

A1
Wokingham District Local Plan
Sites SA06, SA16, SA17
Hurst, Berkshire,
Agricultural Land Classification
ALC Map and Report
February 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference: 0206/170/95
MAFF Reference: EL 02/01176
LUPU Commission: 02301

AGRICULTURAL LAND CLASSIFICATION REPORT

WOKINGHAM DISTRICT LOCAL PLAN SITES SA06, SA16, SA17 - HURST, BERKSHIRE

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 45.3 hectares of land to the south of Hurst near Wokingham in Berkshire. The survey was carried out during January 1996.
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 Wokingham District Local Plan. The results of this survey supersede any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. 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 agricultural land uses included permanent grass and winter cereals. The areas shown as 'Other Land' include areas of non-agricultural scrub and open water, an unmetalled track and the farm buildings at The Mount Farm to the south of the site.

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 approximately 1 boring per hectare. A total of 47 borings and three soil pits were described.
8. The agricultural land at this site has been classified as Grade 2 (very good quality) to Subgrade 3b (moderate quality), including substantial proportions of Subgrade 3a (good quality) land. Principal limitations to land quality include soil wetness and soil droughtiness.
9. The area shown as Grade 2 towards the north of the site is restricted by a minor soil droughtiness limitation. Soils are variable in this area, they are generally reasonably well drained and contain variable stone contents. The stones in the profile cause available water to be slightly restricted, leading to plant growth and yield being restricted, especially in drier years.
10. The areas shown as Subgrade 3a and the areas of Subgrade 3b towards the south of the site are principally limited by soil wetness. These areas contain medium clay loam,

occasionally medium sandy silt loam topsoils over slowly permeable clays and occasionally slowly permeable heavy clay loams at shallow and moderate depths in the profile. The slowly permeable horizons cause drainage to be impeded such that land utilisation is restricted. The depth at which these horizons occur determines the severity of the soil wetness restrictions and therefore the ALC grade.

11. The area of Subgrade 3b mapped to the north of the site is principally restricted by soil droughtiness. Soils in this area comprise medium sandy silt loams and medium clay loams over gravelly horizons at shallow to moderate depths. The stones in the profile restrict the water holding capacity of the soil to the extent that Subgrade 3b is appropriate in this area.

Table 1: Area of grades and other land

Grade/Other Land	Area (hectares)	% Surveyed Area	% Agricultural Land
2	5.0	11.0	11.3
3a	21.7	47.9	49.2
3b	17.4	38.4	39.5
Other Land	1.2	2.7	N/A
Total Agricultural Area			44.1
Total Site Area			45.3
			100.0
			100.0

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 standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values		
Grid reference	N/A	SU 800 727	SU 800 720	SU 800 732
Altitude	m, AOD	37	39	40
Accumulated Temperature	day°C	1479	1477	1475
Average Annual Rainfall	mm	664	657	672
Field Capacity Days	days	138	137	140
Moisture Deficit, Wheat	mm	116	116	115
Moisture Deficit, Potatoes	mm	111	111	110

14. 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.

15. 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 (AT0, January to June), as a measure of the relative warmth of a locality.

16. 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 also believed not to affect the site. The site is climatically Grade 1.

Site

17. The site lies at an altitude in the range of 37-46 m AOD. The majority of the site, to the south, is relatively flat. Further north, the land rises onto a small hill, adjacent to the village of Hurst. The land then falls again to the north east of the site.

Geology and soils

18. The published geological information for the site (BGS, 1971), shows the majority of the site to the south, east and west to be underlain by London Clay. To the north west of the site an area of plateau gravel is shown, this being a drift deposit overlying the London Clay.

19. The most detailed published soils information for the site (SSEW, 1983 and 1984) shows the site to comprise soils of the Wickham 4 and Hurst associations. Wickham 4 soils are described as, 'slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils.' (SSEW, 1983). Soils of this broad type were found across the majority of the site to the south. Hurst soils are described as, 'coarse and fine loamy permeable soils mainly over gravel variably affected by groundwater.' (SSEW, 1983). Soils of this broad type were found across the north west of the site.

Agricultural Land Classification

20. 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.

21. 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 III.

Grade 2

22. Land of very good quality has been mapped towards the north of the site in a single mapping unit. The principal limitation is soil droughtiness, although soil wetness is equally limiting in a number of cases.

