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TEST VALLEY LOCAL PLAN REVIEW
Sites 114 117 Romsey Hampshire
Agricultural Land Classification
ALC Map & Report
Semi Detailed Survey

January 1997

Resource Planning Team
Eastern Region
FRCA Reading

RPT Job Number 1512/188/96
FRCA Reference EL 15/00292
LURET Job Number 02467

AGRICULTURAL LAND CLASSIFICATION REPORT

TEST VALLEY LOCAL PLAN REVIEW
SITES 114 117 ROMSEY HAMPSHIRE

INTRODUCTION

1 This summary report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey on approximately 89 hectares of land between Upton Lane and Coldharbour Lane at Upton near Romsey in Hampshire The survey was carried out during January 1997

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Test Valley Local Plan Review The results of this survey supersede any previous ALC information for this land

3 Prior to the 1st April 1997 the work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS After this date the work was completed by members of the same team as part of the Farming and Rural Conservation Agency (FRCA) Reading 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 in either permanent pasture or arable use Land shown as Other mainly comprises woodland farm buildings residential and school buildings an electricity sub station and various trackways

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 below

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	/ surveyed area	/ site area
2	19 3	30 5	21 9
3a	4 2	6 6	4 7
3b	39 9	62 9	45 0
Other land	25 2	N/A	28 4
Total surveyed area	63 4	100 0	71 6
Total site area	88 6		100 0

7 The fieldwork was conducted at an average density of approximately 1 boring every 2 hectares A total of ɔ7 borings and 4 soil pits were described

8 To the north and west of the site the agricultural land has been classified as Grade 2 (very good quality) The soil profiles comprise variably stony medium textured topsoils over heavier subsoils At depth the profiles generally become poorly structured thus impeding drainage and causing slight seasonal wetness As a result seed germination and crop development will be inhibited and the timing and flexibility of cultivations will be restricted In this local climatic regime the combination of soil textures structures and stone content also reduces the amount of profile available water for crops in some borings This land is therefore limited by either a minor soil wetness and/or soil droughtiness limitation

9 In the north west corner of the site the land has been classified as Subgrade 3a Some of these profiles are similar to those described above However the poorly structured subsoils occur at slightly shallower depths and therefore lead to a slightly more severe soil wetness limitation In general however the soil profiles are better drained comprising very slightly to moderately stony medium and heavy textured topsoils and upper subsoils over gravel at moderate depths Soil droughtiness is therefore limiting in these areas

10 The majority of the agricultural land on this site has been classified as Subgrade 3b (moderate quality) mainly due to a soil droughtiness limitation Most of these soil profiles comprise moderately or very stony medium textured topsoils and upper subsoils over gravel at shallow depths The amount of profile available water for crops is therefore significantly depleted resulting in less consistent crop yields Other profiles in this mapping unit are limited by soil wetness Here the poorly structured clays occur at shallow depths thus causing prolonged waterlogging In addition a small area to the south of the site is believed to have been disturbed during the construction of the M27

FACTORS INFLUENCING ALC GRADE

Climate

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

12 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	N/A	SU 368 174	SU 365 166	SU 375 169
Altitude	m AOD	25	10	45
Accumulated Temperature	day°C (Jan June)	1527	1545	1505
Average Annual Rainfall	mm	826	822	833
Field Capacity Days	days	173	172	174
Moisture Deficit Wheat	mm	108	110	106
Moisture Deficit Potatoes	mm	102	105	99
Overall climatic grade	N/A	Grade 1	Grade 1	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 However climatic factors can interact with soil properties to influence soil wetness and droughtiness At this locality the field capacity day values are relatively high which will have an impact upon the assessment of soil wetness

16 Local climatic factors such as frost risk and exposure are unlikely to adversely affect agricultural land use on this site The site is climatically Grade 1

Site

17 The land on this site is gently undulating ranging in height from 9m AOD in the south west to 48m AOD in the north east

