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TEST VALLEY LOCAL PLAN REVIEW
Sites 64 68 Land North of Sandy Lane
Abbotswood Hampshire

Agricultural Land Classification
ALC Map and Report
April 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

TEST VALLEY BOROUGH LOCAL PLAN REVIEW
SITES 64 68 LAND NORTH OF SANDY LANE ABBOTSWOOD NEAR ROMSEY HAMPSHIRE
SEMI DETAILED SURVEY

INTRODUCTION

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of 79 4 hectares of land located to the north of Sandy Lane in Abbotswood to the north east of Romsey in Hampshire The field survey work 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 Borough Local Plan Review The results of this survey supersede any previous ALC information for this land

3 Prior to 1 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 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 majority of the agricultural land at the site was in permanent grass To the south east of the site there was an area in horticultural production (nursery stock) To the south west there were two former gravel pits either side of a track These have been very poorly restored to a lower level if at all The areas shown as Other Land include a number of private dwellings an area of glasshouses an indoor pig unit cattle buildings a bottled gas storage centre a builders yard a pond and some woodland The area shown as Agricultural Land not Surveyed was a free range chicken and duck enterprise to which access was denied by the owner

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 slightly greater than 1 boring in every 2 hectares A total of 43 borings and two soil pits were described

8 The agricultural land on this site has been classified as Subgrade 3a (good quality) Subgrade 3b (moderate quality) Grade 4 (poor quality) and Grade 5 (very poor quality) Limitations to land quality include soil wetness soil droughtiness and land being disturbed

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	/ surveyed area	/ site area
3a	20 6	25 9	34 8
3b	28 6	48 4	36 0
4	5 0	8 5	6 3
5	4 9	8 3	6 2
Agricultural land not surveyed	2 6	N/A	3 3
Other land	17 7	N/A	22 3
Total surveyed area	59 1	100	74 4
Total site area	79 4		100

9 Subgrade 3a quality land has been mapped across the centre and south east of the site The principal limitations are soil wetness and soil droughtiness The soil profiles in the area which are limited by soil wetness commonly comprise a either medium or coarse loamy topsoil which passes to either a medium loamy upper subsoil over clay or passes directly to clay The profiles show evidence of a drainage impedance sufficient given the local climate to place these soils in Subgrade 3a on the basis of soil wetness (see para 10 for the effect of this limitation) The areas limited by soil droughtiness to Subgrade 3a are located principally towards the south east of the site The soils commonly comprise a coarse loamy or sandy topsoil overlying similar subsoils which were commonly slightly stony and occasionally overlie clay at depth In the local climate these non moisture retentive soils are appropriately placed in Subgrade 3a Soil droughtiness affects plant growth and yield especially in drier years

10 Subgrade 3b quality land has been mapped across the north of the site The principal limitation in this area is soil wetness The soils commonly comprise a medium loamy topsoil and upper subsoil passing to clay at a shallow depth The profiles show evidence of drainage imperfections such that Subgrade 3b is appropriate Soil wetness restricts land utilisation by reducing the number of days when trafficking by machinery or grazing by animals may occur without damaging the soil

11 The area of Grade 4 mapped towards the south east of the site is shown in a location where hydrophilic vegetation is common on a low lying area of land The land in this area is wet for much of the year restricting agricultural land use in this area to a level where Grade 4 is appropriate

12 Other areas of Grade 4 and Grade 5 quality land are shown towards the south west of the site In these areas gravel extraction has occurred The areas shown as Grade 4 have either been partially restored with inert material overlain by a shallow very stony medium loam topsoil or comprise gravel beneath a very stony medium loam topsoil The areas shown as Grade 5 do not appear to have been restored Soil materials in this area comprise very

shallow extremely stony medium loam upper horizon overlying a banded sand substrate Without remedial treatment agricultural land uses in these areas are severely restricted

FACTORS INFLUENCING ALC GRADE

Climate

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

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

15 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 362 241	SU 366 240	SU 370 236
Altitude	m, AOD	25	40	50
Accumulated Temperature	day°C (Jan June)	1524	1507	1496
Average Annual Rainfall	mm	800	805	811
Field Capacity Days	days	174	174	175
Moisture Deficit Wheat	mm	110	108	107
Moisture Deficit, Potatoes	mm	105	102	100
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

16 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

17 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation Local climatic factors such as exposure and frost risk, are not believed to significantly affect this area The site is climatically Grade 1