23. Soils in this area commonly comprise a stoneless to slightly stony (up to 7% v/v total flints) medium sandy silt loam, medium clay loam or sandy clay loam topsoil, which was

occasionally gleyed. This passes to a similarly stony medium sandy silt loam, sandy clay loam, medium or heavy clay loam upper subsoil which was commonly gleyed. The lower subsoil horizons commonly comprise a stoneless to slightly stony (up to 10% v/v total flints), gleyed fine sandy loam, medium clay loam or heavy clay loam over either a stoneless gleyed and slowly permeable clay, or a slightly stony (approximately 5% v/v total flints), gleyed and slowly permeable (heavy) sandy clay loam. The combination of the water retaining textures and the stones throughout the profile lead to a slight soil droughtiness limitation in the local climate. Soil droughtiness can affect plant growth and yield especially in drier years. In addition, the shallow to moderate depth to gleying and the deep slowly permeable horizons cause a slight soil wetness limitation in this area. Soil wetness slightly restricts the land utilisation, in so far as during the wetter months it may not be possible to carry out machinery operations or have animals grazing on the land without affecting the soil structure, which would lead to compaction and greater drainage problems in subsequent years. No soil pits were dug in this map unit as the soil type in this area is represented by a combination of the other pits on the site which are of Subgrade 3a and 3b quality. The difference being that in most cases the slowly permeable clay horizons occur at a greater depth in this area than elsewhere on the site, leading to better quality land being recorded here.

Subgrade 3a

24. Land of good quality has been mapped in a total of five mapping units across the site. The principal limitation is soil wetness.

25. Soils in this area commonly comprise a stoneless to slightly stony (up to 12% v/v total flints, 5% > 2cm), commonly gleyed, medium clay loam, sandy clay loam or occasionally medium or fine sandy silt loam topsoil. This passes to a less stony (up to 5% v/v total flints), commonly gleyed, medium or heavy clay loam, sandy clay loam, or occasionally fine sandy silt loam upper subsoil. This commonly passes to a very slightly stony (up to 5% v/v total flints), gleyed heavy clay loam horizon which was occasionally slowly permeable (as in the pit observation, 2P). Below this horizon, profiles become more variable. In the majority of cases the heavy clay loam horizon passes to a stoneless, gleyed and slowly permeable clay, as seen in the pit observation, 3P. Occasionally, this was underlain by deep horizons of lighter texture, such as heavy clay loam, loamy fine sand or medium sandy loam, these were saturated at the time of survey and occurred to depth. In other cases (eg, the pit observation 2P), the heavy clay loam is slowly permeable and passes to moderately or very stony (up to 50% v/v total flints) sandy clay loam horizons which were commonly saturated at the time of survey.

26. The slowly permeable horizons have the effect of restricting water flow through the soil profile causing drainage to be impeded. The depth at which these horizons occur in combination with the local climate leads to Wetness Class III being appropriately applied and subsequently Subgrade 3a, given the workability of the topsoil textures encountered. Soil wetness affects plant growth and yield as well as restricting land utilisation in terms of the number of days when machinery cultivations and grazing by livestock can occur without causing structural damage to the soil. Occasional observations in this area were of a slightly better quality, but these were of too scattered a distribution to be shown as separate mapping units.

Subgrade 3b

27. Land of moderate quality has been mapped over the site in a total of three mapping units. Principal limitations to land quality include soil wetness and soil droughtiness.

28. The areas affected by soil wetness are towards the south east and centre of the site. Soils here commonly comprise a stoneless to slightly stony (up to 8% v/v total flints, 2% > 2cm), commonly gleyed, medium clay loam, occasionally heavy clay loam topsoil. Commonly this passes to a thin stoneless, gleyed heavy clay loam upper subsoil. This passes to a commonly stoneless, gleyed and slowly permeable clay lower subsoil horizon which occasionally becomes moderately stony (approximately 25% v/v total flints) at depth. No soil pits were dug in the 3b map units affected by soil wetness as Pits 2 and 3 are partially representative of the 3b soils, even though they are located in Subgrade 3a mapping units. Pit 2 is representative of the topsoil and upper subsoil and Pit 3 of the clay lower subsoil. The slowly permeable clay horizons restrict water flow through the soil profile so causing drainage to be impeded to the extent that Wetness Class IV and Subgrade 3b has been appropriately applied to this land given the local climate and the workability status of the topsoils. Soil wetness affects plant growth and yield as well as restricting land utilisation in terms of the number of days when machinery cultivations and grazing by livestock can occur without causing structural damage to the soil. Occasional observations in this area were of a slightly better quality, but these were of too scattered a distribution to be shown as separate mapping units.

