted rooting into it, soils suffer moderate droughtiness. These soil profile characteristics combined with climatic factors restrict available water reserves and the range of crops which can tolerate these conditions such that a subgrade of 3a is appropriate.

Subgrade 3b

5.4 Land of this quality is mapped to the west of the site. Profiles are calcareous throughout and typically comprise topsoils of medium clay loam, occasionally heavy clay loam containing 5-20% total hard limestones by volume (0-7% >2cm). Upper subsoils consist of medium clay loam, occasionally clay containing 30-50% total hard limestone fragments which passes into clay at a depth of 36 cm , in the case of Pit 1, containing 70%+ hard limestone fragments. Observations from Pit 1, typical of these soils, showed effective rooting to penetrate only 10 cm into this extremely stony horizon. As with Subgrade 3a soils there is no evidence of wetness problems (wetness class I), however soils experience significant droughtiness due to the high volumes of limestone beginning in the upper subsoil and the reduced rooting depth that it causes. This combined with soil textures and climatic factors results in a reduced profile available water content for plant growth such that land can be classified no higher than Subgrade 3b.

5.5 Land classified as non agricultural comprises an area of saplings, school playing fields and allotment gardens.

5.6 Land classified as urban comprises houses and gardens and metalled roads and tracks.

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 re-claimed 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 (1968), Sheet No.218, Chipping Norton, 1:50,000 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 ENGLAND AND WALES (1983), Sheet No.6, "Soils of South East England", 1:250,000 scale and accompanying legend.

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 : SITE 230 WEST OXON LP Pit Number : 1P

Grid Reference: SP32002690 Average Annual Rainfall : 0 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 163 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 23	HCL	10YR43 00	3	10		
23- 36	C	75YR56 00	0	45		
36- 46	C	75YR56 00	0	70		

Wetness Grade : 2 Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 3B APW : 54 mm MBW : -30 mm
APP : 54 mm MBP : -15 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : SITE 230 WEST.OXON LP Pit Number : 2P

Grid Reference: SP32382735 Average Annual Rainfall : 0 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 163 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 26	MCL	10YR43 00	0	4		
26- 45	MCL	10YR44 00	0	25		
45- 62	MCL	75YR44 00	0	50		
62- 72	MCL	75YR44 00	0	70		

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 3A APW : 81 mm MBW : -3 mm
APP : 86 mm MBP : 17 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	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SP32302740	STU	S	01			1	1	71	-13	71	2	3A				DR	3A	IMP 42 AS 2P
1P	SP32002690	CER					1	2	54	-30	54	-15	3B				DR	3B	ROOTS 10
2	SP32402740	STU	S	01			1	1	53	-31	53	-16	3B				DR	3B	IMP Q3A AS 2P
2P	SP32382735	STU					1	1	81	-3	86	17	3A				DR	3A	ROOTS 10
5	SP32242729	STU	N	01			1	2	43	-41	43	-26	3B				DR	3B	IMP Q3A AS 2P
6	SP32302730	PAS	SE	01			1	1	58	-26	58	-11	3B				DR	3B	IMP Q3A AS 2P
7	SP32402730	PAS	SE	02			1	1	34	-50	34	-35	3B				DR	3B	IMP Q3A AS 2P
10	SP31902720	OSR					1	1	35	-49	35	-34	3B				DR	3B	IMP 25 AS 1P
13	SP32202720	STU	N	01			1	2	44	-40	44	-25	3B				DR	3B	IMP Q3A AS 2P
14	SP32302720	STU	N	01			1	1	47	-37	47	-22	3B				DR	3B	IMP Q3A AS 2P
15	SP32402720	PAS	N	01			1	1	139	55	116	47	1				CL	2	CLIMATE
17	SP31842712	OSR					1	1	32	-52	32	-37	4				DR	4	IMP Q3B AS 1P
18	SP31902710	OSR					1	1	29	-55	29	-40	4				DR	4	IMP Q3B AS 1P
25	SP31802700	SAS					1	2	55	-29	55	-14	3B				DR	3B	IMP Q3B AS 1P
33	SP31802690	CER					1	1	30	-54	30	-39	4				DR	4	IMP Q3B AS 1P
34	SP31902690	CER					1	1	37	-47	37	-32	3B				DR	3B	IMP Q3B AS 1P
35	SP32002690	CER					1	2	40	-44	40	-29	3B				DR	3B	IMP Q3B AS 1P
40	SP31902680	SAS	SE	01			1	1	43	-41	43	-26	3B				DR	3B	IMP Q3B AS 1P
41	SP32002680	SAS	SE	02			1	1	43	-41	43	-26	3B				DR	3B	IMP Q3A AS 2P
42	SP32102680	SAS	W	01			1	1	34	-50	34	-35	3B				DR	3B	IMP Q3A AS 2P
47	SP31902670	SAS	SE	01			1	1	43	-41	43	-26	3B				DR	3B	IMP Q3A AS 2P
48	SP32002670	SAS	SE	01			1	1	44	-40	44	-25	3B				DR	3B	IMP Q3A AS 2P
49	SP32102670	SAS	SE	02			1	1	43	-41	43	-26	3B				DR	3B	IMP Q3A AS 2P
50	SP32202670	CER	SE	02			1	1	42	-42	42	-27	3B				DR	3B	IMP Q3A AS 2P
52	SP31802660	SAS	S	02			1	1	50	-34	50	-19	3B				DR	3B	IMP Q3A AS 2P
53	SP31902660	SAS	S	01			1	1	105	21	111	42	2				DR	2	IMP80
54	SP32002660	SAS	SE	02			1	1	51	-33	51	-18	3B				DR	3B	IMP Q3A AS 2P
55	SP32102660	SAS	SE	03			1	1	49	-35	49	-20	3B				DR	3B	IMP Q3A AS 2P
56	SP31902650	SAS	S	02			1	1	42	-42	42	-27	3B				DR	3B	IMP Q3A AS 2P
57	SP32002650	FAL	SE	02			1	1	60	-24	60	-9	3B				DR	3B	IMP Q3A AS 2P
58	SP32102650	FAL	SE	03	029		2	2	143	59	112	43	1				WE	2	

