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Bracknell Forest Local Plan
Site SAN 50 : Land between Wokingham Road, Ambarrow Lane and Lower Sandhurst Road, Sandhurst
Agricultural Land Classification
ALC Map & Report
November 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

BRACKNELL FOREST LOCAL PLAN
SITE SAN/50 : LAND BETWEEN WOKINGHAM ROAD, AMBARROW LANE AND LOWER SANDHURST ROAD, SANDHURST

1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on a number of sites in the Bracknell district of Berkshire. The work forms part of MAFF's statutory input to the preparation of the Bracknell Forest Local Plan.

1.2 Site SAN/50 comprises 29.4 hectares of land between Wokingham Road, Ambarrow Lane and Lower Sandhurst Road, Sandhurst, Berkshire. An Agricultural Land Classification, (ALC), survey was carried out during November 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 23 borings and two soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land, (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose a long term limitation on its use for agriculture. The southern-most part of the site relates to site SAN/18 also surveyed in November 1994, containing a total of 7 borings and one soil inspection pit.

1.3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.

1.4 At the time of survey the land use on the site was permanent grazing, with non-agricultural land to the south and north west of the site and land comprising permanent stables and farm buildings to the east.

1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas and extent are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	4.8	16.3	17.4
3a	15.8	53.8	57.2
3b	7.0	23.8	25.4
Non-agricultural	0.8	2.7	100.0 (27.6 ha)
Farm Buildings	1.0	3.4	
Total area of site	29.4	100.0	

1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

1.7 The Grade 2 land (very good quality) experiences a minor soil droughtiness limitation related to the presence of sandy subsoil horizons. The Subgrade 3a land (good quality) covers the majority of the site and contains a mixture of droughty sandy profiles and heavier soils with a wetness limitation. The Subgrade 3b land (moderate quality) identifies a range of situations, with a mixture of droughty soils, areas of steep slopes and land with a significant soil wetness limitation.

2. Climate

2.1 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.

2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations.

2.4 No local climatic factors such as exposure or frost risk are believed to affect the site.

Table 2 : Climatic Interpolation

Grid Reference	SU823624
Altitude (m)	65
Accumulated Temperature (degree days, Jan-June)	1451
Average Annual Rainfall (mm)	669
Field Capacity (days)	140
Moisture Deficit, Wheat (mm)	113
Moisture Deficit, Potatoes (mm)	106
Overall Climatic Grade	1

3. Relief

3.1 The majority of the site is flat to moderately sloping (0-5°) where neither relief or gradient affect agricultural land quality. A small area to the south of the stream has a slope of 8° which will cause a significant loss of agricultural potential. The site lies between 60m and 75m AOD.

4. Geology and Soil

4.1 The published geological sheet for the site (BGS, 1978) shows the majority of the site to be mapped as Bracklesham Beds, with a small area of Alluvium centrally located.

4.2 The published soils information for the area, (SSEW, 1983) shows that the whole site to be mapped as soils of the Holidays Hill association, described as 'naturally very acid sandy over clayey and loamy over clayey soils, locally with humose or peaty surface horizons, slowly permeable subsoils and slight seasonal waterlogging. Some very acid well drained sandy soils, and some deep sandy soils, affected by groundwater, with humose surface horizons', (SSEW, 1983).

5. Agricultural Land Classification

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points are shown on the attached sample point map.

Grade 2

5.3 Very good quality land is found to the north west and south east of the site. Soil profiles typically comprise medium sandy loam topsoils containing 1-2% hard stones, over similar stoneless gleyed upper subsoils. The upper subsoils overlie gleyed very slightly stony (2-4% hard stones) moderately structured clays (with sandy lenses) and medium sandy loam with occasional medium sand subsoils. Soils are well drained, falling into Wetness Class I and moderately well drained, with gleying above 40 cm depth, falling into Wetness Class II. The combination of sandy subsoil textures and climatic factors at this locality causes a slight restriction on profile available water reserves for adequate crop growth and land is thereby limited to Grade 2 due to slight droughtiness restrictions.

Subgrade 3a

5.4 Good quality land is found over the majority of the site. Soil profiles are mainly limited by droughtiness with occasional wetness limitations.

5.5 Drought limited profiles typically consist of medium sandy loam topsoils containing 1-3% hard stones, over gleyed very slightly stony (1-2% hard stones) loamy medium sand upper subsoils in turn over gleyed stoneless medium sand and clay with sand subsoils. These profiles are moderately well structured and moderately well drained with gleying occurring above 40 cm depth, therefore falling into Wetness Class II. The combination of light sandy subsoil textures and local climatic factors causes a moderate restriction on available water reserves for adequate crop growth and land is limited to Subgrade 3a due to moderate droughtiness restrictions.

5.6 Soil profiles affected by soil wetness typically comprise medium clay loam topsoils, containing 1-2% hard stones, over similar gleyed, stoneless, poorly structured, slowly permeable clay subsoils. The slowly permeable horizon occurs at 55 cm depth, and causes imperfect drainage. Wetness Class III is therefore appropriate. This land is limited by a moderate wetness limitation.

5.7 Two pits were described in the Subgrade 3a map unit that are actually classified as Grade 2. However, such is the variation in the wetness and droughtiness characteristics of these soils over short distances that Subgrade 3a is the preferred grade for this land.