28. The areas affected by soil droughtiness are concentrated towards the north of the site. Soils in this area commonly comprise a slightly to moderately stony (up to 20% v/v total flints, including up to 8% > 2cm) medium sandy silt loam, occasionally medium clay loam topsoil, passing to a moderately stony (20-30% total v/v flints), commonly gleyed, medium clay loam, sandy clay loam or medium sandy silt loam upper subsoil. These horizons overlie an impenetrable (to the soil auger and spade), gravelly (approximately 60% v/v small flints), sandy clay loam, medium sandy silt loam or occasionally medium sandy loam lower subsoil; this was commonly saturated at the time of survey. The pit observation 1P is representative of this soil type. The stones in the profile cause the water holding capacity of the soil profile to be reduced to the extent that in the local climate Subgrade 3b is appropriate. Soil droughtiness restricts crop establishment, growth and yield.

M Larkin
Resource Planning Team
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1971) *Sheet 268, Reading. Drift Edition. 1:63 360. 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 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 WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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

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

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

¹ The number of days is not necessarily a continuous period.

² 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

Contents:

Sample location map

Soil abbreviations - Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout - Horizon Level Information

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.
2. **USE:** Land use at the time of survey. The following abbreviations are used.

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

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL:** 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. **GLEYS:** 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 dolomitic 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 **VC:** very 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 : WOKINGHAM DLP SA06,16,17 Pit Number : 1P

Grid Reference: SU79747310 Average Annual Rainfall : 672 mm
 Accumulated Temperature : 1475 degree days
 Field Capacity Level : 140 days
 Land Use : Permanent Grass
 Slope and Aspect : 2 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 26	MSZL	10YR42 00	8	20	HR					
26- 38	MCL	10YR51 52	0	30	HR	C	MDCSAB	FR	M	
38-120	MSZL	10YR52 00	0	60	HR				P	

Wetness Grade : 1 Wetness Class : II
 Gleying : 26 cm
 SPL : cm

Drought Grade : 3B APW : 89 mm MBW : -26 mm
 APP : 75 mm MBP : -35 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : WOKINGHAM DLP SA06,16,17 Pit Number : 2P

Grid Reference: SU79907210 Average Annual Rainfall : 672 mm
 Accumulated Temperature : 1475 degree days
 Field Capacity Level : 140 days
 Land Use : Permanent Grass
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 32	MCL	10YR52 00	1	3	HR	C				
32- 53	MCL	10YR63 00	0	1	HR	M	MDCSAB	FR	M	
53- 70	HCL	10YR62 00	0	3	HR	M	WKCSAB	FR	M	
70- 80	SCL	10YR62 00	0	25	HR	M		FR	M	
80-100	SCL	10YR62 00	0	50	HR	M			M	

Wetness Grade : 3A Wetness Class : III
 Gleying : 0 cm
 SPL : 53 cm

Drought Grade : APW : mm MBW : 0 mm
 APP : mm MBP : 0 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : WOKINGHAM DLP SA06,16,17 Pit Number : 3P

Grid Reference: SUB0107210 Average Annual Rainfall : 672 mm
 Accumulated Temperature : 1475 degree days
 Field Capacity Level : 140 days
 Land Use : Permanent Grass
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 26	FSZL	10YR42 00	0	2	HR	C				
26- 47	FSZL	25Y 62 00	0	0		M	MDCAB	FR	M	
47- 69	C	25Y 61 62	0	0		M	MDCPR	FM	P	
69- 82	C	25Y 62 61	0	20	HR	M	WKCAB	FM	P	

