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Test Valley Local Plan Review
Site 95 Land south east of Romsey
Hampshire

Agricultural Land Classification
Semi detailed Survey
ALC Map and Report

April 1997

Resource Planning Team
Eastern Region
FRCA Reading

RPT Job Number **1512/178/96**
FRCA Reference **EL 15/00292**
LURET Job Number **02467**

AGRICULTURAL LAND CLASSIFICATION REPORT

TEST VALLEY LOCAL PLAN REVIEW
SITE 95 LAND SOUTH EAST OF ROMSEY HAMPSHIRE

SEMI DETAILED SURVEY

INTRODUCTION

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of approximately 80 hectares of land at North Baddesley to the south east of Romsey south 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 Local Plan Review The results of this survey supersede any previous ALC information for this land Land to the immediate west and south west of the survey area has also been surveyed in connection with the Local Plan (ADAS Ref 1512/177/96 and 1512/068/93 respectively)

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 agricultural land on this site was mostly in permanent grass parts of the site were being stripped for turf Land along the southern site boundary was in rough grass The areas shown as Other Land comprise woodland areas of scrub and residential dwellings Land in the south west of the site is mapped as Agricultural land not surveyed permission to survey this land was not obtained within the timescale for the field survey work

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 two borings every three hectares of agricultural land surveyed A total of 32 borings and four soil pits were described

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	/ surveyed area	/ site area
2	22 4	43 3	28 0
3a	6 9	13 3	8 6
3b	20 2	39 0	25 3
4	0 9	1 7	1 1
5	1 4	2 7	1 8
Agricultural land not surveyed	1 9	N/A	2 4
Other land	26 2	N/A	32 8
Total surveyed area	51 8	100 0	64 8
Total site area	79 9		100 0

8 The gently sloping higher areas of the site are typically classified as Grade 2 (very good quality) land and Subgrade 3a (good quality) land The lower lying land to the north of the main block of woodland and east of Nutburn Cottage has been classified as Subgrade 3b (moderate quality) land Subgrade 3b land also occurs in the south east of the site together with Grade 4 (poor quality) land and Grade 5 (very poor quality) land

9 The majority of land on the site suffers from soil wetness problems to varying degrees Soil wetness acts to restrict the flexibility of cropping stocking and cultivations and adversely affects yields Across much of the site the topsoils are coarse loamy and light textured These profiles overlie similar upper subsoils and pass into moderately or poorly structured clay loams or clays which act to impede soil drainage In general the depth to these moderately or poorly structured horizons will determine the final ALC grade Where these horizons are relatively deep the land is classified as Grade 2 Elsewhere where they are shallower within the profile the land is classified as Subgrade 3a Profiles similar to the latter but with heavier topsoils give rise to land classified as Subgrade 3b Where the land is waterlogged for much of the year Grade 4 is appropriate

10 Much of the land classified as Grade 2 is also equally limited by soil droughtiness which may lower the level and consistency of crop yields In the extreme north west of the site the profiles pass into gravelly subsoils This land has been classified as Subgrade 3a Land in the south east of the site has been classified as Grade 5 This land has been disturbed in the past and the lack of soil resource means that the agricultural potential of this area is severely restricted

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 overleaf and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met Office 1989)

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 403 201	SU 405 208
Altitude	m AOD	40	50
Accumulated Temperature	day°C (Jan June)	1509	1497
Average Annual Rainfall	mm	820	820
Field Capacity Days	days	174	174
Moisture Deficit, Wheat	mm	107	106
Moisture Deficit, Potatoes	mm	102	100
Overall climatic grade	N/A	Grade 1	Grade 1

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

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 accumulated temperature at this site mean that there is no overall climatic limitation However climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations At this locality the climate is relatively wet in regional terms As a result the likelihood of soil wetness problems may be increased No local climatic factors such as exposure or frost risk are believed to adversely affect the land quality on the site This site is climatically Grade 1

