AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF SITE PHYSICAL CHARACTERISTICS

HINDHAY CHALK PIT, PINKNEYS GREEN, MAIDENHEAD, BERKSHIRE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey and assessment of site physical characteristics of 19.8 hectares of land east of Pinkneys Green, near Maidenhead, in Berkshire. The survey was carried out during May 1998.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) [1] on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The work was carried out in order to determine the land quality and the physical characteristics of land affected by proposals for extension to an existing chalk pit. This survey supersedes any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey the agricultural land was under barley and wheat. The areas mapped as 'Other land' include trackways, the existing quarry and its associated buildings, a soil bund and a slither of woodland.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 overleaf.

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 18 borings and 2 soil inspection pits were described.

8. The majority of the agricultural land on the site is classified as Grade 2 (very good quality), with soil droughtiness as the main limiting factor. The remainder is mostly mapped as Subgrade 3a (good quality), with soil wetness as the main limiting factor, with a small area of restored ground mapped as Subgrade 3b (moderate quality) land.

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[1] FRCA is an executive agency of MAFF and the Welsh Office.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	14.2	81.1	71.7
3a	2.2	12.6	11.1
3b	1.1	6.3	5.6
Other land	2.3	N/A	11.6
Total surveyed area	17.5	100	88.4
Total site area	19.8	-	100

9. Soils in the Grade 2 area generally have calcareous medium clay loam topsoils which are slightly flinty, overlying stonier heavy clay loam or clay upper subsoils and deep chalky lower subsoils of similar texture. However, evidence from the edge of the existing chalk quarry shows that the subsoils can vary significantly over very short distances, sometimes bringing the chalk or chalky horizons closer to the surface. The amount of water available for crop roots in such soils is slightly limited, consequently affecting the level and consistency of yields from this land

10. Soils in the Subgrade 3a area generally have non-calcareous medium clay loam topsoils overlying poorly structured clayey subsoils. The subsoils impede drainage through the profile, causing a soil wetness limitation. The flexibility of this land will be affected as there will be a restriction on when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

11. The soils in the small Subgrade 3b area have been restored after earlier working, and a thin topsoil of medium clay loam now sits directly over chalk, with a clay cap and 'fill' beneath. Given the lack of soil resource on this land there is a significant soil droughtiness limitation.

FACTORS INFLUENCING ALC GRADE

Climate

12. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

13. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

13. 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.

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference		SU866829
Altitude	m, AOD	70
Accumulated Temperature	day°C (Jan-June)	1435
Average Annual Rainfall	mm	700
Field Capacity Days	days	146
Moisture Deficit, Wheat	mm	107
Moisture Deficit, Potatoes	mm	100
Overall climatic grade		Grade 1

14. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (ATO, January to June), as a measure of the relative warmth of a locality.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Other local climatic factors such as exposure and frost risk are not believed to be significant at the site. The site is climatically Grade 1.

Site

16. The site is generally flat, but with the head of a dry valley feature in the extreme north, and lies in the altitudinal range 65–70m. Nowhere on the site do gradient, microrelief or flooding affecting the land quality.

Geology and soils

17. The most detailed published geological information (BGS, 1977) shows the whole site as Upper Chalk, with Reading Beds occurring right along the western boundary.

18. The most detailed published soils information for this area (SSEW, 1983) shows the majority of the site to contain soils of the Frilsham association, with soils of the Wickham 4 association occurring in the north-west. Frilsham soils are described as 'well drained, mainly fine loamy soils over chalk...shallow calcareous fine loamy and fine silty soils in places'. Wickham 4 soils are described as 'slowly permeable, waterlogged, fine loamy over clayey and fine silty over clayey soils'.

19. Detailed field examination showed that soils not dissimilar to the above occurred.

AGRICULTURAL LAND CLASSIFICATION

20. The details of the classification of the site are shown on the attached ALC map and the are statistics for each grade are given in Table 1.

21. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Grade 2

22. Land of very good quality has been mapped across the majority of the site with soil droughtiness as the main limitation. Pit 1 is representative of some of these chalky soils, and shows a medium clay loam topsoil overlying a porous clay upper subsoil and a chalky lower subsoil of heavy silty clay loam texture. In the auger, some of these soils look as if the lower subsoil is solid chalk but evidence from this pit and the face of the existing quarry shows that the soil resource regularly extends to depth. The interface between the weathered chalk and the soils above is a complicated one, further complicated by varying bands of flint; the quarry face shows a clearly wavy pattern to this weathering zone which occasionally brings solid chalk or flint bands close to the surface but which generally exhibits very chalky subsoils. Stone contents in the lower subsoil of the pit were assessed as 30% chalk and 10% flint. Some soils near the Subgrade 3a boundary may be less chalky and have a deeper clay horizon. The amount of available water in all of these soils is therefore somewhat limited, but still sufficient to qualify for Grade 2; both the pit and the quarry face show that deep rooting is possible. Despite the clear variation in these soils over short distances, being able to examine the face of the existing quarry shows that Pit 1 is representative of these soils.

