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Winchester District Local Plan
Bushfield Camp,
Winchester.
Agricultural Land Classification
ALC Map and Report
July 1994

AGRICULTURAL LAND CLASSIFICATION REPORT.

WINCHESTER DISTRICT LOCAL PLAN
BUSHFIELD CAMP, WINCHESTER

1. Summary

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

1.2 The site comprises approximately 63 hectares of land around Bushfield Camp south of Winchester in Hampshire. An Agricultural Land Classification (ALC) survey was carried out in July 1994. The survey was undertaken at a semi-detailed level of approximately two borings per hectare. A total of 25 borings and two soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.

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

1.4 At the time of the survey the agricultural land on the site was under grass ley and maize. Large areas of land on the site have been marked as non-agricultural, comprising overgrown scrubland with small trees. Mature trees in the north-east of the site have been mapped as woodland. Areas marked as urban include a railway line in the east of the site, and the dis-used army camp.

1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading. This map supersedes any previous ALC survey information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
3b	24.1	38.0	99.6
4	0.1	0.2	0.4
Non-agricultural	24.0	37.9	100% (24.2 ha.)
Urban	10.8	17.0	
Woodland	4.4	6.9	
Total area of Site	63.4 ha.	100%	

1.6 The agricultural land on the site has been classified as Subgrade 3b and Grade 4, with soil droughtiness and gradient as the main limitations. Soils within the Subgrade 3b mapping unit tend to be relatively shallow over chalk. The chalk is of a hard nature causing a restriction upon rooting depth, tending to be impenetrable to the auger. Therefore soil profiles show a significant restriction on available water for plant

growth such that a classification of Subgrade 3b is appropriate. In the east of the site slopes exceed 8° such that the land is limited to Subgrade 3b, also a small area of slope exceeds 11° with a resultant classification of Grade 4. Steep slopes limit the effectiveness and safety of agricultural operations, and may increase the likelihood of soil erosion.

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 an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 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 no overall climatic limitation affecting the site.

2.4 However, climatic and soil factors do interact to influence soil wetness and droughtiness limitations. The field capacity days for this site are relatively high in a regional context, therefore the likelihood of any soil wetness limitations will be increased.

Table 2 :Climatic Interpolations

Grid Reference	SU 466273	SU 470271
Altitude, (m, AOD)	90	70
Accumulated Temperature (°days, Jan.-June)	1447	1467
Average Annual Rainfall (mm)	847	840
Field Capacity Days	184	182
Moisture deficit, wheat (mm)	100	102
Moisture deficit, potatoes (mm)	91	94
Overall Climatic Grade	1	1

3. Relief

3.1 The site lies at an altitude of approximately 50-100 m AOD, with dry valley features in the north-east and north-west of the site. On the north-western edge of the site, gradients measured with an optical reading clinometer were found to range between 9-12°. Consequently, land on these slopes is classified as Subgrade 3b and Grade 4 as gradient has a significant effect upon the safe and efficient use of agricultural machinery.

4. Geology and Soils

4.1 The published geological information (BGS, 1975), shows the entire site to be underlain by Upper and Middle Chalk.

4.2 The published soils information (SSEW 1983), shows the site to be underlain by soils of the Andover 1 Association. The legend accompanying the map describes these as, 'Shallow, well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non-calcareous fine silty soils in valley bottoms' (SSEW,1983). Detailed field examination broadly confirms this.