Site

18 The site lies at altitudes in the range 25 50m AOD the highest land being towards the south east The north of the site encompasses two valley features cut back into the main slope separated by a rolling landscape which gently falls to lower ground in the north The south of the site is commonly flatter except towards the east where the landscape is again

dissected by valley features None of the slopes on the site are of sufficient gradient to affect land quality

Geology and soils

19 The published geological information for the site (BGS 1974) shows the northern half of the site to be underlain by London Clay The southern half is underlain by Bagshot Sands with an area of plateau gravel drift deposit to the south west

20 The most detailed published soils information for the site (SSEW 1983 and 1984) shows the site to comprise soils of the Windsor and Shirrell Heath 2 associations The Windsor soils are indicated to the north where London Clay is mapped These soils are described as Slowly permeable seasonally waterlogged clayey soils mostly with brown subsoils Some fine loamy over clayey and fine silty over clayey soils and locally on slopes clayey soils with only slight seasonal waterlogging (SSEW 1983) The Shirrell Heath soil type is mapped towards the south of the site and is described as Well drained sandy soils with a bleached subsurface horizon sometimes over soft rock mainly on heaths and often very acid Well drained sandy and coarse loamy soils on farmland (SSEW 1983) Soils of the general types described above were found at this site

AGRICULTURAL LAND CLASSIFICATION

21 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

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

Subgrade 3a

23 Land of good quality has been mapped towards the south and south east of the site in a single mapping unit Principal limitations include soil wetness and soil droughtiness

24 Two soil types were observed in this area, one principally limited by soil wetness the other by soil droughtiness The area limited by soil wetness is predominantly located towards the north of the mapping unit in the centre of the site In this area the soils comprise a very slightly stony fine or medium sandy silt loam topsoils which was gleyed sometimes This typically passes to a similar or slightly heavier upper subsoil which overlies a gleyed and slowly permeable poorly structured (see 1P Appendix II) clay lower subsoil The drainage impedance caused by the clay horizon leads this land to be placed in Wetness Class IV Consequently given local climatic factors Subgrade 3a is applied when the workability status of the light topsoils is taken into account Occasionally the topsoil comprises medium clay loam and the slowly permeable clay subsoil occurs at a greater depth such that Wetness Class III is appropriate but because the topsoil is less workable Subgrade 3a is applied Soil wetness restricts land utilisation by reducing the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock as well as adversely affecting crop growth and development

25 The second soil type in this mapping unit is principally located towards the south of the Subgrade 3a map unit and is limited by soil droughtiness Soils in this area are well drained or moderately well drained (Wetness Class I or II) and comprise a very slightly stony (up to 2% v/v total flints) medium sandy loam or loamy medium sand topsoil This passes to similar subsoil horizons which were usually gleyed and considered to be of moderate structure by reference to similar soils in Pit 2 (see Appendix II) On occasion the lower subsoil comprises either medium sand from approximately 85cm or becomes more clayey passing to sandy clay loam and/or clay from between 70 and 95cm These profiles are restricted in terms of their water availability to plants to the extent that moisture balance calculations indicate that Subgrade 3a is the appropriate classification given the local climate Soil droughtiness has the effect of restricting plant growth and yield potential especially in drier years

26 Occasional observations of a slightly better quality have been mapped in this unit as they were of too few a number and too scattered a distribution to constitute a separate mapping unit at this semi detailed scale of survey

Subgrade 3b

27 Land of moderate quality has been mapped in a single unit towards the north of the site The majority of this area is principally limited by soil wetness although soil droughtiness is limiting in certain areas Soils in this area are characterised by the soil pits 1P and 2P (see Appendix II)

28 Soils in this area typically comprise a stoneless to slightly stony medium or heavy clay loam topsoil which may be gleyed These may overlie a narrow gleyed medium or heavy clay loam horizon which passes to poorly structured slowly permeable clay or rest directly over the clay The shallow depth to gleying and clayey slowly permeable horizons lead to Wetness Class IV being appropriate which, given the medium textured topsoil leads to Subgrade 3b being applied due to moderate soil wetness limitations The restriction that this causes is described in para 24 but is more severe in this mapping unit