Site

16 The highest land occurs in the north west corner of the site (at an altitude of 55 m AOD) and also as a slight ridge running east west across the centre of the site (at an altitude of 50 m AOD) The land falls (through gradients of 1 4°) to the lower lying land (about 40 m AOD) The lower land occurs in the south east corner of the site and also proximate to the drain running from Nutburn Cottage to Manor Farm Nowhere on the site do gradient or microrelief adversely affect agricultural land quality

Geology and soils

17 The published geology map (BGS 1987) shows the northern two thirds of the site to be underlain by Earnley Sand the southern third is shown as the Wittering Formation, both of which are part of the Bracklesham Group A small area of the site in the north west corner is shown to be overlain by river terrace deposits (undifferentiated) In the south west of the site another small area is shown as made ground the latter comprising areas filled with domestic and industrial refuse and dredged material from Southampton Water (BGS 1987)

18 The most detailed published soil map for this area (SSEW 1983) shows the northern two thirds of the site to comprise soils of the Wickham 3 Association These soils are 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 (SSEW 1983) The southern third of the site much of which is under woodland is shown as soils of the Holidays Hill Association These soils are described as Naturally very acid sandy over clayey soils locally with humose or peaty surface horizons slowly permeable subsoils and slight seasonal waterlogging Some very acid and well drained sandy soils and some deep sandy soils affected by water with humose surface horizons (SSEW 1983)

Agricultural Land Classification

19 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

20 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 page 10

Grade 2

21 Most of the gently sloping higher areas of the site have been classified as Grade 2 (very good quality) This land is typically equally limited by minor soil droughtiness and also by minor soil wetness Topsoils comprise non calcareous fine sandy loam topsoils which are slightly stony (0 2% flints > 2 cm and 1 10% total flints) Subsoils have a similar stone content Upper subsoils comprise fine sandy loams or occasionally medium clay loams or sandy clay loams These upper subsoils are permeable and moderately structured At approximately 45 to 60 cm depth, these pass into poorly structured and to a lesser extent moderately structured heavy clay loam and clay lower subsoils These lower subsoils are slowly permeable and act to impede drainage as indicated by gleying within the upper profile Where profiles are gleyed within 40 cm the slowly permeable horizons do not occur until at least 50 cm Consequently all these profiles are assessed as being imperfectly drained (Wetness Class III) These profiles are typified by Pits 2 and 3 (see Appendix II) The interaction between the light topsoils drainage characteristics and the relatively wet prevailing climate means that this land may be subject to minor restrictions on the flexibility of cropping stocking and cultivations

22 This land is also equally limited by soil droughtiness The interaction between the soil characteristics and the prevailing climate acts to slightly reduce the amount of soil available water Consequently this land may be subject to lower and less consistent crop yields In the extreme north west corner of the site the key limitation is soil droughtiness Here the slowly permeable layers occur much deeper within the profile (Wetness Class II) and the subsoils are moderately stony (20 35% total flints) Such profiles which are typified by Pit 1 give rise to land limited solely by slight soil droughtiness

Subgrade 3a

23 Most of the land classified as Subgrade 3a (good quality) is limited by soil wetness land in the north west corner of the site is limited by soil droughtiness Where soil wetness is limiting profiles comprise non calcareous fine sandy loams which overlie similarly textured medium clay loam or sandy clay loam upper subsoils which are both permeable and moderately structured At approximately 40 to 45 cm depth, these pass into slowly permeable heavy clay loam and clay lower subsoils which tend to be poorly structured All of these profiles are gleyed within 40 cm and given the prevailing climate are assessed as poorly drained (Wetness Class IV) Though poorly drained the light topsoils aid workability and mean that at this locality this land is classified as Subgrade 3a This land may be subject to some restrictions on the flexibility of cropping stocking and cultivations