5. Agricultural Land Classification

5.1 Paragraph 1.5 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 3b

5.3 The majority of the agricultural land on the site has been classified as Subgrade 3b, moderate quality land, with slope and soil droughtiness as the main limitations. The majority of soil auger inspections on this land proved to be impenetrable below the topsoil, as evidenced in the attached soil boring information. Therefore, two soil inspection pits were dug to assess the nature of the chalky subsoil, particularly the depth to which rooting occurred into the chalk. On the basis of these pits, assumptions have been made regarding the impenetrable soil augerings in other areas of the site, in particular assuming that typically uniform soil conditions prevail across the site. Pit no.1 was dug in the south-eastern corner of the site. The soil profile comprised a moderately stony (12%>2cm, 25% total flints v/v) medium silty clay loam topsoil, overlying a similar textured upper subsoil containing 50% chalk rubble. Solid chalk (containing 15% flints) commenced at 44cm. Rooting was observed to a depth of 64cm in this particular pit. Pit no. 2 was dug towards the western edge of the site. The soil profile comprised a moderately stony (4% >2cm, 20% total chalk v/v) medium silty clay loam topsoil overlying a similarly textured upper subsoil containing 50% chalk rubble. In this pit , solid chalk (containing 15% total flints) commences at 31cm, with rooting observed to a depth of 56cm. into the chalk. These rooting depths have been used to calculate the profile available water at each of the pits, which ably demonstrate the variability in rooting depths that can occur. These droughtiness

calculations, for both of the soil pit profiles show that the shallow nature of the soils over solid chalk means there is a significant restriction on the amount of available water in the profile for plant growth, which will consequently restrict crop yields. Therefore this land can be classified as no better than Subgrade 3b.

5.4 An area of land in the west of the site has been classified as Subgrade 3b due to a slope limitation, where gradients of 9-11° were noted.

Grade 4

5.5 A small area of land in the west of the site has been classified as Grade 4, also due to a slope limitation, where gradients of 12° were measured.

SOURCES OF REFERENCE

British Geological Survey (1975), Sheet 299, Winchester, 1:50,000. Drift Edition.

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

Meteorological Office (1989), Climatic datasets for Agricultural Land Classification.

Soil Survey of England and Wales (1983), Sheet No. 6, Soils of South-East England, 1:250,000, and Accompanying Legend.

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

APPENDIX 1

DESCRIPTION OF THE GRADES AND SUBGRADES

Grade 1 : Excellent Quality Agricultural Land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 : Very Good Quality Agricultural Land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1 land.

Grade 3 : Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When more demanding crops are grown, yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a : Good Quality Agricultural Land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b : Moderate Quality Agricultural Land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 : Poor Quality Agricultural Land

Land with severe limitations which significantly restrict the range of crops and/or the level of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 : Very Poor Quality Agricultural Land

Land with severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

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

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

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

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

Open Water
Includes lakes, ponds and rivers as map scale permits.

Land Not Surveyed
Agricultural land which has not been surveyed.

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

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.[2]
II	The soil profile is wet within 70 cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

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

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

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

Soil 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 computer database. This uses notations and abbreviations as set out below.

Boring Header Information

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

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

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

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

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

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

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

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

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

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

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

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

Soil Pits and Auger Borings

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

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

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

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

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

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

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

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

4. **MOTTLE CONT** : Mottle contrast

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

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

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

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

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

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

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

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

9. **CONSIST** : Soil consistence is described using the following notation:

L : loose **VF** : very friable **FR** : friable **FM** : firm **VM** : very firm
EM : extremely firm **EH** : extremely hard

10. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness : **G** : good **M** : moderate **P** : poor

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

12. **IMP** : If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropiate horizon.

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

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

15. Other notations
APW : available water capacity (in mm) adjusted for wheat
APP : available water capacity (in mm) adjusted for potatoes
MBW : moisture balance, wheat
MBP : moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : WINCHESTER LP BUSHFIELDP Pit Number : 1P

Grid Reference: SU47102720
Average Annual Rainfall : 849 mm
Accumulated Temperature : 1435 degree days
Field Capacity Level : 184 days
Land Use : Ley
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 22	MZCL	10YR43 00	12	25	HR					Y
22- 44	MZCL	10YR43 00	0	50	CH				M	Y
44- 64	CH	05Y 81 00	0	15	HR				M	Y

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

Drought Grade : 3B
APW : 75 mm MBW : -30 mm
APP : 79 mm MBP : -19 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : WINCHESTER LP BUSHFIELDP Pit Number : 2P

Grid Reference: SU46562742
Average Annual Rainfall : 849 mm
Accumulated Temperature : 1435 degree days
Field Capacity Level : 184 days
Land Use : Maize
Slope and Aspect : 01 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 20	MZCL	10YR53 00	4	20	CH					Y
20- 31	MZCL	10YR63 00	0	50	CH				M	Y
31- 56	CH	10YR81 00	0	15	HR				M	Y