29 Towards the south of the mapping unit a small area is limited by soil droughtiness The soils in this area are well drained (Wetness Class I) and essentially similar to those described above in para 25 except that the sandy textures have their water retentiveness reduced further by a significant stone content comprising 10% v/v total flints in the topsoil and up to approximately 50% in the loamy medium sand lower subsoil In other cases the profile is more sandy comprising medium sands throughout the subsoil The consequence of this is that these profiles are limited by soil droughtiness to a slightly greater degree than those described above (para 25) with moisture balance calculations indicating a Subgrade 3b classification given the local climate

Grade 4

30 The small area of Grade 4 mapped towards the south east of the site is shown in the vicinity of a wet flush where hydrophilic vegetation is common The land here is wet for much of the year restricting agricultural land use in this area, due to a severe soil wetness limitation

31 Towards the south west of the site the land has been disturbed by gravel extraction To the east the land has been restored to some extent but is still at a lower level than the undisturbed land comprising the remainder of the site The principal limitation on the land mapped as Grade 4 is soil droughtiness

32 Soils in this area are highly variable The topsoil comprises either a medium sandy loam or medium clay loam which is slightly to moderately stony (up to 40% v/v total flints including up to 25% > 2cm) In some cases this was impenetrable to the soil auger at 25 30cm Towards the west some profiles were exposed and these have gravel subsoil horizons overlying a poorly structured heavy clay loam lower subsoil at 95cm Other profiles comprise a stone free poorly structured heavy clay loam upper subsoil passing to stoneless moderately structured medium sand to depth In the local climate these well drained (Wetness Class I) profiles are severely limited by soil droughtiness to the extent that Grade 4 is most appropriate Severe soil droughtiness leads this area to be prone to poor plant growth and yield potential in most years Due to the restricted quality of this land it is best suited to grazing use at a low density of stocking

Grade 5

33 To the west of the area disturbed by gravel extraction, the land does not appear to have been restored after extraction This area is at a lower level than that mapped as Grade 4 Here the soil materials comprise a moderately stony (20% v/v total flints) clay or heavy clay loam upper horizon which was on occasion very shallow (10cm) This overlies a very stony (40% v/v total flints) clay substrate impenetrable to the soil auger and spade at 25 35cm The disturbed nature of this area in combination with the lack of soil resources lead this area to have very severe limitations in terms of agricultural potential such that at the time of survey Grade 5 was the appropriate classification the land being suited to rough grazing use only With remedial work the agricultural potential of this land may be increased

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SOURCES OF REFERENCE

British Geological Survey (1974) *Sheet 299 Winchester 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

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

Soil Survey of England and Wales (1983) *Soils of South East England 1 250 000 Scale*
SSEW Harpenden

Soil Survey of England and Wales (1984) *Soils of South East England. Bulletin No 15*
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

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

SOIL PIT DESCRIPTION

Site Name TESTVALLEYLP SITES64 68 Pit N mbe 1P

G id R ference SU36502410 Aver g Annual Rai f 11 805 mm
Accumulated Tempe ature 1507 degree days
Field Capacity Level 174 days
Land Use Permanent Gra
Slope and Aspect 2 degrees NE

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 22	MCL	10YR41 51	0	3	HR	C				
22 60	C	25Y 61 51	0	0		M	MDCAB	FM	P	

Wetness G ade 3B Wetness Cl ss IV
Gleying 0 cm
SPL 22 cm

Drought G ade APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetnes

SOIL PIT DESCRIPTION

Site Name TESTVALLEYLP SITES64 68 Pit Numbe 2P

G id Reference SU36602390 Average A nual Rai fall 805 mm
Accumul ted Temperature 1507 degree days
Field Capacity Level 174 days
Land Use Ley
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 23	MSL	10YR42 00	2	2	HR					
23- 59	LMS	10YR44 54	0	2	HR	C	WKCAB	VF	M	
59 75	LMS	10YR54 52	0	0		C	WKCAB	VF	M	
75- 85	MSL	10YR56 63	0	0		C	MDCAB	FR	M	
85-120	HCL	25Y 62 00	0	0		M	MDCPL	FR	P	