24 Where soil droughtiness is limiting topsoils comprise fine or medium sandy loams which are moderately stony (8% flints > 2 cm 1% flints > 6 cm and 15 18% total flints) These overlie similarly textured upper subsoils which are very stony (40-45% total flints) Such profiles proved impenetrable to a soil auger at about 35 cm depth The relatively limited extent of such profiles meant that a soil inspection pit was not dug on this site to assess the lower subsoil conditions However such profiles are typified by Pit 3 on an adjoining site (RPT Job Number 1512/177/96) From this pit it could be seen that at 60 cm these profiles pass into a very slightly stony (5% total flints) clay which is gleyed poorly structured and slowly permeable The interaction between these soil characteristics and the local climate makes these soils drought prone Consequently this land may be subject to lower and less consistent crop yields

Subgrade 3b

25 All of the land classified as Subgrade 3b (moderate quality) is limited by significant soil wetness and workability restrictions Topsoils comprise non calcareous medium clay loams and medium silty clay loams These overlie similarly textured moderately structured upper subsoils The lower subsoils are heavier (heavy clay loam heavy silty clay loam or clay) The clay horizons are all poorly structured the heavy (silty) clay loam horizons are either moderately or poorly structured These profiles which have very pale soil matrix colours are all gleyed within 40 cm and generally become slowly permeable between 15 and 30 cm depth These profiles which are typified by Pit 4 are poorly drained (Wetness Class IV) The interaction between the medium textured topsoils poor soil drainage and relatively wet local climate means that this land is limited by soil wetness Soil wetness can adversely affect seed germination and survival and can inhibit the development of a good root system It also influences the sensitivity of soil to structural damage and is therefore a major factor in determining the number of days when cultivation trafficking or grazing can take place

Grade 4

26 A small area of land in the south of the site has been classified as Grade 4 (poor quality) this land is severely limited by soil wetness and workability Here medium clay loam topsoils directly overlie slowly permeable plastic clay subsoils The wet surface conditions at the time of survey and the abundance of marshy species in the grassland in this area indicates that this land is waterlogged for prolonged periods of time Consequently this land has been assigned to Wetness Class V The interaction between the soil drainage characteristics

topsoil textures and relatively wet local climate means that this land can be classified no higher than Grade 4 Such land is mainly suited to grass Restrictions on land use are more severe than land assigned to Subgrade 3b with the land mainly being suited to seasonal grazing use

Grade 5

27 A small area of land in the south east of the site has been classified as Grade 5 (very poor quality) This land has been disturbed in the past and the lack of soil resource (and in particular the lack of topsoil) means that the agricultural potential of this area is severely restricted With remedial work, the agricultural potential of this land may be increased

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SOURCES OF REFERENCE

British Geological Survey (1987) *Sheet No 315 Southampton 1 50 000 (solid and drift edition)*
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 1 250 000 and accompanying legend*
SSEW Harpenden.

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1 Excellent Quality Agricultural Land

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

Grade 2 Very Good Quality Agricultural Land

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

Grade 3 Good to Moderate Quality Land

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

Subgrade 3a Good Quality Agricultural Land

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

Subgrade 3b Moderate Quality Agricultural Land

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

Grade 4 Poor Quality Agricultural Land

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

Grade 5 Very Poor Quality Agricultural Land

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

APPENDIX II

SOIL DATA

Contents

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 **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 VALLEYLP SITE 95 Pit N mber 1P

Gr d Reference SU40102080 Average Annual Rai fall 0 mm
Accumul ted Tempe ature 0 degree days
Field Capacity Level 0 days
L nd Use Permanent Grass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 26	FSL	10YR42 00	1	5	HR					
26 40	FSL	10YR42 00	0	20	HR		MDCSAB	FR	M	
40 64	FSL	10YR42 00	0	25	HR		MDCSAB	FR	M	
64 78	HCL	25Y 53 00	0	35	HR	M	WKCSAB	FM	M	
78 120	C	05Y 52 00	0	25	HR	M	WKCSAB	FM	P	