18 Gradient microrelief and flooding do not affect land quality in this area

Geology and soils

19 The relevant geological sheet (BGS 1987) maps London Clay across all of this site with a narrow band of the Nursling Sand cycle trending south west north east However drift deposits overlie most of this solid geology comprising river terrace deposits which trend north south in three broad bands

20 The most recently published soils information for this area (SSEW 1983) maps the Hurst soil association across most of the site with a small area of Wickham 3 soils across the north east corner and a narrow strip of Hamble 2 soils down the western edge The Hurst association soils are described as comprising Coarse and fine loamy permeable soils mainly over gravel variably affected by groundwater (SSEW 1983) while the Wickham 3 soil association are as described as Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging Some deep coarse loamy soils affected by groundwater Landslips with irregular terrain locally (SSEW 1983) The Hamble 2 soils on the other hand are described

as Deep stoneless well drained silty soils and similar soils affected by groundwater over gravel locally Usually flat land (SSEW 1983)

21 Detailed field examination broadly confirmed the existence of soils similar to those described above

AGRICULTURAL LAND CLASSIFICATION

22 The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1 page 2

23 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

24 A narrow strip of land to the north and west of the site has been classified as Grade 2 The soil profiles comprise slightly stony (4 15% flints by v/v with 6 8% >2cm in diameter) medium clay loam topsoils over moderately well structured slightly to moderately flinty (5 20%) medium heavy or sandy clay loam upper subsoils At 70 85cm depth most profiles become impenetrable to the soil auger However soil inspection Pits 1 and 2 show that the soil resource continues to depth with a combination of moderately well structured moderately to very stony (18 45%) medium and heavy clay loam or clay lower subsoils The combination of soil textures structures and the high stone content slightly reduces the amount of available water for crops In addition the amount of large stones (i e those >2cm in diameter) in the topsoil may damage root crops and causes increased wear on farm machinery or tyres This land is therefore equally limited by soil droughtiness and/or topsoil stoniness limitations

25 Some of these borings are also limited to Grade 2 due to soil wetness These profiles are gleyed from the upper subsoil probably as a result of fluctuating groundwater levels and have therefore been classified as Wetness Class II Wet soils such as these in combination with the locally warm and wet climatic regime and the medium clay loam topsoils are susceptible to structural damage through over trafficking by agricultural machinery and grazing livestock As a result the timing and flexibility of cultivations is slightly restricted

26 Occasional borings of slightly higher or lower quality were also included in this mapping unit as they were too limited in number and extent to map separately

Subgrade 3a

27 A small area of Subgrade 3a land has been mapped in the north west corner of the site The soil profiles here are similar to those described as Grade 2 in paragraph 24 above so a separate pit was unnecessary The main difference between the two mapping units is that the Subgrade 3a profiles become impenetrable to the soil auger at slightly shallower depths (60 68cm) As a result there is less profile available moisture for crops which leads to a slightly more severe soil droughtiness limitation Occasional poorly structured slowly permeable subsoils also occur thus causing a slight drainage impedance This land has therefore been classified as wetness class III and is placerd in Subgrade 3a due to the combination of the

slightly wet soils medium textured topsoils and the local climatic regime Soil wetness and/or droughtiness wetness is therefore limiting on this part of the site

Subgrade 3b

28 The majority of the agricultural land on this site has been classified as Subgrade 3b the main limitation is soil droughtiness Most profiles comprise variably stony (2 30 total flint by v/v with 0 20% measuring >2cm in diameter) medium clay loam topsoils over moderately well structured medium and heavy clay loam or clay upper subsoils with 15% to 50% flint At 20 48cm depth the profile becomes impenetrable to the soil auger over gravel However soil inspection Pit 3 shows that the gravel only occurs as a narrow band that is relatively loose thus allowing roots to reach the less stony (54% flint) sandy clay loam lower subsoil beneath Despite the extra soil resource the combination of soil textures structures and high stone contents significantly reduces amount of available water for crops This land is therefore distinctly drought prone There is also a significant topsoil stoniness limitation where the amount of large topsoil stones (i e >2cm in diameter) exceeds 15% of the soil volume