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

Drought Grade : 3B
APW : 69 mm MBW : -36 mm
APP : 71 mm MBP : -27 mm

FINAL ALC GRADE : 3B
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	SU47102790	PGR	N	01			1	2	55	-50	55	-43	3B				DR	3B		IMP 30 SEE2P
1P	SU47102720	LEY					1	2	75	-30	79	-19	3B				DR	3B		ROOTS TO 64
2P	SU46562742	MZE	SE	01			1	2	69	-36	71	-27	3B				DR	3B		ROOTS TO 56
5	SU47002780	PGR	N	01			1	2	39	-66	39	-59	4				DR	3B		IMP 23 SEE2P
8	SU46802760	PGR	N	04			1	2	70	-35	70	-28	3B				DR	3B		IMP 40 SEE2P
14	SU46702760	PGR	N	03			1	2	52	-53	52	-46	4				DR	3B		IMP 31 SEE2P
22	SU46502750	PGR	N	03			1	2	92	-13	92	-6	3A				DR	3A		IMP 48
23	SU46602750	MZE	N	01			1	2	57	-48	57	-41	3B				DR	3B		IMP 32 SEE2P
24	SU46702750	MZE	N	02			1	2	59	-46	59	-39	3B				DR	3B		IMP 35 SEE2P
25	SU46802750	RGR					1	2	53	-52	53	-45	4				DR	3B		IMP 30 SEE2P
30	SU46502740	MZE	SE	02			1	2	57	-48	57	-41	3B				DR	3B		IMP 32 SEE2P
31	SU46602740	MZE	SE	02			1	2	60	-45	60	-38	3B				DR	3B		IMP 35 SEE2P
32	SU46702740	MZE	SE	02			1	2	56	-49	56	-42	3B				DR	3B		IMP 32 SEE2P
33	SU46802740	RGR					1	2	62	-43	62	-36	3B				DR	3B		IMP 40 SEE2P
38	SU46602730	MZE	SE	04			1	2	61	-44	61	-37	3B				DR	3B		IMP 35 SEE2P
39	SU46702730	LEY					1	2	46	-59	46	-52	4				DR	3B		IMP 30 SEE2P
40	SU46802730	LEY	S	02			1	2	35	-70	35	-63	4				DR	3B		IMP 20 SEE2P
43	SU47102730	LEY					1	2	46	-59	46	-52	4				DR	3B		IMP 30 SEE1P
44	SU47202730	LEY					1	2	56	-49	56	-42	3B				DR	3B		IMP 35 SEE1P
49	SU47102720	LEY					1	2	37	-68	37	-61	4				DR	3B		IMP 20 SEE1P
50	SU47202720	LEY					1	2	45	-60	45	-53	4				DR	3B		IMP 25 SEE1P
53	SU47102710	LEY					1	2	42	-63	42	-56	4				DR	3B		IMP 25 SEE1P
54	SU47202710	LEY					1	2	55	-50	55	-43	3B				DR	3B		IMP 30 SEE1P
55	SU47802700	LEY	SW	02			1	2	53	-52	53	-45	4				DR	3B		IMP 30 SEE1P
56	SU47102700	LEY	SE	02			1	2	53	-52	53	-45	4				DR	3B		IMP 30 SEE1P
57	SU47202700	LEY	SE	02			1	2	53	-52	53	-45	4				DR	3B		IMP 30 SEE1P
58	SU47102690	LEY	S	02			1	2	53	-52	53	-45	4				DR	3B		IMP 30 SEE1P
59	SU47202690	LEY	S	02			1	2	53	-52	53	-45	4				DR	3B		IMP 30 SEE1P