Wetnes G ade 1 Wetnes Cl I
Gleying 23 cm
SPL 85 cm

Drought Grade 3B APW 105mm MBW 5 mm
APP 72mm MBP 33 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Droughtiness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS- CLASS	WETNESS- GRADE	WHEAT AP	WHEAT MB	POTS- AP	POTS- MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU36402420	PGR	N	3	0	35	4	3B		0		0					WE	3B	
1P	SU36502410	PGR	NE	2	0	22	4	3B		0		0					WE	3B	PIT 60 NR7
2P	SU36602390	LEY			23	85	1	1	105	5	72	33	3B				DR	3B	PIT105 AUG120
3	SU36032416	PGR	SE	5	15	35	4	3B		0		0					WE	3B	
4	SU36172412	PGR	E	4	26	26	4	3B		0		0					WE	3B	
5	SU36302410	PGR	N	3	20	38	4	3B		0		0					WE	3B	
7	SU36482410	PGR	E	2	0	35	4	3B		0		0					WE	3B	SEE 1P
9	SU36702410	PGR	N	3	25	35	4	3B		0		0					WE	3B	
13	SU36402400	PGR			0	35	4	3B		0		0					WE	3B	
15	SU36602400	PGR	NE	2	25	25	4	3B		0		0					WE	3B	
17	SU36802400	PGR	N	3	0	15	4	3B		0		0					WE	3B	
19	SU37002400	RGR	N	1	20	20	4	3B		0		0					WE	3B	
21	SU36302388	PGR			0	20	4	3B		0		0					WE	3B	
23	SU36502390	PGR	SW	2	35	70	3	2	125	15	94	11	3A				DR	3A	BORDER G2 DR
24	SU36602390	PGR	N	1	28	85	1	1	116	6	82	23	3A				DR	3B	SEE 2P
25	SU36702390	PGR	NE	2	20	35	4	3B		0		0					WE	3B	
27	SU36902390	RGR	N	3	0	28	4	3B		0		0					WE	3B	
33	SU36402380	RGR			25	70	3	2	143	33	120	15	1				WE	2	
35	SU36602375	PGR	NW	2	50	70	2	1	140	30	117	12	1					1	SL GLEY 25
37	SU36742383	RGR	NE	4	0	35	4	3B		0		0					WE	3B	
38	SU36852380	RGR	NW	5	25	25	4	3B		0		0					WE	3B	
39	SU37002380	RGR	NE	3	25	35	4	3B		0		0					WE	3B	
41	SU36002370	RGR			0	10	4	4	39	71	39	66	4			Y		5	IMP 25 V POOR
43	SU36252374	PGR			25	40	4	3A		0		0					WE	3A	
44	SU36302367	PGR			25	40	4	3A		0		0					WE	3A	IMP FLINTS 75
45	SU36402371	PGR			22	45	4	3A		0		0					WE	3A	
46	SU36502370	PGR	N	1	60	95	1	1	192	82	149	44	1					1	
48	SU36702370	PGR	NW	2	0	28	4	3A		0		0					WE	3A	
50	SU36902370	HRT	S	2	50	50	3	3A	136	26	113	8	2				WE	3A	SL GLEYED 25
54	SU36052358	RGR			0	0	4	4	36	74	36	69	4			Y		5	IMP 35 V POOR
55	SU36202360	RGR			110	110	1	1	53	57	44	61	4			Y	DR	4	PIT FACE
57	SU36402360	RGR					1	1	86	24	91	14	3B				DR	3B	IMP 70 Q3A
59	SU36602360	PGR	W	2	43		1	1	88	22	93	12	3B				DR	3B	IMP 90 Q3A
61	SU36852360	HRT	W	2			5	4	147	37	111	6	2				WE	4	WET FLUSH
63	SU37002360	HRT	W	2	35	95	1	1	91	19	66	39	3B				DR	3B	
65	SU36152353	PIT			5	5	2	3A	66	44	49	56	4			Y	DR	4	TRENCH
66	SU36302357	RGR					1	1	28	82	28	77	4			Y	DR	4	IMP FLINTS 25
67	SU36402353	RGR					1	1	43	67	43	62	4			Y	DR	4	IMP FLINTS 30
69	SU36532356	PGR	W	2	90	90	1	1	142	32	111	6	2				DR	2	
71	SU36702350	PGR	NW	2	70		1	1	119	9	94	11	3A				DR	3A	
72	SU36802350	PGR	NE	6			1	1	157	47	110	5	2				DR	2	SL GLEYED 25
73	SU36902350	HRT	W	2	85		1	1	119	9	105	0	2				DR	2	

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WETNESS GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT	ALC	COMMENTS
75	SU37102350	HRT	N	1	37	37	4	38		0		0					WE	38	
76	SU37002340	HRT	E	1	25	63	3	3A		0		0					WE	3A	
77	SU36842341	HRT	N	2	0		2	1	82	28	61	-44	38				DR	3B	