Wetness Grade : 2 Wetness Class : III
 Gleying : 0 cm
 SPL : 47 cm

Drought Grade : APW : mm MBW : 0 mm
 APP : mm MBP : 0 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRONT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT					
1	SU80007330	PGR		0	90	2	2	154	39	119	9	2			WD	2	V.WET 65-90
1P	SU79747310	PGR N	2	26		2	1	89	-26	75	-35	3B			DR	3B	PIT IMP 70
2	SU79707320	PGR		50	100	1	1	153	38	117	7	2			DR	2	V.WET 50-100
2P	SU79907210	PGR		0	53	3	3A		0		0				WE	3A	PIT 80 AUG 100
3	SU79807320	PGR N	1	50	95	1	1	140	25	110	0	2			DR	2	
3P	SU80107210	PGR		0	47	3	2		0		0				WE	2	PIT 82
5	SU80007320	CER		30	80	2	2	141	26	113	3	2			WD	2	
6	SU79747310	PGR N	2	30		2	1	75	-40	75	-35	3B			DR	3B	IMP 50 SEE 1P
7	SU79807310	PGR NE	1	25		2	1	67	-48	67	-43	3B			DR	3B	IMP 45 SEE 1P
8	SU79907310	CER E	2	25	40	3	3A		0		0				WE	3A	
9	SU80007310	CER		30	45	3	3A		0		0				WE	3A	
10	SU79617300	CER S	1	36	45	3	2	136	21	112	2	2			WD	2	
11	SU79707300	CER S	1			1	1	59	-56	59	-51	4			DR	3B	IMP 40 SEE 1P
12	SU79807300	CER				1	1	80	-35	81	-29	3B			DR	3B	IMP 55 SEE 1P
13	SU79907300	CER SE	2	27	40	3	2	151	36	115	5	2			WD	2	
14	SU80007300	CER		25	25	4	3B	101	-14	117	7	3A			WE	3B	
15	SU79707290	CER SE	1	23		2	2	67	-48	67	-43	3B			DR	3B	IMP 50 SEE 1P
16	SU79807290	CER SE	2	30	60	3	3A		0		0				WE	3A	
17	SU79907290	CER SE	2	30	30	4	3B		0		0				WE	3B	
18	SU79707280	CER SE	2	30	55	3	3A		0		0				WE	3A	
19	SU79807280	CER SE	1			1	1	154	39	116	6	2			DR	2	
20	SU79907280	PGR		10	30	4	3B	125	10	102	-8	2			WE	3B	
21	SU80007280	PGR		25	50	3	3A	147	32	117	7	2			WE	3A	WATER CLOSE BY
22	SU80107280	PGR		0	40	3	3A	149	34	117	7	2			WE	3A	
23	SU79707270	PGR		25	35	4	3B		0		0				WE	3B	
24	SU79807270	PGR		20	30	4	3B	155	40	116	6	2			WE	3B	
25	SU79907270	PGR		0	30	4	3B	134	19	114	4	2			WE	3B	
26	SU80007270	PGR		0		2	2	115	0	117	7	3A			DR	3A	
27	SU80107270	PGR		0	70	2	2	144	29	116	6	2			WD	2	V.WET 25-70
28	SU79707260	PGR		0	40	3	3A		0		0				WE	3A	
29	SU79807260	PGR		0	35	4	3B	133	18	116	6	2			WE	3B	
30	SU80007260	PGR		0	55	3	3A		0		0				WE	3A	
31	SU80107260	PGR		0	60	3	3A		0		0				WE	3A	
32	SU80007250	PGR		0	60	3	3A		0		0				WE	3A	
33	SU80107239	RGR		0		2	1	161	46	123	13	1				1	
34	SU80207240	RGR		0	70	2	2	145	30	117	7	2			WD	2	V.WET 30-70
35	SU80007230	PGR		0	75	2	2	147	32	118	8	2			WD	2	V.WET 100+
36	SU80107230	RGR		0	35	4	3B		0		0				WE	3B	
37	SU80007220	PGR		23	90	2	2	143	28	117	7	2			WD	2	
38	SU80097220	PGR		28	55	3	3A	143	28	117	7	2			WE	3A	
39	SU80207220	PGR		0	35	4	3B	130	15	116	6	2			WE	3B	
40	SU79907210	PGR		0	50	3	3A	114	-1	117	7	3A			WE	3A	IMP 85 SEE 2P

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M. REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB					
41	SU80007210	PGR		0 55	3 3A		0	0					WE	3A	
42	SU80107210	PGR		0 55	3 2	120	5 112	2 2					WD	2	SEE 3P
43	SU80207210	PGR		0 26	4 3B		0	0					WE	3B	
44	SU80007200	PGR		0 45	3 3A		0	0					WE	3A	
45	SU80107200	PGR		0 25	4 3B		0	0					WE	3B	
46	SU79607293	PGR SW	1		1 1	58	-57 58	-52 4					DR	3B	IMP 40 SEE 1P
47	SU79507287	PGR SW	2	28 60	3 3A		0	0					WE	3A	
48	SU79907219	PGR		0 35	4 3B		0	0					WE	3B	IMP 80