Wetne s Grade 1 Wetness Class II
Gleying 064 cm
SPL 078 cm

Drought Grade 2 APW 125mm MBW 19 mm
APP 104mm MBP 4 mm

FINAL ALC GRADE 2
MAIN LIMITATION Drought ness

SOIL PIT DESCRIPTION

S te Name TEST VALLEYLP SITE 95 P t N mbe 2P

Grid Reference SU40342076 Average Ann al Ra nfall 0 mm
Accumulated Tempe ature 0 degree days
Field Capacity Level 0 days
Land Use Permanent Grass
Slope and Aspect 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 24	FSL	10YR42 00	2	10	HR					
24 52	MCL	10YR41 00	0	4	HR	C	MDCSAB	FR	M	
52 70	HCL	25Y 63 00	0	0		M	MDCAB	FR	M	
70 120	HCL	25Y 62 00	0	0		M	MDCAB	FM	P	

Wetness Grade 2 Wetness Class III
Gleying 024 cm
SPL 052 cm

Drought Grade 2 APW 134mm MBW 28 mm
APP 111mm MBP 11 mm

FINAL ALC GRADE 2
MAIN LIMITATION So 1 Wet ess/Drought e

SOIL PIT DESCRIPTION

Site Name TEST VALLEYLP SITE 95 Pit Number 3P

Grid Reference SU40202030 Average Ann al Rainfall 0 mm
Accumulated Tempe at re 0 degree days
Field Capacity Level 0 d ys
Land Use
Slope and Aspect 01 degrees N

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 24	FSL	10YR43 00	2	4	HR					
24 43	FSL	10YR44 00	0	5	HR		MDCSAB	FR	M	
43- 52	C	25Y 53 00	0	12	HR	M	WKCPR	FR	M	
52 75	C	25Y 63 00	0	15	HR	M	MDCAB	FM	P	
75-120	C	25Y 63 00	0	25	HR	M		FM	P	

Wetness Grade 2 Wetness Class III
Gleying 043 cm
SPL 043 cm

Drought G de 2 APW 124mm MBW 18 mm
APP 107mm MBP 7 mm

FINAL ALC GRADE 2
MAIN LIMITATION Soil Wetne s/Drought ne

SOIL PIT DESCRIPTION

Site Name TEST VALLEYLP SITE 95 Pit Number 4P

Grid Reference SU40502060 Average Ann al Rai fall 0 mm
Accumulated Temperature 0 degree days
F eld Capacity Level 0 days
Land Use Ley
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 20	MZCL	10YR42 00	0	2	HR	C				
20 38	MCL	25Y 52 00	0	0		C	MDCAB	FR	M	
38- 62	MCL	25Y 61 53	0	0		M	WKVCPR	FR	M	
62 80	HZCL	25Y 61 00	0	0		M	MDCAB	FR	M	