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 15	mcl	10YR41 51	10YR46 56	C			Y	0	0	HR	5							
	15-35	hcl	10YR51 53	10YR56 00	C			Y	0	0	HR	5		M					
	35-70	c	25Y 61 00	10YR66 00	M			Y	0	0		0		P			Y		
1P	0 22	mcl	10YR41 51	10YR46 56	C			Y	0	0	HR	3							
	22 60	c	25Y 61 51	10YR68 58	M		25Y 52 00	Y	0	0		0	MDCAB	FM P	Y		Y		TENDS MDCPR
2P	0 23	msl	10YR42 00						2	0	HR	2							
	23-59	lms	10YR44 54	10YR56 00	C			S	0	0	HR	2	WKCAB	VF M					
	59 75	lms	10YR54 52	10YR58 00	C			Y	0	0		0	WKCAB	VF M					
	75-85	msl	10YR56 63	75YR56 00	C			Y	0	0		0	MDCAB	FR M					
	85-120	hcl	25Y 62 00	10YR58 00	M			Y	0	0		0	MDCPL	FR P			Y		
3	0 15	mcl	10YR42 00						0	0	HR	2							
	15-35	hcl	10YR51 00	10YR56 00	M			Y	0	0	HR	5		M					
	35-70	c	25Y 61 00	10YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		
4	0 26	mcl	10YR42 00						0	0		0							
	26 70	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P			Y		
5	0 20	mcl	10YR42 00						0	0		0							
	20 38	hcl	10YR51 00	10YR56 00	C			Y	0	0		0		M					
	38-70	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
7	0 23	mcl	10YR42 52	10YR46 56	C			Y	0	0		0							SEE 1P
	23 35	hcl	10YR51 00	10YR56 00	C			Y	0	0		0		M					
	35-70	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
9	0 25	mcl	10YR42 00						0	0		0							
	25-35	mcl	10YR52 00	10YR56 00	C			Y	0	0		0		M					
	35 70	c	25Y 61 51	10YR68 00	M			Y	0	0		0		P			Y		
13	0 20	mcl	10YR41 51	10YR46 56	C			Y	0	0		0							
	20 35	hcl	10YR51 00	10YR56 00	C			Y	0	0		0		M					
	35-70	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
15	0 25	mcl	10YR42 00						0	0		0							
	25-70	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
17	0 15	mcl	10YR42 52	10YR56 00	C			Y	0	0		0							
	15 70	c	25Y 61 52	10YR68 00	M			Y	0	0		0		P			Y		
19	0 20	hcl	10YR42 00						0	0		0							
	20-40	hcl	10YR52 53	10YR58 00	C			Y	0	0	HR	2		P			Y		
	40 55	hcl	10YR63 00	10YR58 00	C			Y	0	0		0		P			Y		
	55 70	c	10YR71 00	10YR56 58	M			Y	0	0		0		P			Y		
21	0 20	hcl	10YR42 52	10YR46 56	C			Y	0	0	HR	5							
	20 35	c	10YR53 52	10YR56 00	C			Y	0	0		0		P			Y		
	35-70	c	25Y 51 52	10YR58 00	M			Y	0	0		0		P			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	
23	0 25	ms1	10YR41 00						0	0		0							
	25-35	ms1	10YR44 54						0	0		0		M					
	35-50	ms1	10YR53 51	10YR56 00	C			Y	0	0		0		M					
	50 70	lms	25Y 62 00	10YR58 00	M			Y	0	0		0		M					
	70 120	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
24	0 28	ms1	10YR42 00						0	0		0							SEE 2P
	28-65	lms	10YR54 00	10YR56 00	C			S	0	0		0		M					
	65-75	ms1	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0		0		M					
	75-85	scl	10YR62 00	10YR68 00	M			Y	0	0		0		M					
	85-120	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
25	0 20	mcl	10YR42 00						0	0		0							
	20 35	mcl	10YR52 00	10YR56 00	C			Y	0	0		0		M					
	35-70	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y		
27	0 28	hcl	10YR52 53	10YR58 00	C			Y	0	0		0							
	28 50	c	10YR71 62	10YR58 00	M			Y	0	0		0		P			Y		
33	0 25	msz1	10YR42 43						0	0		0							
	25 43	mcl	10YR53 54	10YR56 00	C			Y	0	0		0		M					
	43 70	mcl	10YR53 52	10YR56 58	C			Y	0	0		0		M					
	70 120	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P			Y		
35	0 25	msz1	10YR42 00	10YR46 00	C				0	0		0							ROOT MOTTLES
	25-50	ms1	10YR54 56	10YR56 00	C			S	0	0		0		M					
	50 70	mcl	10YR53 56	10YR58 00	C			Y	0	0		0		M					
	70 100	hcl	10YR53 00	10YR58 00	C			Y	0	0		0		P			Y		
	100 120	mcl	10YR53 00	10YR58 00	C			Y	0	0		0		M					
37	0 35	mcl	10YR43 53	10YR56 00	C			Y	0	0		0							
	35-50	c	25Y 72 76	10YR56 00	M			Y	0	0		0		P			Y		
38	0 25	mzcl	10YR42 00						0	0		0							
	25 60	c	10YR53 54	10YR58 00	C			Y	0	0		0		P			Y		
39	0 25	mzcl	10YR54 00						0	0	HR	2							
	25-35	hcl	10YR42 52	75YR44 00	C			Y	0	0		0		M					
	35-80	c	25Y 72 00	10YR66 00	M			Y	0	0		0		P			Y		
41	0 10	ohcl	10YR42 00						0	0	HR	5							HUMIC TOPSOIL
	10 25	c	25Y 52 00						20	0	HR	40		P			Y		
43	0 25	ms 1	10YR42 00						0	0	HR	5							
	25-40	scl	10YR53 52	10YR56 00	C		00MN00 00	Y	0	0	HR	5		M					
	40 70	c	10YR62 00	10YR58 68	M			Y	0	0	HR	10		P			Y		SLSANDY IMPFLINTS70
44	0 25	msz1	10YR42 00						0	0		0							
	25 35	mcl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	35 40	hcl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	40 75	c	25Y 52 00	10YR58 00	M			Y	0	0	HR	5		P			Y		IMP FLINTS 75