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	mzcl	10YR53 00						0	0	CH	1					Y		
	25-30	mzcl	10YR53 00						0	0	CH	20		M			Y		IMP 30, CHALK
1P	0-22	mzcl	10YR43 00						12	0	HR	25					Y		
	22-44	mzcl	10YR43 00						0	0	CH	50		M			Y		
	44-64	ch	05Y 81 00						0	0	HR	15		M			Y		
2P	0-20	mzcl	10YR53 00						4	0	CH	20					Y		
	20-31	mzcl	10YR63 00						0	0	CH	50		M			Y		
	31-56	ch	10YR81 00						0	0	HR	15		M			Y		
5	0-22	mzcl	10YR53 00						0	0	HR	10					Y		
	22-23	mzcl	10YR53 00						0	0	CH	20		M			Y		IMP 23, CHALK
8	0-20	mzcl	10YR53 00						0	0	CH	1					Y		
	20-40	mzcl	10YR63 00						0	0	HR	5		M			Y		IMP 40, FLINT
14	0-18	mzcl	10YR53 00						0	0	CH	3					Y		
	18-29	mzcl	10YR53 00						0	0	CH	30		M			Y		
	29-31	ch	10YR81 00						0	0	HR	2		M			Y		IMP 31, CHALK
22	0-22	zl	10YR53 00						0	0	CH	1					Y		
	22-38	mzcl	10YR63 00						0	0	CH	2		M			Y		
	38-48	mzcl	10YR63 00						0	0	CH	30		M			Y		IMP 48, CHALK
23	0-28	mzcl	10YR53 00						0	0	CH	5					Y		
	28-32	mzcl	10YR63 00						0	0	CH	50		M			Y		IMP 32, CHALK
24	0-20	mzcl	10YR53 00						2	0	HR	5					Y		
	20-30	mzcl	10YR63 00						0	0	HR	10		M			Y		
	30-35	mzcl	10YR63 00						0	0	CH	30		M			Y		IMP 35, CHALK
25	0-30	mcl	10YR33 00						0	0	CH	5					Y		IMP 30, FLINTS
30	0-28	mzcl	10YR54 00						0	0	CH	5					Y		
	28-32	mzcl	10YR63 00						0	0	CH	50		M			Y		IMP 32, CHALK
31	0-25	mzcl	10YR53 00						0	0	CH	5					Y		
	25-35	mzcl	10YR63 00						0	0	CH	50		M			Y		
32	0-25	mzcl	10YR53 00						0	0	CH	5					Y		
	25-32	mzcl	10YR53 00						0	0	CH	50		M			Y		
33	0-25	mzcl	10YR43 00						0	0	HR	2					Y		
	25-40	ch	05Y 81 00						0	0		0		M			Y		IMP 40, CHALK
38	0-28	mzcl	10YR53 00						0	0	CH	5					Y		
	28-35	mzcl	10YR63 00						0	0	CH	50		M			Y		IMP 35, CHALK

				----MOTTLES-----			PED	----STONES----				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
39	0-20	mzcl	10YR43 00						0	0	CH	10					Y		
	20-30	ch	05Y 81 00						0	0		0		M			Y		IMP 30, FLINTS
40	0-20	mcl	10YR33 00						0	0	CH	5					Y		IMP 20, FLINTS
43	0-20	mzcl	10YR43 00						0	0	CH	10					Y		
	20-30	ch	05Y 81 00						0	0		0		M			Y		IMP 30, FLINTS
44	0-25	mzcl	10YR43 00						0	0	CH	5					Y		
	25-35	ch	05Y 81 00						0	0		0		M			Y		IMP 44, FLINTS
49	0-20	mzcl	10YR43 00						0	0	CH	5					Y		IMPEN 20
50	0-25	mzcl	10YR43 00						0	0	CH	10					Y		IMP 25
53	0-20	mzcl	10YR43 00						0	0	CH	5					Y		
	20-25	ch	05Y 81 00						0	0		0		M			Y		IMP 25, FLINTS
54	0-25	mzcl	10YR43 00						0	0	CH	5					Y		
	25-30	mzcl	10YR44 00						0	0		0		M			Y		IMP 30
55	0-30	mcl	10YR33 00						0	0	CH	5					Y		IMP 30
56	0-30	mcl	10YR33 00						0	0	CH	5					Y		IMP 30
57	0-30	mcl	10YR33 00						0	0	CH	5					Y		IMP 30
58	0-30	mcl	10YR33 00						0	0	CH	5					Y		IMP 30
59	0-30	mcl	10YR33 00						0	0	CH	5					Y		IMP 30