Wetness Grade 3B Wetnes Cl IV
Gleying 020 cm
SPL 020 cm

Drought Grade APW mm MBW 0 mm
APP mm MBP 0 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	SU40102080	PGR			060	078	2	1	138	32	112	12	1					1	Stonier see 1P
1P	SU40102080	PGR			064	078	2	1	125	19	104	4	2				DR	2	psd fsl t/soil
2	SU40402080	PGR	SE	02	035	045	4	3A		0		0					WE	3A	psd fsl t/soil
2P	SU40342076	PGR	SE	02	024	052	3	2	134	28	111	11	2				WD	2	psd fsl t/so l
3	SU40502080	PGR	SE	01	035	045	4	3A		0		0					WE	3A	See psd 2 & 2P
3P	SU40202030	OTH	N	01	043	043	3	2	124	18	107	7	2				WD	2	psd fsl t/soil
4	SU40002070	PGR	SE	03			1	1	52	54	52	-48	4				DR	3A	See 3P 177/96
4P	SU40502060	LEY			020	020	4	3B		0		0					WE	3B	V pale /soils
5	SU40302070	PGR	S	01	025	025	4	3B		0		0					WE	3B	Brick f agme t
6	SU40402070	PGR	SE	01	030	055	3	2	136	30	113	13	1				WE	2	See psd 2 & 2P
7	SU40602070	PGR	SE	01	010	037	4	3B		0		0					WE	3B	V pale see 4P
8	SU40102060	PGR	SE	02	030	060	3	2	119	13	113	13	2				WD	2	Imp 95 flinty
9	SU40302060	PGR	SE	02	0	042	4	3B		0		0					WE	3B	V pale see 4P
10	SU40502060	PGR			032	032	4	3B		0		0					WE	3B	V pale see 4P
11	SU40002050	PGR			0	073	2	1	133	27	106	6	2				DR	2	
12	SU40102050	FAL	N	01	0	030	4	3B		0		0					WE	3B	V pale see 4P
13	SU40202050	PGR	S	01	0	025	4	3B		0		0					WE	3B	V pale see 4P
14	SU40402050	PGR	N	02	0	028	4	3B		0		0					WE	3B	V pale see 4P
15	SU39902040	FAL	N	02	050	050	3	2	135	29	119	19	2				WD	2	
16	SU40102040	FAL	N	02	045	060	3	2	127	21	118	18	2				WD	2	Much fine and
17	SU40302040	PGR	N	01	030	030	4	3B		0		0					WE	3B	
18	SU40502040	PGR	N	01	0	055	3	2	132	26	108	0	2				WD	2	psd f l t/so l
19	SU39902030	LEY	W	03	0	045	4	3A		0		0					WE	3A	Much fine nd
20	SU40002030	PGR	SE	03	0	060	3	2	158	52	111	11	1				WE	2	
21	SU40202030	LEY	N	01	050	050	3	2	106	0	110	10	3A				WD	2	Imp 80 fli ty
22	SU40402030	LEY			0	070	2	1	136	30	120	20	1					1	See psd 18& 3P
23	SU40102020	PGR	S	04	030	040	4	3A		0		0					WE	3A	
24	SU40302020	LEY	S	01	050	050	3	2	140	34	116	6	2				WD	2	
25	SU40202010	OTH	S	04	0	095	1	1	171	65	124	24	1					1	Coarse texture
26	SU40402010	TUR	S	04	0	055	3	2	120	14	117	7	2				WD	2	psd see 3P
27	SU39902000	PGR	N	03	055	055	3	2	139	33	115	5	2				WD	2	In 3a map t
28	SU40302000	RGR			023	023	5	4		0		0					WE	4	R shy G de 4
29	SU40401990	PGR			0	015	4	3B		0		0					WE	3B	V wet n G4
30	SU39901990	PGR			022	033	4	3A		0		0					WE	3A	
31	SU40301980	PGR			023	035	5	4		0		0					WE	4	Diff to d
32	SU40601970	RGR			028	028	4	3B		0		0					WE	3B	Rough l nd