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS STR POR IMP SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH			
1	0-28	mc1	10YR42 00	10YR46 00	C			Y	0	0	0			
	28-65	mc1	10YR53 00	10YR58 68	M	00MNO0	00	Y	0	0	0	M		
	65-90	fs1	10YR64 00	10YR56 00	C			Y	0	0	0	M		V. WET
	90-120	c	25Y 62 00	10YR58 00	M			Y	0	0	0	P	Y	DRIER
1P	0-26	msz1	10YR42 00						8	1	HR	20		AT BORING 6
	26-38	mc1	10YR51 52	10YR56 00	C			Y	0	0	HR	30	MDCSAB FR M	WATER FROM 48cm
	38-120	msz1	10YR52 00					Y	0	0	HR	60	P	PIT IMP AT 70cm
2	0-30	msz1	10YR42 00						0	0	HR	5		
	30-50	msz1	10YR42 52	10YR56 00	F				0	0	HR	5	M	
	50-100	mc1	10YR62 63	10YR58 00	C			Y	0	0	HR	5	M	V. WET
	100-120	sc1	25Y 62 61	75YR58 00	M			Y	0	0	HR	5	M	Y DRIER
2P	0-32	mc1	10YR52 00	75YR58 00	C			Y	1	0	HR	3		
	32-53	mc1	10YR63 00	10YR58 00	M	00MNO0	00	Y	0	0	HR	1	MDCSAB FR M	PSD-2% FROM FSZL
	53-70	hc1	10YR62 00	75YR58 00	M			Y	0	0	HR	3	WKCSAB FR M	Y Y
	70-80	sc1	10YR62 00	75YR58 00	M			Y	0	0	HR	25	FR M	WATER FROM 70cm
	80-100	sc1	10YR62 00	75YR58 00	M			Y	0	0	HR	50	M	AUG 80-100 IMP 100
3	0-30	sc1	10YR42 43						0	0	HR	3		
	30-50	sc1	10YR44 00						0	0		0	M	
	50-95	hc1	10YR53 00	75YR58 00	M			Y	0	0	HR	5	M	BORDERLINE SCL
	95-120	c	25Y 61 00	10YR58 00	M			Y	0	0		0	P	Y
3P	0-26	fsz1	10YR42 00	10YR46 00	C			Y	0	0	HR	2		PSD - 2% FROM MCL
	26-47	fsz1	25Y 62 00	10YR68 00	M	25Y 63 00	00	Y	0	0		0	MDCAB FR M	PSD - 1% FROM MCL
	47-69	c	25Y 61 62	10YR68 00	M	25Y 62 00	00	Y	0	0		0	MDCPR FM P	Y Y PSD - 1% FROM (M)ZC
	69-82	c	25Y 62 61	10YR68 00	M			Y	0	0	HR	20	WKCAB FM P	Y Y IMP PIT 82
5	0-30	mc1	10YR42 00						2	0	HR	7		
	30-60	hc1	10YR53 00	10YR56 00	C	00MNO0	00	Y	0	0		0	M	
	60-80	hc1	10YR53 52	10YR58 00	C			Y	0	0	HR	10	M	
	80-120	c	25Y 62 00	10YR58 00	M			Y	0	0	HR	5	P	Y
6	0-30	msz1	10YR42 43						5	0	HR	15		SEE 1P
	30-50	msz1	10YR52 00	10YR56 00	C			Y	0	0	HR	25	M	IMP 50 - GRAVELLY
7	0-25	msz1	10YR42 43						5	0	HR	10		
	25-40	msz1	10YR52 53	10YR56 00	C			Y	0	0	HR	20	M	
	40-45	msz1	10YR53 00					Y	0	0	HR	60	M	IMP 45 - GRAVELLY
8	0-25	mc1	10YR42 00						2	0	HR	5		
	25-40	mc1	10YR53 00	10YR56 00	C			Y	0	0		0	M	
	40-90	c	25Y 53 62	10YR56 00	M			Y	0	0		0	P	Y