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	mcl	10YR43 00						0	0	HR	2						Y
	25-42	c	75YR56 00						0	0	HR	2		M				Y
1P	0-23	hcl	10YR43 00						3	0	HR	10						Y
	23-36	c	75YR56 00						0	0	HR	45		M				Y
	36-46	c	75YR56 00						0	0	HR	70		P				Y
2	0-30	mcl	10YR43 00						0	0	HR	2						Y
2P	0-26	mcl	10YR43 00						0	0	HR	4						Y
	26-45	mcl	10YR44 00						0	0	HR	25		M				Y
	45-62	mcl	75YR44 00						0	0	HR	50		M				Y
	62-72	mcl	75YR44 00						0	0	HR	70		P				Y
5	0-23	hcl	10YR42 00						0	0	HR	2						Y
	23-25	c	75YR56 00						0	0	HR	20		M				Y
6	0-22	mcl	10YR43 00						0	0	HR	5						Y
	22-35	c	75YR56 00						0	0	HR	5		M				Y
7	0-20	mcl	10YR43 00						0	0	HR	5						Y
10	0-17	mcl	10YR43 00						0	0	HR	15						Y
	17-25	hcl	10YR46 56						0	0	HR	30		M				Y
13	0-25	hcl	10YR43 00						0	0	HR	2						Y
14	0-25	mcl	10YR43 00						0	0	HR	5						Y
	25-30	hcl	75YR56 00						0	0	HR	50		M				Y
15	0-25	mcl	10YR43 00						0	0		0						Y
	25-35	hcl	75YR56 00						0	0	HR	2		M				Y
	35-90	c	75YR56 00						0	0	HR	2		M				Y
	90-120	c	75YR56 00	00MN00	00	C			0	0	HR	2		M				Y
17	0-22	mcl	10YR43 00						2	0	HR	20						Y
18	0-20	mcl	10YR43 44						0	0	HR	20						Y
25	0-35	hcl	10YR43 00						2	0	HR	17						Y
	35-37	hcl	10YR46 00						0	0	HR	50		M				Y
33	0-20	mcl	10YR43 00						7	0	HR	17						Y
34	0-24	mcl	10YR43 00						0	0	HR	15						Y
35	0-17	hcl	10YR43 00						3	0	HR	10						Y
	17-28	c	10YR56 00						0	0	HR	30		M				Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
40	0-25	mcl	10YR43 00						0	0	HR	5						
41	0-25	mcl	10YR42 00						0	0	HR	5						Y
42	0-20	mcl	10YR43 00						0	0	HR	5						Y
47	0-25	mcl	10YR43 00						0	0	HR	5						
48	0-25	mcl	10YR43 00						0	0	HR	3						Y
49	0-25	mcl	10YR43 00						0	0	HR	5						Y
50	0-25	mcl	10YR43 00						0	0	HR	6						Y
52	0-30	mcl	10YR43 00						0	0	HR	8						Y
53	0-30	mcl	10YR43 00						0	0	HR	5						Y
	30-45	mcl	10YR42 00						0	0	HR	7		M				Y
	45-70	hcl	75YR54 00	75YR56 00	C				0	0	HR	7		M				
	70-80	hcl	75YR54 00	75YR56 00	C				0	0	HR	50		M				
54	0-30	mcl	10YR43 00						0	0	HR	5						
55	0-30	mcl	10YR43 00						5	0	HR	10						
56	0-25	mcl	10YR42 00						0	0	HR	7						
57	0-35	mcl	10YR43 00						0	0	HR	5						Y
58	0-29	mcl	10YR42 00						0	0	HR	3						Y
	29-50	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	3		M				
	50-75	msl	10YR53 00	10YR56 00	C			Y	0	0	HR	4		M				
	75-100	mcl	10YR53 42	10YR56 00	F			Y	0	0	HR	2		M				
	100-120	c	10YR56 00						0	0	HR	50		M				