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 30	fsl	10YR43 00						1	0	HR	5							
	30-60	fsl	10YR42 00						0	0	HR	15		M					
	60-78	hcl	25Y 52 00	10YR58 00	C		00MN00 00	Y	0	0	HR	10		M					Not spl see 1P
	78-120	c	05Y 62 00	75YR68 00	M			Y	0	0	HR	5		P			Y		
1P	0 26	fsl	10YR42 00						1	0	HR	5							hand=mszl
	26-40	fsl	10YR42 00						0	0	HR	20	MDCSAB	FR	M				hand=mszl
	40 64	fsl	10YR42 00						0	0	HR	25	MDCSAB	FR	M				Prob fsl psd 1P
	64 78	hcl	25Y 53 00	10YR58 00	M			Y	0	0	HR	35	WKCSAB	FM	M				
	78-120	c	05Y 52 00	25YR58 00	M			Y	0	0	HR	25	WKCSAB	FM	P	Y		Y	
2	0-35	fsl	10YR42 00						0	0	HR	10							hand=mcl
	35-45	fsl	10YR41 00	10YR66 54	C			Y	0	0	HR	5		M					Prob fsl psd 2&2P
	45-57	hcl	10YR62 00	10YR56 00	C			Y	0	0	HR	2		P			Y		
	57 120	c	25Y 72 00	05YR56 00	M			Y	0	0	HR	2		P			Y		
2P	0 24	fsl	10YR42 00						2	0	HR	10							hand=mcl
	24 52	mcl	10YR41 00	10YR56 00	C			Y	0	0	HR	4	MDCSAB	FR	M				
	52 70	hcl	25Y 63 00	75YR56 58	M			Y	0	0		0	MDCAB	FR	M	Y		Y	
	70 120	hcl	25Y 62 00	75YR56 58	M			Y	0	0		0	MDCAB	FM	P	Y		Y	
3	0 35	fsl	10YR42 00						0	0	HR	2							Prob fsl psd 2&2P
	35-45	mcl	25Y 63 00	10YR66 00	C			Y	0	0	HR	2		M					
	45-60	hcl	25Y 64 71	10YR66 00	C			Y	0	0	HR	2		M			Y		
	60 120	c	05Y 73 00	05YR56 00	M			Y	0	0	HR	2		P			Y		
3P	0 24	fsl	10YR43 00						2	0	HR	4							hand=msl
	24-43	fsl	10YR44 00						0	0	HR	5	MDCSAB	FR	M				hand=msl
	43 52	c	25Y 53 00	05YR58 00	M		25Y 52 00	Y	0	0	HR	12	WKCPR	FR	M	Y		Y	
	52 75	c	25Y 63 00	05YR58 00	M		05Y 62 00	Y	0	0	HR	15	MDCAB	FM	P	Y		Y	
	75-120	c	25Y 63 00	05YR58 00	M		05Y 62 00	Y	0	0	HR	25		FM	P	Y		Y	
4	0 30	fsl	10YR43 00						8	1	HR	15							
	30 35	fsl	10YR43 00						0	0	HR	40		M					I35 see3P 177/96
4P	0 20	mzcl	10YR42 00	75YR46 00	C				0	0	HR	2							
	20 38	mcl	25Y 52 00	10YR58 00	C			Y	0	0		0	MDCAB	FR	M	Y		Y	
	38-62	mcl	25Y 61 53	10YR58 68	M			Y	0	0		0	WKVCPR	FR	M	Y		Y	hand=mzcl/mcl
	62 80	hzcl	25Y 61 00	75YR58 00	M			Y	0	0		0	MDCAB	FR	M	Y		Y	hand hcl
5	0 25	mzcl	10YR42 00						0	0		0							
	25-80	c	10YR66 71					Y	0	0		0		P			Y		Brick f agment
6	0 30	fsl	10YR43 00						0	0	HR	2							Prob fsl psd 3P
	30 55	mzcl	25Y 64 54	10YR56 00	C			Y	0	0	HR	2		M					
	55 65	hcl	25Y 72 62	10YR56 00	C			Y	0	0	HR	2		P			Y		
	65-120	c	25Y 72 62	10YR56 00	M			Y	0	0	HR	2		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	
7	0 10	mzcl	10YR42 00						0	0	HR	1							
	10 37	mcl	10YR61 00	75YR46 00	M			Y	0	0	HR	1		M			Y		Prob spl v pale
	37 50	hcl	25Y 72 00	10YR56 00	C			Y	0	0		0		P			Y		V pale
	50 120	c	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y		V pale
8	0 30	fsl	10YR43 00						6	1	HR	10							Prob fsl psd 1P&2P