9	0-30	mc1	10YR42 00						2	0	HR	7		
	30-45	mc1	10YR53 00	10YR56 00	C	00MNO0	00	Y	0	0		0	M	
	45-90	c	25Y 53 52	10YR56 00	M			Y	0	0		0	P	Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED		----STONES----			STRUCT/ CONSIST	SUBS			CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	
10	0-23	msz1	10YR41 00						5	0	HR	12				
	23-36	sc1	10YR54 00						0	0	HR	5	M			
	36-45	hc1	10YR53 00 10YR56 00 C						Y	0	0	0	M			
	45-120	c	25Y 61 00 10YR58 68 M						Y	0	0	0	P		Y	
11	0-28	msz1	10YR41 00						7	0	HR	15				
	28-40	sc1	10YR44 54						0	0	HR	30	M			IMP 40 - GRAVELLY
12	0-30	msz1	10YR42 00						5	0	HR	10				
	30-50	sc1	10YR54 52 10YR56 00 F						0	0	HR	15	M			
	50-55	sc1	10YR54 52 10YR56 00 F						0	0	HR	60	M			IMP 55 - GRAVELLY
13	0-27	msz1	10YR42 00						3	0	HR	10				
	27-40	mc1	10YR53 00 10YR56 00 C						Y	0	0	0	M			
	40-75	hc1	10YR62 63 10YR58 00 M						Y	0	0	0	M		Y	SPL AS 2P
	75-120	sc1	25Y 52 00 10YR58 00 M						Y	0	0	HR	5	M		
14	0-25	mc1	10YR42 00						0	0		0				
	25-70	c	25Y 62 00 10YR68 00 M						Y	0	0	0	P		Y	
15	0-23	mc1	10YR42 00						4	0	HR	10				
	23-45	sc1	25Y 51 00 10YR58 00 C						Y	0	0	HR	25	M		
	45-50	sc1	25Y 51 00 10YR58 00 C						Y	0	0	HR	50	M		IMP 50 - GRAVELLY
16	0-30	mc1	10YR42 00						2	0	HR	8				
	30-60	hc1	10YR53 00 10YR58 00 M						Y	0	0	0	M			
	60-100	c	25Y 62 00 10YR58 00 M						Y	0	0	0	P		Y	
17	0-30	mc1	10YR42 00						0	0	HR	3				
	30-70	c	10YR53 52 10YR58 00 M						Y	0	0	0	P		Y	
18	0-30	mc1	10YR42 00						2	0	HR	8				
	30-55	mc1	10YR53 00 10YR56 00 C						Y	0	0	0	M			
	55-90	c	25Y 52 00 75YR58 00 M				00M000	00	Y	0	0	0	P		Y	
19	0-28	mc1	10YR42 43						0	0	HR	3				
	28-120	hc1	10YR54 52 10YR56 00 F						0	0		0	M			NOT GLEYED
20	0-10	mc1	10YR42 00 10YR58 00 F						0	0		0				
	10-30	hc1	10YR62 00 10YR66 00 C						Y	0	0	0	M			
	30-120	c	10YR62 00 75YR58 00 C						Y	0	0	0	P		Y	
21	0-25	mc1	10YR42 00 10YR58 00 F						0	0		0				NEAR STANDING WATER
	25-40	mc1	10YR53 00 10YR58 00 C						Y	0	0	0	M			
	40-50	hc1	10YR63 00 10YR68 00 C						Y	0	0	0	M			
	50-90	c	10YR63 00 10YR68 00 C						Y	0	0	0	P		Y	
	90-120	hc1	10YR63 00 10YR68 00 C						Y	0	0	0	M			