29 Other profiles within the Subgrade 3b mapping unit comprise variably stony (2 25% total flint) medium clay loam topsoils over gleyed moderately well structured medium and heavy clay loam upper subsoils with 0 35% flint At 35-46cm depth the profile becomes distinctly less stony (0 20%) The lower subsoils comprise poorly structured slowly permeable clay subsoils which significantly impede drainage through the profile In this local climatic regime the soil wetness limitation is consistent with Wetness Class IV and the land is placed in Subgrade 3b due to the fact that wet soils such as these can restrict crop establishment and reduce the period of time when the land can be effectively cultivated

30 A small area of land to the south of Northcliffe School is believed to have been disturbed by the temporary erection of a site office during the construction of the M27 The soil profiles here could not be examined to depth they comprise medium clay loam topsoils which become impenetrable to the soil auger at approximately 20cm depth This may be due to the presence of building rubble which will significantly reduce the level of profile available water and nutrients for crops If it is consolidated and cannot be penetrated by cultivation implements or plant roots it will also provide insufficient anchorage for plants as well as cuasing damage to agricultural equipment This land is therefore limited to Subgrade 3b due to a soil droughtiness and soil depth limitation

31 Again some of the profiles within this mapping unit are of either slightly higher or lower quality They have not been mapped separately however as they are too limited in number and extent

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SOURCES OF REFERENCE

British Geological Survey (1973) Sheet *315 Southampton* 1 50 000 Series Solid & Drift
BGS London

British Geological Survey (1980) Sheet *299 Winchester* 1 50 000 Series Solid & Drift
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) *Sheet 6 Soils of South East England*
SSEW Harpenden

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
SSEW Harpenden

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

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	**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 **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 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

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 114 117 Pit Numbe 1P

G id Reference SU36491701 Ave ge A nual Rainfall 826 mm
Accumul ted Tempe ature 1527 degree days
Field Capacity Level 173 days
Land Use Permane t G as
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 26	MCL	10YR42 00	0	4	HR					
26 45	MCL	10YR43 00	0	10	HR		MDCSAB	FR	M	
45- 90	C	75YR53 00	0	18	HR		WKCSAB	FR	M	
90-120	C	75YR53 00	0	20	HR				M	

Wetness G ade 1 Wetness Class I
Gleying cm
SPL No SPL

Drought Grade 2 APW 125mm MBW 17 mm
APP 106mm MBP 4 mm

FINAL ALC GRADE 2
MAIN LIMITATION Droughtines

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 114 117 P t N mbe 2P

G id Reference SU37391687 Average A nual Rai fall 826 mm
Accumulated Temperature 1527 degree days
Field Capacity Level 173 days
Land U e Cereals
Slope and Aspect 04 degrees W

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 28	MCL	10YR43 00	6	12	HR					
28- 45	MCL	10YR63 53	0	10	HR	C	MDCSAB	FR	M	
45- 67	HCL	10YR62 00	0	8	HR	M	MDCSAB	FR	M	
67 105	MCL	10YR71 72	0	37	HR	M			M	
105-120	MCL	10YR71 72	0	45	HR	M			M	

Wetness Grade 2 Wetness Cla II
Gleying 028 cm
SPL No SPL

Drought G ade 2 APW 126mm MBW 18 mm
APP 105mm MBP 3 mm

FINAL ALC GRADE 2
MAIN LIMITATION Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 114 117 Pit Number 3P

G id Reference SU369 1710 Ave age A nu l Rai fall 826 mm
Accumul ted Tempe ature 1527 degree d ys
Field Capacity Level 173 days
Land Use A ble
Slope nd Aspect 01 degrees W

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 28	MCL	10YR42 00	7	27	HR					
28 47	MCL	10YR41 51	0	41	HR			FR	M	
47 77	GH	10YR53 00	0	0					M	
77 120	SCL	25Y 63 00	0	54	HR	C		FM	P	