	30 60	fsl	10YR62 00	75YR56 00	C			Y	0	0	HR	5		M					Prob fsl psd 1P&2P
	60 95	c	05Y 62 00	75YR68 00	M			Y	0	0	HR	5		P			Y		Imp 95 flinty
9	0-32	mcl	10YR53 00	10YR58 00	C			Y	1	0	HR	5							
	32-42	mcl	25Y 63 00	10YR58 00	C		00MN00 00	Y	0	0	HR	5		M					
	42-80	hcl	10YR63 00	10YR58 00	C		00MN00 00	Y	0	0	HR	1		M			Y		Prob spl 2P&4P
	80 120	hcl	25Y 72 00	75YR56 00	M			Y	0	0	HR	1		M			Y		Prob spl 2P&4P
10	0 32	mzcl	10YR43 00						0	0		0							
	32 55	hzcl	25Y 72 00	10YR56 00	C			Y	0	0		0		P			Y		V pale
	55-85	c	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y		V pale
11	0 35	fsl	10YR42 00	10YR58 00	C			Y	3	0	HR	10							Prob fsl psd 1P&2P
	35-50	fsl	10YR72 00	10YR66 00	C			Y	0	0	HR	15		M					Prob fsl psd 1P&2P
	50 60	hcl	25Y 62 00	10YR58 00	C			Y	0	0	HR	5		P					
	60 73	msl	05Y 62 00	10YR58 00	C			Y	0	0	HR	5		M					V pale
	73 120	c	05Y 61 00	75YR66 00	M			Y	0	0		0		P			Y		V pale
12	0 30	mzcl	10YR51 00	75YR56 00	C			Y	0	0		0							V pale
	30 40	hcl	10YR51 00	75YR56 00	C			Y	0	0		0		P			Y		V pale
	40 70	c	25Y 62 00	10YR56 00	C			Y	0	0		0		P			Y		
13	0 25	mcl	10YR52 42	10YR58 00	C			Y	1	0	HR	5							
	25-45	mcl	10YR52 00	10YR58 00	C		00MN00 00	Y	0	0	HR	5		M			Y		V pale
	45-58	mcl	25Y 62 72	10YR66 00	C			Y	0	0	HR	2		M			Y		Prob spl see 4P
	58 95	hcl	05Y 62 00	75YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y		
	95-110	c	05Y 61 00	75YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y		
14	0 28	mcl	10YR52 53	10YR46 00	C			Y	0	0		0							
	28 70	c	25Y 71 62	10YR58 00	M			Y	0	0	HR	2		P			Y		V pale
15	0 32	fsl	10YR43 00						0	0	HR	1							Prob fsl psd 3P
	32 50	fsl	10YR44 00						0	0	HR	1		M					Prob fsl psd 3P
	50 65	hcl	10YR53 54	10YR58 00	C			Y	0	0	HR	1		M					Prob spl rel pale
	65-110	c	10YR52 53	10YR58 00	M			Y	0	0	HR	1		P			Y		
16	0 30	fsl	10YR43 00						0	0		0							Prob fsl psd 3P
	30-45	fsl	10YR44 00						0	0		0		M					Prob fsl psd 3P
	45-60	hcl	10YR53 54	10YR58 00	C			Y	0	0		0		M			Y		Prob spl rel pale
	60 100	c	10YR52 53	10YR58 00	C			Y	0	0		0		P			Y		
17	0 30	mcl	10YR43 00						0	0		0							
	30 70	c	10YR53 00	75YR58 00	C			Y	0	0	HR	2		P			Y		
	70 75	c	10YR53 00	75YR58 00	C			Y	0	0	HR	25		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	
18	0 28	fsl	10YR61 00	75YT44 00	C			Y	0	0	HR	5							Prob fsl psd 3P
	28-55	scl	25Y 63 00	75YR56 00	C			Y	0	0		0		M					Sandy not spl
	55-120	c	25Y 62 63	10YR56 00	M			Y	0	0		0		P		Y			
19	0-30	f l	10YR42 00	10YR44 00	C			Y	0	0		0							Prob fsl psd 3P
	30-45	mcl	10YR53 43	10YR56 00	C			Y	0	0		0		M					
	45-70	hcl	25Y 61 54	10YR46 00	C			Y	0	0		0		P		Y			
	70-80	hcl	25Y 61 54	10YR46 56	M			Y	0	0		0		P		Y			
	80 120	c	25Y 61 54	10YR46 56	M			Y	0	0		0		P		Y			