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED		----STONES----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		IMP
22	0-25	mc1	10YR42 00 10YR58 00 C					Y	0	0	0						
	25-30	mc1	10YR53 00 10YR68 00 C					Y	0	0	0		M				
	30-40	hc1	10YR63 00 10YR68 71 C					Y	0	0	0		M				
	40-80	c	10YR63 00 10YR68 00 C					Y	0	0	0		P		Y		
	80-120	hc1	05Y 71 00 10YR68 00 C					Y	0	0	0		M				
23	0-25	mc1	10YR42 00 10YR58 00 F						0	0	HR	1					
	25-35	mc1	10YR62 63 10YR58 00 C					Y	0	0	HR	1		M			
	35-70	c	10YR62 00 75YR58 00 M				00MNOO	00	Y	0	0	0		P		Y	
24	0-20	mc1	10YR42 00						0	0	0						
	20-30	hc1	25Y 64 00 75YR68 00 C					Y	0	0	0		M				
	30-60	c	25Y 64 00 75YR68 00 C					Y	0	0	0		P		Y		
	60-90	hc1	25Y 64 00 75YR68 00 C					Y	0	0	0		M				
	90-120	ms1	10YR63 00 10YR66 00 C					Y	0	0	0		M				
25	0-10	mc1	10YR42 00 10YR46 00 C					Y	0	0	0						
	10-20	hc1	10YR62 00 10YR58 00 C					Y	0	0	0		M				
	20-30	c	10YR62 00 10YR58 00 C					Y	0	0	0		P			NOT SPL UNTIL 35cm	
	30-80	c	10YR71 00 10YR68 00 C					Y	0	0	0		P		Y		
	80-120	c	10YR71 00 75YR68 00 M					Y	0	0	0		P		Y		
26	0-30	mc1	10YR42 00 75YR58 00 C					Y	0	0	HR	1					
	30-45	mc1	10YR63 00 10YR58 00 C					Y	0	0	HR	1		M			
	45-90	hc1	10YR72 00 75YR58 00 M					Y	0	0	0		M				
27	0-25	mc1	10YR42 00 75YR58 00 C					Y	0	0	HR	1					
	25-70	mc1	10YR63 00 10YR58 00 C					Y	0	0	HR	1		M		V. WET	
	70-120	c	10YR72 73 75YR58 00 M					Y	0	0	0		P		Y	DRIER	
28	0-30	mc1	10YR42 00 75YR46 00 C					Y	0	0	HR	1					
	30-40	hc1	10YR53 52 10YR58 00 C					Y	0	0	HR	1		M			
	40-65	c	10YR62 00 75YR58 00 M				00MNOO	00	Y	0	0	HR	1		P		Y
	65-100	1fs	10YR62 00 10YR58 00 C					Y	0	0	HR	1		M			
29	0-20	mc1	10YR42 00 10YR58 00 C					Y	0	0	0						
	20-35	hc1	10YR62 00 10YR68 00 C					Y	0	0	0		M				
	35-80	c	10YR62 00 10YR68 00 C					Y	0	0	0		P		Y		
	80-120	c	10YR62 00 10YR68 00 C					Y	0	0	HR	10		P		Y	
30	0-30	mc1	10YR52 00 75YR46 00 C					Y	0	0	HR	1					
	30-55	mc1	10YR63 62 10YR58 00 C					Y	0	0	HR	1		M			
	55-90	c	25Y 62 00 75YR68 00 M				00MNOO	00	Y	0	0	0		P		Y	
31	0-30	mc1	10YR42 00 10YR58 00 C					Y	0	0	HR	1					
	30-60	mc1	10YR53 00 10YR58 61 Y					Y	0	0	HR	1		M			
	60-100	c	25Y 62 00 75YR58 00 M				00MNOO	00	Y	0	0	HR	1		P		Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT		COL.	GLE	>2		>6	LITH	TOT		
32	0-30	mc1	10YR52 00 75YR46 00 C					Y	0	0	HR	1				
	30-60	mc1	10YR62 00 10YR58 00 C					Y	0	0	HR	0	M			
	60-100	c	25Y 62 00 75YR58 00 M					00MN00	00	Y	0	0	0	P		Y
33	0-25	fsz1	25Y 42 00 10YR46 00 C					Y	0	0		0				
	25-35	sc1	25Y 42 52 10YR58 00 M					Y	0	0		0	M			
	35-80	ms1	10YR52 00 10YR58 00 M					Y	0	0		0	M			
	80-120	ms1	25Y 62 00 10YR68 00 M					Y	0	0	HR	20	M			
34	0-25	mc1	10YR42 00 10YR46 00 C					Y	0	0		0				