Wetness G ade 1 Wetnes Cla s I
Gleying 077 cm
SPL No SPL

Drought Grade 3B APW 77 mm MBW 31 mm
APP 61 mm MBP 41 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 114 117 Pit Numbe 4P

G id Reference SU37391690 Ave age Annual Rainfall 826 mm
Acc mulated Temperature 1527 degree d ys
Field Capacity Level 173 d ys
L nd Use A able
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 29	MCL	10YR43 00	9	20	HR					
29 46	MCL	10YR53 00	0	30	HR	C			M	
46 70	C	10YR64 00	0	10	HR	M	WKCSAB	FM	P	

Wetness Grade 3B Wetness Class IV
Gleying 029 cm
SPL 046 cm

Drought Grade 3B APW 79 mm MBW 29 mm
APP 90 mm MBP 12 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS- CLASS	GRADE	-WHEAT AP	MB	POTS- AP	MB	DRT	M REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU36491697	CER			045	045	3	3A	88	20	94	-8	3A				WD	3A	I60 Flints
1P	SU36491701	PGR					1	1	125	17	106	4	2				DR	2	At AB 24
2	SU36611746	CER	W	04	032	050	3	3A	96	12	95	7	3A				WE	3A	I85 Fli ts
2P	SU37391687	CER	W	04	028		2	2	126	18	105	3	2				WD	2	At AB 4
3	SU36391750	CER					1	1	97	11	106	4	3A				DR	2	I68 See 2P
3P	SU369 1710	ARA	W	01	077		1	1	77	31	61	-41	3B				DR	3B	Pots Limit
4	SU37391687	CER	W	04	025		2	2	99	9	111	9	3A				WD	2	I70 See 2P
4P	SU37391690	ARA			029	046	4	3B	79	29	90	12	3B				WE	3B	At AB 31
5	SU36801750	PGR	S	02			1	1	57	51	57	-45	4				DR	3B	3B T/S Stone
6	SU36491740	PGR	E	03			1	1	58	50	58	-44	3B				DR	3B	I40 V Flinty
7	SU36691740	PLO	W	04	035		2	2	64	-44	64	38	3B				DR	3B	I45 V Flinty
8	SU36901740	ARA	W	02			1	1	93	15	98	-4	3A				DR	2	I75 See 2P
9	SU36401730	CER					1	1	82	26	84	18	3B				DR	3A	I55 Fli ts
10	SU36591731	CER	W	04	050		1	1	147	39	113	11	1					1	
11	SU36791730	SAS	W	01	030		2	2	65	43	65	37	3B				DR	3B	I47 See 3P
12	SU37001730	SAS	W	03			1	1	44	64	44	58	4				DR	3B	I35 See 3P
13	SU37181726	PGR	W	01	033	050	3	3A	107	1	98	-4	3A				WE	3A	
14	SU36391720	PGR			020		2	3A	81	27	85	17	3B				DR	3B	I65 Q Di t bed
15	SU36491720	CER			055	055	3	3A	135	27	112	10	2				WE	3A	
16	SU36691721	CER	W	03	025	025	4	3B	114	6	92	10	2				WE	3B	
17	SU36851719	SAS	W	01	030		2	2	103	5	101	1	3A				WD	2	I85 See 2P
18	SU37091720	PGR	W	02	0	045	4	3B	76	32	83	19	3B				WE	3B	Surface W te
19	SU36591710	CER					1	1	57	51	57	45	4				DR	3B	I35 See 3P
20	SU36791710	SAS	W	01			1	1	63	-45	63	39	3B				DR	3B	I45 See 3P
21	SU37031709	PGR	W	02	0	035	4	3B	76	32	87	15	3B				WE	3B	Surface Wate
22	SU37201710	PGR	W	01	065	065	2	2	102	6	100	2	3A				WD	2	I88 Flints
23	SU37391710	STB			075	090	1	1	136	28	105	3	2				DR	2	
24	SU36491701	PGR					1	1	59	-49	59	43	3B				DR	2	I35 See 1P
25	SU36771700	SAS	W	01			1	1	66	42	66	36	3B				DR	3B	I45 See 3P
26	SU37101700	PGR	N	01			1	1	60	-48	60	42	3B				DR	3B	I45 See 3P
27	SU37261699	PGR					1	1	47	61	47	55	4				DR	3B	I35 See 3P
28	SU36591690	PGR	W	02			1	1	99	9	109	7	3A				DR	2	I70 See 2P/1P
29	SU37031685	PGR	S	01	0	028	4	3A	46	62	46	56	4				DR	3B	I35 V Fli ty
30	SU37171691	PGR	S	02	028	035	4	3A	98	10	96	6	3A				WE	3A	
31	SU37391690	ARA			032	046	4	3B	97	11	99	3	3A				WE	3B	I85 Flints
32	SU36501681	PGR					1	1	35	73	35	67	4				DR	3B	I20 See 3P
33	SU36401671	PGR			0		2	3B	49	59	49	53	4				WD	3B	I30 See 3P
34	SU37001670	PGR	S	01			1	1	56	52	56	46	4				DR	3B	I40 See 3P
35	SU36501661	PGR	E	01	030	045	4	3B	150	42	112	10	1				WE	3B	
36	SU36691661	PGR					1	1	35	73	35	67	4				DR	3B	Imp Q Dist bed
37	SU36591650	PGR					1	1	38	70	38	64	4				DR	3B	Imp Q Dist bed