20	0-30	fsl	10YR52 00	10YR58 00	C			Y	4	0	HR	10							Prob fsl psd 3P
	30 60	fsl	25Y 62 00	10YR58 00	C			Y	0	0	HR	10		M					Prob fsl psd 3P
	60-85	scl	25Y 53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	1		P		Y			
	85-120	fsl	05Y 53 63	10YR58 00	C			Y	0	0	HR	1		M		Y			Prob fsl psd 3P
21	0 30	fsl	10YR43 00						0	0	HR	3							Prob f l psd 3P
	30 50	fsl	10YR44 54						0	0	HR	5		M					Prob fsl psd 3P
	50-80	c	25Y 51 52	75YR58 00	M			Y	0	0	HR	10		P		Y			Impen 80 fli ty
22	0 35	fsl	10YR52 00	10YR58 00	C			Y	0	0	HR	2							Prob fsl psd 3P
	35-50	fsl	10YR63 64	10YR58 00	C		00MN00 00	Y	0	0	HR	2		M					Prob fsl psd 3P
	50 70	mcl	25Y 53 00	10YR58 00	C		00MN00 00	Y	0	0		0		M					Q fsl
	70 90	c	05Y 62 00	75YR68 00	M			Y	0	0	HR	2		P		Y			
	90 120	lms	05Y 62 00	75YR68 00	M			Y	0	0		0		M		Y			Q lfs
23	0 30	f l	10YR43 00						0	0	HR	5							hand=msl
	30-40	fsl	25Y 53 00	10YR58 00	C			Y	0	0	HR	5		M					Prob fsl psd 41
	40-80	c	05Y 42 00	75YR68 00	M			Y	0	0		0		P		Y			
24	0-25	fsl	10YR43 00						0	0	HR	2							Prob f l psd 41&3P
	25-50	fsl	10YR44 00						0	0	HR	2		M					Prob fsl psd 41&3P
	50 60	hcl	05Y 62 00	75YR68 00	M			Y	0	0		0		M		Y			Prob spl v pale
	60 120	hcl	05Y 52 00	75YR68 00	M			Y	0	0		0		P		Y			
25	0 35	fsl	10YR52 00	10YR46 00	C			Y	1	0	HR	3							Prob fsl psd 41&3P
	35-95	fsl	25Y 52 00	10YR58 00	C			Y	0	0	HR	1		M					Prob fsl psd 41&3P
	95-120	scl	25Y 62 00	10YR68 00	M			Y	0	0	HR	1		M		Y			
26	0 35	fsl	05Y 42 32	10YR58 00	C			Y	0	0	HR	1							Prob fsl psd 41&3P
	35-55	fsl	05Y 52 63	10YR58 00	C			Y	0	0	HR	1		M					Prob fsl psd 41&3P
	55-90	c	05Y 52 00	75YR58 00	M			Y	0	0	HR	1		P		Y			
27	0 30	fsl	10YR42 43						0	0	HR	2							Prob fsl psd 41&3P
	30-45	f l	10YR42 00						0	0	HR	3		M					Prob fsl psd 41&3P
	45-55	fsl	10YR42 00						0	0	HR	8		M					Prob fsl psd 41&3P
	55-120	c	05Y 52 61	10YR68 58	M			Y	0	0		0		P		Y			
28	0 23	mcl	10YR32 00						0	0		0							V wet & ru hy
	23-60	c	05Y 72 00	10YR68 00	M			Y	0	0	HR	5		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	
29	0-15	omcl	10YR21 00					Y	0	0		0							
	15-55	c	05Y 41 00	10YR68 00	M			Y	0	0		0		P			Y		
30	0 22	fsl	10YR31 00						0	0	HR	2							Prob fsl psd 41
	22 33	scl	25Y 53 00	10YR56 00	C			Y	0	0		0		M					
	33-70	hcl	05G 62 00	10YR58 00	M			Y	0	0		0		M			Y		Prob pl pal
	70 120	scl	05G 62 00	10YR58 00	M			Y	0	0		0		M			Y		Prob spl v pale
31	0 23	ofsl	10YR21 00						0	0		0							
	23-35	fsl	10YR42 00	10YR58 00	C			Y	0	0	HR	2		M					
	35-120	c	05G 52 00	10YR68 00	M			Y	0	0		0		P			Y		
32	0 28	mcl	10YR32 00						0	0		0							
	28-55	c	05G 51 00	10YR58 00	M			Y	0	0		0		P			Y		
	55-70	c	05B 71 00	10YR58 00	M			Y	0	0		0		P			Y		