	25-30	mc1	10YR52 00 10YR46 00 M					Y	0	0		0	M			
	30-70	hc1	10YR63 00 10YR68 00 M					Y	0	0		0	M			V. WET
	70-120	c	25Y 62 00 10YR68 00 M					Y	0	0		0	P		Y	DRIER
35	0-28	mc1	10YR42 00 10YR46 00 C					Y	0	0		0				
	28-75	hc1	10YR63 62 10YR58 00 M					Y	0	0		0	M			
	75-120	hc1	25Y 62 61 10YR58 68 M					Y	0	0	HR	20	M		Y	V. WET FROM 100
36	0-23	mc1	10YR42 00 10YR46 00 C					Y	0	0		0				
	23-35	hc1	10YR62 00 10YR66 00 M					Y	0	0		0	M			
	35-80	c	25Y 61 00 10YR68 00 M					00MN00	00	Y	0	0	0	P		Y
37	0-23	mc1	10YR43 00 10YR46 00 F						0	0		0				
	23-35	mc1	10YR53 00 10YR46 58 C					Y	0	0		0	M			
	35-90	hc1	25Y 53 63 10YR68 00 M					Y	0	0		0	M			
	90-120	c	25Y 61 00 10YR58 00 M					Y	0	0	HR	15	P		Y	
38	0-28	mc1	10YR42 00 10YR46 00 F						0	0	HR	2				
	28-55	hc1	10YR53 00 10YR58 00 C					Y	0	0		0	M			
	55-90	c	25Y 61 00 10YR58 00 M					Y	0	0		0	P		Y	
	90-120	hc1	25Y 53 00 10YR58 00 M					Y	0	0	HR	15	M			
39	0-25	mc1	10YR41 00 10YR46 00 C					Y	0	0		0				
	25-35	mc1	10YR52 00 10YR56 00 C					Y	0	0	HR	5	M			
	35-75	c	25Y 53 00 10YR58 00 M					Y	0	0		0	P		Y	
	75-120	c	25Y 62 00 75YR58 00 M					00MN00	00	Y	0	0	HR	20	P	Y
40	0-25	mc1	10YR42 00 10YR46 00 C					Y	0	0		0				
	25-70	hc1	10YR52 00 10YR68 00 M					Y	0	0		0	M			SEE 2P
	70-85	sc1	10YR53 00 10YR68 00 M					Y	0	0	HR	40	M			SPL FROM 50cm (2P) IMP 85 - GRAVELLY
41	0-23	mc1	25Y 42 00 10YR46 00 C					Y	0	0		0				
	23-55	hc1	25Y 52 00 10YR56 00 M					00MN00	00	Y	0	0	0	M		
	55-90	c	10YR53 52 10YR58 00 M					00MN00	00	Y	0	0	HR	5	P	Y
42	0-25	fsz1	25Y 42 00 10YR46 00 C					Y	0	0		0				
	25-38	fsz1	25Y 53 00 10YR68 00 C					Y	0	0		0	M			SEE 3P
	38-55	fsz1	25Y 62 00 10YR68 00 M					Y	0	0		0	M			
	55-100	c	25Y 61 00 10YR58 68 M					Y	0	0	HR	5	P		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS			SPL	CALC	
				COL	ABUN	CONT		GLEYS	>2	>6		LITH	TOT	STR			POR
43	0-26	hc1	10YR41 00	10YR46	00	C		Y	0	0	0						
	26-70	c	25Y 63 61	10YR68	00	M		Y	0	0	HR	5		P		Y	
44	0-23	mc1	10YR41 00	10YR46	00	C		Y	0	0	0						
	23-45	mc1	10YR52 00	10YR56	00	C		Y	0	0	0			M			
	45-90	c	25Y 61 62	10YR58	68	M		Y	0	0	0			P		Y	
	90-110	c	25Y 61 62	10YR58	68	M		Y	0	0	HR	20		P		Y	SLIGHTLY SANDY
45	0-25	hc1	10YR42 00	10YR56	00	C		Y	0	0	0						
	25-70	c	05Y 61 62	10YR68	00	M		Y	0	0	HR	5		P		Y	
46	0-30	msz1	10YR41 00						5	0	HR	15					IMP 40 - GRAVELLY
	30-40	ms1	10YR43 00						0	0	HR	40		M			
47	0-28	mc1	10YR42 00						0	0	HR	2					
	28-60	mc1	10YR62 00	10YR56	00	C		Y	0	0	HR	5		M			
	60-100	c	25Y 62 00	10YR66	00	M		Y	0	0	0			P		Y	
48	0-25	mc1	10YR42 00	10YR46	00	C		Y	0	0	HR	2					
	25-35	mc1	10YR53 00	10YR56	00	C		Y	0	0	0			M			
	35-75	hc1	25Y 63 62	10YR68	58	M		Y	0	0	0			M		Y	SPL AS 2P
	75-80	sc1	25Y 62 63	10YR68	58	M		Y	0	0	HR	40		M			IMP 80 - GRAVELLY