Subgrade 3a

23. Land of good quality has been mapped in the south-west of the site with soil wetness as the main limitation. Pit 2 is representative of these soils, and shows a medium clay loam topsoil over an upper subsoil of sandy clay loam and a lower subsoil of clay. The upper subsoil exhibits gleying caused by the slowly permeable nature of the lower subsoil. Structures in the porous sandy clay loam were assessed as moderately developed coarse sub-angular blocky, whilst those in the non-porous clay horizon beneath were assessed as weakly developed coarse angular blocky. These soils were placed in Wetness Class III and this, in combination with the topsoil texture and the prevailing field capacity level (146 days), restricts this land to Subgrade 3a. This degree of wetness will affect germination and growth of crops and will restrict the number of days when the land is in a suitable condition for cultivations, trafficking by machinery or grazing by livestock.

Subgrade 3b

24. Land of moderate quality has been mapped over a small area (1.1ha) adjacent to the existing quarry. This land has been worked previously and then filled and capped with clay and has subsequently been restored to a level similar to the surrounding undisturbed land. A small 'pit' was dug in the centre of this grassed area and revealed a medium clay loam topsoil of only 22cm depth sitting directly over chalk. Given this very limited soil resource, a significant soil droughtiness limitation exists. In addition, anecdotal evidence from those managing the quarry suggests that the integrity of the clay cap has been compromised in places, suggesting that there may be some pollution of the soil resource by the gases that have built up beneath the clay cap; the anecdotal evidence suggests that there is some discolouring and stunting of nearby crops at certain times, but there was no evidence of this at the time of survey.

SOIL RESOURCES

25. This section describes the soil resources identified on the site. It should be emphasised that this is not intended as a prescription for soil stripping, but merely as an illustration of the soil resources available for restoration on the site. Due to the natural variability of soils, the depths of topsoil and subsoil given should be treated with caution. Soils were sampled to a maximum depth of 120cm, where possible, during survey work. In some cases soil resources will extend below this depth.

Soil Units : considerations for restoration

26. Given the fact that the soils are quite variable across the site, three generalised soil types have been identified, one of which separates out the soil resource on the disturbed land. The location of the soil units is shown on the attached soil resources map.

Soil Unit 1

27. This unit covers an area of 9 hectares and comprises a medium clay loam topsoil (occasionally heavy clay loam) to a depth of 27cm. Subsoils are variable and generally comprise heavy silty clay loam and clay textures in a 93cm thick horizon (27-120cm); given the variability, only one general subsoil has been recognised, though there may be some shallow soils over chalk in this unit (particularly on the edge of the dry valley feature in the north). A description of a representative soil profile in this unit is given below.

Representative soil profile for Soil Unit 1

Horizon	Average Depth (cm)	Description
Topsoil	0–27	medium clay loam; brown (10YR4/3); very slightly stony (<5% flint); moderately developed coarse sub-angular blocky structure; friable.
Subsoil	27–120	heavy silty clay loam and clay; colours range from yellowish brown (10YR5/4) to pale yellow (2.5Y7/4); stone contents are variable, and an average is 30% chalk and 10% flint; clay structures are moderately developed coarse prismatic and firm in consistence; where the stone contents are high the structures are moderately developed coarse sub-angular blocky and friable in consistence. Rootable. No evidence of any wetness characteristics.

Soil Unit 2

28. This unit covers an area of 7.4 hectares and comprises a medium clay loam topsoil to a depth of 27cm. Subsoils comprise mostly clay textures, but with occasional upper horizons of sandy clay loam or medium clay loam (which are too variable to treat separately as an upper

subsoil, but which are important in land quality considerations), in a 93cm thick horizon (27-120cm). A description of a representative soil profile in this unit is given overleaf.

Representative soil profile for Soil Unit 2

Horizon	Average Depth (cm)	Description
Topsoil	0–27	medium clay loam; dark brown (10YR4/2); very slightly stony (<5% flint); moderately developed coarse sub-angular blocky structure; friable.
Subsoil	27–120	clay; light grey (2.5Y7/1); very slightly stony (<5% flint); slowly permeable - weakly developed coarse angular blocky with very firm consistence - in the west of this unit, overlapping the Subgrade 3a land; non-slowly permeable in the east as assessed by the auger alone (see ASP 16); rootable; signs of wetness in this horizon.