				MOTTLES			PED		STONES				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1	0 30	mcl	10YR43 00						2	0	HR	5						
	30-45	hcl	10YR54 00	10YR58 00	C		00MN00 00	S	0	0	HR	2		M				Soft
	45-60	c	10YR64 00	10YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y	Firm/Imp Fli ts
1P	0 26	mcl	10YR42 00						0	0	HR	4						
	26 45	mcl	10YR43 00						0	0	HR	10	MDCSAB	FR	M			
	45-90	c	75YR53 00						0	0	HR	18	WKCSAB	FR	M			
	90 120	c	75YR53 00						0	0	HR	20		M				
2	0 32	mcl	10YR53 00						11	4	HR	16						
	32 50	mcl	10YR63 00	10YR58 00	C		00MN00 00	Y	0	0	HR	20		M				Moist
	50-85	hcl	05Y 62 00	75YR68 00	M			Y	0	0	HR	5		P			Y	V Firm with nd
2P	0 28	mcl	10YR43 00						6	0	HR	12						Few MN Concs
	28-45	mcl	10YR63 53	10YR58 00	C		00MN00 00	Y	0	0	HR	10	MDCSAB	FR	M			
	45-67	hcl	10YR62 00	75YR46 00	M		00MN00 00	Y	0	0	HR	8	MDCSAB	FR	M			
	67 105	mcl	10YR71 72	10YR58 00	M		00MN00 00	Y	0	0	HR	37		M				Wet Sieved
	105-120	mcl	10YR71 72	10YR58 00	M		00MN00 00	Y	0	0	HR	45		M				
3	0 32	mcl	10YR43 00						2	0	HR	5						
	32 50	mcl	10YR44 00						0	0	HR	5		M				
	50 68	hcl	10YR54 00	10YR58 00	C		00MN00 00	S	0	0	HR	20		M				Imp Fli t
3P	0 28	mcl	10YR42 00						7	2	HR	27						Wet Sieved All
	28 47	mcl	10YR41 51						0	22	HR	41		FR	M			MN Concs
	47 77	gh	10YR53 00						0	35		0		M				
	77 120	scl	25Y 63 00	10YR58 00	C			Y	0	22	HR	54		FM	P			Roots Continu
4	0 25	mcl	10YR53 00						6	0	HR	10						
	25-35	mcl	10YR63 00	75YR46 00	C		00MN00 00	Y	0	0	HR	5		M				
	35 70	hcl	10YR63 00	75YR46 00	M		00MN00 00	Y	0	0	HR	2		M				Imp Flint
4P	0 29	mcl	10YR43 00						9	0	HR	20						
	29 46	mcl	10YR53 00	75YR66 00	C			Y	0	0	HR	30		M				Moist
	46 70	c	10YR64 00	75YR68 00	M		10YR53 00	Y	0	0	HR	10	WKCSAB	FM	P		Y	Firm
5	0 30	mcl	10YR43 00						20	5	HR	30						
	30 48	mcl	10YR43 00						0	0	HR	40		M				Imp Fli ts
6	0 30	mcl	10YR43 00						9	0	HR	15						
	30 40	hcl	10YR54 00	75YR58 00	C			S	0	0	HR	30		M				I Fli ts not SPL
7	0 35	mcl	10YR52 53						9	0	HR	15						
	35-45	hcl	10YR64 63	10YR68 00	M		00MN00 00	Y	0	0	HR	15		P				Firm/Imp Fli ts
8	0 30	mcl	10YR44 00						8	0	HR	15						
	30 75	mcl	10YR54 00	10YR58 00	C		00MN00 00	S	0	0	HR	20		M				Imp Flints