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
45	0 22	fszl	10YR42 00						0	0		0							
	22 45	fszl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	45-90	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y		05YR58 MOTTLES ALSO
46	0 23	fszl	10YR43 00		F				0	0		0							
	23-60	fszl	10YR44 00		F				0	0		0		M					
	60 95	fszl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	95-120	hcl	10YR62 00	10YR56 00	M			Y	0	0		0		P			Y		
48	0-28	fszl	10YR43 00	10YR54 56	C			Y	0	0		0							
	28-85	c	25Y 72 76	10YR56 00	C			Y	0	0		0		P			Y		
	85-120	msl	25Y 72 76	10YR56 00	M			Y	0	0		0		M					
50	0 25	mcl	10YR42 00						0	0	HR	2							
	25-50	hcl	10YR66 00	10YR58 00	C			S	0	0	HR	0		M					SLIGHTLY GLEYED
	50 60	hcl	10YR56 63	75YR58 00	C			Y	0	0	HR	0		M			Y		
	60 120	c	10YR56 63	75YR58 00	C			Y	0	0		0		P			Y		
54	0 30	c	25Y 52 61	10YR58 00	M			Y	10	0	HR	20					Y		
	30 35	c	25Y 51 61	75YR58 00	M			Y	0	0	HR	40		P			Y		IMP FLINTS 35
55	0 30	mcl	10YR41 00						20	0	HR	35							
	30 78	gh	10YR56 00						0	0		0		P					75%FLINTS C MATRIX
	78 95	gh	75YR58 00						0	0		0		P					75%FLINTS C MATRIX
	95 110	gh	75YR46 00						0	0		0		P					75%FLINTS C MATRIX
	110 120	hcl	05Y 61 00	75YR68 00	M			Y	0	0		0	MDCPL	FR P			Y		BORDER CLAY
57	0 25	msl	10YR41 42						0	0	HR	10							
	25-35	msl	10YR43 00						0	0	HR	30		M					
	35-55	msl	75YR56 00						0	0	HR	5		M					
	55-65	msl	10YR54 00						0	0	HR	25		M					
	65-70	lms	10YR56 00						0	0	HR	50		M					IMP FLINTS 70
59	0-25	msl	10YR32 00						10	0	HR	10							
	25-43	lms	10YR62 00						0	0	HR	15		M					
	43 60	mcl	25Y 52 31	75YR34 00	C			Y	0	0		0		M					
	60 70	mcl	25Y 62 32	10YR56 36	M			Y	0	0		0		M					
	70 90	ms	25Y 74 00	10YR56 00	M			Y	0	0	HR	10		M					IMP FLINTS 90
61	0 30	msl	10YR42 53	10YR56 00	C			Y	0	0	HR	2							
	30 45	msl	10YR42 53	10YR56 00	C			Y	0	0	HR	2		M					
	45-75	mcl	10YR56 64	10YR58 00	C			Y	0	0	HR	2		M					
	75-110	mzcl	10YR56 64	10YR58 00	C			Y	0	0		0		M					
	110 120	hcl	10YR56 64	10YR58 00	C			Y	0	0		0		P					
63	0 28	lms	10YR32 00						0	0	HR	1							
	28 35	lms	10YR42 00						0	0	HR	1		M					
	35-65	lms	10YR53 54	75YR46 00	C			Y	0	0		0		M					
	65-95	lms	25Y 63 00	10YR58 00	C			Y	0	0		0		M					
	95-120	c	25Y 63 00	10YR58 00	C			Y	0	0		0		P			Y		