Soil Unit 3

29. This unit covers an area of 1.1 hectares and comprises a restored profile of medium clay loam topsoil to a depth of 22cm. The topsoils are brown in colour (10YR4/3), slightly stony (<5% flint) with a structure assumed to be similar to the surrounding topsoils. There is no subsoil resource; the topsoils overlie chalk.

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SOURCES OF REFERENCE

British Geological Survey (1976) *Sheet No., Solid and Drift Edition, 1:50,000 scale.*
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Soils of England and Wales, Sheet 6, Soils of South East England. 1:250,000 scale, and accompanying legend.*
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS 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 (e.g. 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.

APPENDIX II

SOIL DATA

Contents:

Sample location map

Soil abbreviations - explanatory note

Soil boring descriptions (boring and horizon levels)

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	**OTH**	Other
DCW:	Deciduous woodland	**BOG:**	Bog or marsh	**SAS:**	Set-Aside
HTH:	Heathland	**HRT:**	Horticultural crops	**PLO:**	Ploughed

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	**ST**:	Topsoil Stoniness
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
EX:	Exposure				

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

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	**MD**:	moderately developed
	ST:	strongly developed		
Ped size	**F**:	fine	**M**:	medium
	C:	coarse		
Ped shape	**S**:	single grain	**M**:	massive
	GR:	granular	**AB**:	angular blocky
	SAB:	sub-angular blocky	**PR**:	prismatic
	PL:	platy		

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

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

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 appropriate 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

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	SU86608310	BAR	N	1			1	2	88	-20	93	-8	3A				WD	2	DRT055
2	SU86708310	BAR	N	2			1	2	100	-8	107	6	3A				WD	2	DRT075 SEE1P
3	SU86608300	BAR					1	1	94	-14	102	1	2				DR	2	DRT065 SEE1P
4	SU86708300	BAR	N	1			1	1	120	12	112	11	3A				DR	2	DRT093 SEE1P
5	SU86808300	PGR		0			1	1	73	-35	76	-25	3B			Y	DR	3B	QMETH&roots
6	SU86948300	WHT	N	2			1	2	60	-48	60	-41	3B				DR	3A	IMPQRDR
7	SU86608293	BAR			30	78	2	2	128	20	101	0	2				WD	2	
8	SU86708290	BAR					1	1	114	6	113	12	2				DR	2	DRT088 SEE1P
9	SU86828287	WHT					1	2	145	37	115	14	1				WE	2	
10	SU86928290	WHT					1	1	97	-11	106	5	3A				DR	2	DRT070 SEE1P
11	SU86608280	BAR			28	52	3	3A	130	22	107	6	2				WE	3A	SEE 2P
12	SU86708280	BAR					1	2	96	-12	111	10	3A				WD	2	See 2P
13	SU86828280	WHT					1	1	114	6	110	9	2				DR	2	DRT093 SEE1P
14	SU86608270	BAR			35	35	4	3B	94	-14	105	4	3A				WE	3B	SEE 2P
15	SU86708270	BAR			27		2	2	101	-7	107	6	3A				WD	2	DRT077 SEE1P
16	SU86808270	BAR					1	2	101	-7	112	11	3A				DR	2	PROB 2
17	SU86708260	BAR	W	1	70	35	3	3A	125	17	102	1	2				WE	3A	SEE 2P
18	SU86768318	BAR	SW	3			1	1	110	2	111	10	3A				DR	2	DRT082 SEE1P
1P	SU86928290	WHT					1	1	130	22	107	6	2				DR	2	PIT70
2P	SU86608280	BAR			33	60	3	3A	133	25	110	9	2				WE	3A	PIT80 AUG120