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
9	0 30	mcl	10YR43 00						4	0	HR	10							
	30 50	mcl	10YR44 00						0	0	HR	10		M					
	50 55	mcl	10YR44 00						0	0	HR	20		M					Imp Fli ts
10	0 28	mcl	10YR42 00						1	0	HR	4							
	28 50	mcl	10YR44 54						0	0	HR	5		M					
	50 95	hcl	10YR51 00	10YR46 00	C			Y	0	0	HR	5		M					
	95-120	msl	25Y 61 00	10YR68 00	M			Y	0	0	HR	20		M					
11	0 30	mcl	10YR42 00						5	0	HR	15							
	30-45	mcl	10YR42 00	10YR66 00	C			Y	0	0	HR	30		M					Sl Sandy
	45-47	mcl	10YR62 00	10YR66 00	C			Y	0	0	HR	50		M					Wet/Imp Flints
12	0 25	mcl	10YR42 00						12	0	HR	25							
	25-35	mcl	10YR44 54						0	0	HR	40		M					Imp Flints
13	0 33	mcl	10YR42 00						6	0	HR	12							
	33-50	scl	10YR64 00	10YR58 00	C			Y	0	0	HR	20		M					
	50 100	c	25Y 72 00	75YR68 00	M			Y	0	0	HR	5		P		Y			
14	0 20	hcl	10YR42 00						0	0	HR	5							
	20 35	c	10YR52 00	10YR46 00	C		00MN00 00	Y	0	0	CH	10		P					
	35-55	hzcl	10YR81 64					Y	0	0	CH	50		M				Y	
	55-65	msl	10YR62 00					Y	0	0	HR	65		P					Imp Fli ts
15	0 28	mcl	10YR42 00						0	0	HR	2							Sl Sandy
	28 35	hcl	10YR43 00						0	0		0		M					
	35-55	hcl	10YR54 52	10YR56 00	C			Y	0	0		0		M					Few MN Concs
	55-120	c	25Y 52 00	10YR56 00	M			Y	0	0		0		P		Y			
16	0 25	mcl	10YR42 00						12	0	HR	20							
	25 120	c	25Y 61 00	10YR68 00	M			Y	0	0	HR	5		P		Y			
17	0 30	mcl	10YR42 00						8	0	HR	15							Sl Sadny
	30 45	scl	10YR62 00	10YR66 00	C			Y	0	0	HR	20		M					
	45 80	hcl	25Y 62 00	10YR58 00	M			Y	0	0	HR	10		M					Sl Sandy
	80 85	scl	25Y 62 00	10YR58 00	M			Y	0	0	HR	30		M					Imp Flints
18	0 28	mcl	10YR41 51	10YR46 00	C			Y	11	0	HR	25							
	28-45	mcl	25Y 61 00	10YR58 00	M			Y	0	0	HR	35		M					
	45-75	c	25Y 51 00	75YR58 00	M			Y	0	0	HR	20		P		Y			
19	0 30	mcl	10YR42 00						1	0	HR	3							
	30 35	mcl	10YR43 00	10YR46 00	C			S	0	0	HR	40		M					Imp Flints
20	0 30	mcl	10YR42 00						5	0	HR	12							
	30 45	mcl	10YR43 53						0	0	HR	40		M					Imp Fl nts