				MOTTLES			PED		STONES				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
65	0-5	msl	10YR44 00						10	0	HR	25							PRE DUG TRENCH
	5-15	hcl	05Y 61 00	10YR68 00	M			Y	0	0		0	MDCPL	FR	P	Y			
	15-70	ms	25Y 63 54	75YR58 66	M			Y	0	0		0	WKCAB	VF	M				BANDED COLOURS
	70 120	ms	25Y 61 00	75YR58 00	M			Y	0	0		0	WKCAB	VF	M				
66	0 25	mcl	10YR44 00						25	0	HR	40							IMP FLINTS 25
67	0 20	mcl	10YR42 00						5	0	HR	10							
	20 30	mcl	10YR44 54						0	0	HR	40			M				IMP FLINTS 30
69	0 15	mcl	10YR42 00						0	0	HR	5							
	15-30	mcl	10YR43 00						0	0	HR	5			M			Y	
	30 90	mzcl	10YR53 00						0	0	CH	20			M			Y	+5% FLINTS
	90 120	hcl	10YR53 00	10YR56 00	C			Y	0	0	HR	20			M		Y	Y	
71	0 25	msl	10YR42 00						0	0	HR	2							
	25-50	msl	10YR43 00						0	0		0			M				
	50 70	lms	10YR43 00						0	0		0			M				
	70-85	msl	25Y 63 73	10YR58 00	C			Y	0	0		0			M				
	85-120	ms	10YR68 62	10YR58 00	C			Y	0	0		0			M				
72	0 25	msl	10YR43 00						0	0		0							
	25-120	msl	10YR44 00	10YR56 00	C			S	0	0		0			M				SLIGHTLY GLEYED
73	0 30	msl	10YR42 00						0	0	HR	2							
	30 55	msl	10YR42 00						0	0	HR	2			M				
	55-65	msl	10YR54 44						0	0	HR	2			M				
	65-85	lms	10YR56 00						0	0		0			M				
	85-120	ms	25Y 64 00	10YR56 00	C			Y	0	0		0			M				
75	0 37	mcl	10YR44 00						2	0	HR	2							
	37 56	hcl	10YR63 66	75YR66 00	C			Y	0	0	HR	2			M		Y		
	56-85	mzcl	10YR63 00	10YR56 00	C			Y	0	0	HR	2			M				
	85-120	c	10YR82 63	10YR56 00	M			Y	0	0		0			P		Y		
76	0 25	mcl	10YR43 00						0	0	HR	3							
	25-45	mcl	10YR44 52	10YR56 00	C			Y	0	0	HR	3			M				
	45-63	mcl	10YR66 00	10YR58 00	C			Y	0	0	HR	10			M				
	63-90	c	10YR66 62	05YR56 00	M			Y	0	0	HR	10			P		Y		
77	0 30	lms	10YR41 51	10YR46 00	C			Y	0	0		0							BORDER MEDIUM SAND
	30 50	ms	10YR41 42	75YR46 58	C			Y	0	0		0			M				
	50 70	ms	10YR31 41	75YR46 00	M			Y	0	0		0			M				
	70 90	ms	25Y 74 00	10YR68 00	C			Y	0	0		0			M				
	90 115	ms	10YR71 00	10YR68 00	C			Y	0	0		0			M				
	115-120	msl	25Y 73 00	10YR68 00	C			Y	0	0		0			M				