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	IMP	SPL	CALC	
1	0-25	HCL	10YR43						0	0	HR	4						Y	
	25-58	HZCL	10YR54	75YR46	F				0	0	CH	25		M				Y	IMPCHALK
2	0-22	HCL	10YR43						0	0	HR	4						Y	
	22-65	HZCL	10YR5456						0	0	CH	25		M				Y	
	65-75	CH	10YR81						0	0	HR	5		P				Y	IMPCHALK
3	0-27	MCL	10YR42						0	0	HR	4						Y	
	27-39	HCL	75YR44	75YR46	F				0	0	HR	5		M				Y	
	39-55	HZCL	25Y54						0	0	CH	15		M				Y	
	55-65	MZCL	25Y74						0	0	CH	45		M				Y	SEE1P
4	0-27	MCL	10YR43						0	0	HR	4							
	27-55	C	10YR46						0	0	HR	5		M					
	55-93	HZCL	25Y64						0	0	CH	25		M				Y	SEE1P
5	0-22	MCL	10YR43						0	0	HR	2							
	22-60	CH							0	0	HR	1		M					
6	0-24	HCL	10YR43						0	0	HR	4						Y	
	24-32	HZCL	10YR54						0	0	CH	45		M				Y	
	32-40	CH	10YR81						0	0	HR	5		P				Y	
7	0-30	MCL	10YR42						0	0	HR	4							SL.SANDY
	30-52	SCL	25Y54	10YR56	C			S	0	0	HR	2		M					
	52-78	LMS	10YR66						0	0		0		M					
	78-120	C	25Y61	75YR46	C			Y	0	0		0		P			Y		CLAY+SANDYLENSES
8	0-27	MCL	10YR43						0	0	HR	4							SL.SANDY
	27-54	C	10YR46						0	0	HR	5		M					SL.SANDY
	54-68	C	25Y54	75YR46	C			S	0	0	HR	2		M				Y	SL.SANDY
	68-88	HZCL	25Y64						0	0	CH	25		M				Y	SEE1P
9	0-28	HCL	10YR43						0	0	HR	4						Y	
	28-39	HCL	10YR46						0	0	HR	5		M					SL.SANDY
	39-90	C	75YR58						0	0		0		M					SL.SANDY
	90-120	SCL	10YR58						0	0		0		M					
10	0-25	MCL	10YR43						0	0	HR	4							
	25-38	C	10YR44	10YR56	C			S	0	0	HR	5		M					
	38-65	HZCL	10YR5464						0	0	CH	35		M				Y	
	65-70	CH	10YR81						0	0	HR	5		P				Y	SEE1P/IMPFLINT
11	0-28	MCL	10YR42						0	0	HR	4							SL.SANDY
	28-52	SCL	25Y62	75YR46	C			Y	0	0	HR	2		M					
	52-120	C	25Y72	10YR56	C			Y	0	0		0		P			Y		SEE2P
12	0-26	HCL	10YR43						0	0	HR	4							SL.SANDY
	26-70	C	75YR46						0	0	HR	5		M					IMP70FLINT

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
13	0-27	MCL	10YR42						0	0	HR	4						Y	
	27-35	HCL	10YR44						0	0	HR	5		M					
	35-55	C	10YR5456						0	0	HR	10		M				Y	
	55-93	C	10YR54						0	0	CH	15		M				Y	
14	0-35	MCL	10YR42						0	0	HR	4							SL.SANDY
	35-62	C	25Y6364	10YR56	C			Y	0	0	HR	2		P		Y			
	62-70	SC	25Y64	75YR46	M			Y	0	0	HR	2		P		Y			SEE2P/IMP70FLINT
15	0-27	MCL	10YR43						0	0	HR	4							SL.SANDY
	27-46	C	25Y54	75YR46	M			S	0	0	HR	2		P					NOSPL <15CM
	46-77	HZCL	25Y64						0	0	CH	25		M				Y	SEE1P/IMP77FLINT
16	0-27	HCL	10YR43						0	0	HR	4						Y	
	27-75	C	10YR44						0	0	HR	5		M					IMP75FLINT
17	0-35	MCL	10YR43						2	0	HR	4							SL.SANDY
	35-70	C	25Y54	75YR46	C	D		S	0	0	HR	10		P		Y			
	70-105	C	25Y64	75YR46	M	D		Y	0	0	HR	5		P		Y			
	105-120	C	25Y6373	75YR46	M			Y	0	0		0		P		Y			SEE2P
18	0-28	MCL	10YR43						0	0	HR	4						Y	
	28-38	HCL	75YR46						0	0	CH	5		M				Y	+2%flint
	38-82	MZCL	10YR74						0	0	CH	30		M				Y	SEE1P/+2%FLINTS
1P	0-28	MCL	10YR43						0	0	HR	4	MDCSAB	FR				Y	PIT70 AUG110/AB10
	28-41	C	10YR54						0	0	HR	5	MDCPR	FM	P	Y		Y	
	41-110	HZCL	25Y74						0	0	CH	30	MDCSAB	FR	M			Y	+10%FLINTS
2P	0-33	MCL	10YR42						0	0	HR	4	MDCSAB	FR					
	33-60	SCL	10YR53	75YR46	C		10YR44	Y	0	0	HR	2	MDCSAB	FR	M	N			
	60-120	C	25Y71	10YR56	M		25YY71	Y	0	0	HR	2	WKCAB	VF	P	Y		Y	PIT80 AUG120/AB11