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6 LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
21	0 25	mcl	10YR42 00	10YR46 00	C			Y	10	0 HR	25							
	25-35	hcl	10YR63 00	10YR68 00	C			Y	0	0 HR	30		M					
	35-70	c	25Y 62 00	10YR58 68	M			Y	0	0 HR	10		P			Y		
22	0 25	mcl	10YR43 00						6	0 HR	12							
	25-50	mcl	10YR43 00						0	0 HR	15		M					
	50 65	scl	10YR54 00	10YR58 00	C			S	0	0 HR	15		M					
	65-88	c	10YR63 56	75YR58 00	M			Y	0	0 HR	10		P			Y		
23	0 25	mcl	10YR43 00						6	0 HR	12							
	25-40	mcl	10YR53 00						0	0 HR	8		M					
	40 75	msl	10YR63 00						0	0 HR	5		M					
	75-90	scl	10YR64 00	10YR56 00	M			Y	0	0 HR	10		M					
	90 120	c	05Y 63 00	05YR58 00	M			Y	0	0 HR	5		P			Y		
24	0 25	mcl	10YR43 00						0	0 HR	2							
	25-35	mcl	10YR43 00						0	0 HR	5		M					Imp Flints
25	0 30	mcl	10YR42 00						8	0 HR	12							
	30 40	mcl	10YR44 54						0	0 HR	20		M					Sl Sandy
	40 45	mcl	10YR54 00	10YR56 00	C			S	0	0 HR	40		M					Wet/Imp Flint
26	0 28	ms l	10YR42 41						12	0 HR	20							
	28-45	mcl	10YR43 00						0	0 HR	40		M					Imp Fli ts
27	0 25	mcl	10YR43 00						9	0 HR	18							
	25-35	mcl	10YR53 52						0	0 HR	40		M					Imp Flints
28	0 25	mcl	10YR43 00						0	0 HR	2							
	25-70	mcl	10YR54 00						0	0 HR	10		M					Imp Fli ts
29	0 28	mszl	10YR41 51	10YR46 00	C			Y	17	0 HR	25							
	28 35	c	25Y 62 00	10YR58 68	M			Y	0	0 HR	40		P			Y		Imp Flints
30	0 28	mszl	10YR42 00						12	0 HR	20							
	28 35	hcl	10YR63 00	10YR68 00	C			Y	0	0 HR	35		M					
	35-90	c	25Y 61 62	10YR58 68	M			Y	0	0	0		P			Y		
31	0 32	mcl	10YR43 00						9	0 HR	15							
	32-46	mcl	10YR63 64	10YR58 00	C			Y	0	0 HR	10		M					
	46-85	c	10YR53 62	25YR48 00	M			Y	0	0 HR	8		P			Y		Imp Flints
32	0 20	mcl	10YR42 00						0	0 HR	4							Imp Flints
33	0 30	c	10YR42 00	000C00 00	M			Y	0	0 HR	5							Imp Fli ts
34	0 25	mszl	10YR42 00						4	0 HR	15							
	25-40	mcl	10YR43 00						0	0 HR	40		M					Imp Flints

				-MOTTLES			PED		STONES			STRUCT/	SUBS					
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
35	0-30	mcl	10YR43 00						0	0	HR	2						
	30-45	mcl	10YR62 00	000C00	00	C		Y	0	0		0		M				
	45-60	c	10YR62 00	000C00	00	M		Y	0	0		0		P	Y		Y	
	60 120	hcl	10YR62 00	000C00	00	M		Y	0	0		0		M			Y	
36	0 20	mcl	10YR43 00						0	0	HR	2						Imp Distu bed
37	0 22	mcl	10YR42 00						0	0	HR	5						Imp Distu bed