Subgrade 3b

5.8 Moderate quality land is found mainly in the south east of the site, where it is limited by droughtiness and slope, with a small area located centrally limited by wetness. These profiles consist of loamy medium sand topsoils containing approximately 8% total hard stones over similar stoneless upper subsoils, in turn over stoneless medium sand to 90 cm depth. Below this, subsoils consist of medium sand to 120 cm depth containing approximately 40% hard stones. These soils have a good structure and are well drained, falling into Wetness Class I. Soil Pit 1 contained within job 0201/264/94 is typical of these profiles. Stone content and light sandy subsoil textures in combination with local climatic factors imparts a significant restriction on profile available water reserves limiting these profiles to Subgrade 3b by droughtiness restrictions.

5.9 A small area of land located centrally is limited by wetness. Profiles consist of stoneless, gleyed medium clay loam topsoils over gleyed, stoneless, poorly structured slowly permeable clay. The slowly permeable horizon occurs at 25 cm, resulting in a poor drainage status and Wetness Class IV. This drainage status, combined with a medium topsoil texture and climatic factors, limits this land to Subgrade 3b on wetness and workability restrictions.

5.10 A small area of land adjacent to the stream had standing water and juncus vegetation at the time of survey. This land is at best Subgrade 3b.

5.11 A minor area of Subgrade 3b gradient occurs on the slopes above the stream.

SOURCES OF REFERENCE

British Geological Survey (1978) Sheet No. 269, Windsor, 1:50,000 scale.

MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

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

APPENDIX I

DESCRIPTION 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 (eg. 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.

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religous buildings, cemetries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

Open Water

Includes lakes, ponds and rivers as map scale permits.

Land Not Surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

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.

Definition of Soil Wetness Classes

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.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

[1]The number of days specified is not necessarily a continuous period.
[2]'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

Soil Abbreviations - Explanatory Note

Soil Pit Descriptions

Database Printout - Boring Level Information

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. **GLEY/SPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.

5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)

7. **DRT** : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

MREL : Microrelief limitation	**FLOOD** : Flood risk	**EROSN** : Soil erosion risk
EXP : Exposure limitation	**FROST** : Frost prone	**DIST** : Disturbed land
CHEM : Chemical limitation		

9. **LIMIT** : The main limitation to land quality. The following abbreviations are used.

OC : Overall Climate	**AE** : Aspect	**EX** : Exposure
FR : Frost Risk	**GR** : Gradient	**MR** : Microrelief
FL : Flood Risk	**TX** : Topsoil Texture	**DP** : Soil Depth
CH : Chemical	**WE** : Wetness	**WK** : Workability
DR : Drought	**ER** : Erosion Risk	**WD** : Soil Wetness/Droughtiness
ST : Topsoil Stoniness		

Soil Pits and Auger Borings

1. **TEXTURE** : soil texture classes are denoted by the following abbreviations.

S :	Sand	**LS** :	Loamy Sand	**SL** :	Sandy Loam
SZL :	Sandy Silt Loam	**CL** :	Clay Loam	**ZCL** :	Silty Clay Loam
ZL :	Silt Loam	**SCL** :	Sandy Clay Loam	**C** :	Clay
SC :	Sandy Clay	**ZC** :	Silty Clay	**OL** :	Organic Loam
P :	Peat	**SP** :	Sandy Peat	**LP** :	Loamy Peat
PL :	Peaty Loam	**PS** :	Peaty Sand	**MZ** :	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F : Fine (more than 66% of the sand less than 0.2mm)
M : Medium (less than 66% fine sand and less than 33% coarse sand)
C : Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M** : Medium (<27% clay) **H** : Heavy (27-35% clay)

2. **MOTTLE COL** : Mottle colour using Munsell notation.

3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

F : few <2% **C** : common 2-20% **M** : many 20-40% **VM** : very many 40% +

4. **MOTTLE CONT** : Mottle contrast

F : faint - indistinct mottles, evident only on close inspection
D : distinct - mottles are readily seen
P : prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL** : Ped face colour using Munsell notation.

6. **GLEY** : If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH** : Stone Lithology - One of the following is used.

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

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT** : the degree of development, size and shape of soil peds are described using the following notation:

degree of development	**WK** : weakly developed **ST** : strongly developed	**MD** : moderately developed
ped size	**F** : fine **C** : coarse	**M** : medium **VC** : very coarse
ped shape	**S** : single grain **GR** : granular **SAB** : sub-angular blocky **PL** : platy	**M** : massive **AB** : angular blocky **PR** : prismatic

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 appropiate 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 : BRACK FOREST LP SAN/50 Pit Number : 1P

Grid Reference: SU82256220
Average Annual Rainfall : 669 mm
Accumulated Temperature : 1451 degree days
Field Capacity Level : 140 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees SW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MSL	10YR42 00	0	2	HR					
28- 58	MCL	10YR53 00	0	0		C	MCSAB	FR	M	
58-120	C	10YR42 52	0	0		M	MCSAB	FM	M	

Wetness Grade : 1
Wetness Class : II
Gleying :028 cm
SPL : No SPL

Drought Grade : 2
APW : 140mm MBW : 27 mm
APP : 114mm MBP : 8 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : BRACK FOREST LP SAN/50 Pit Number : 2P

Grid Reference: SU82306255
Average Annual Rainfall : 669 mm
Accumulated Temperature : 1451 degree days
Field Capacity Level : 140 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees SW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	MSL	10YR42 00	0	0	HR					
29- 47	MSL	10YR52 00	0	0	HR	C			M	
47- 52	C	10YR42 61	0	0	HR	C			M	
52- 72	C	10YR42 61	0	0	HR	C			P	

Wetness Grade : 2
Wetness Class : III
Gleying :029 cm
SPL :052 cm

Drought Grade : 3A
APW : 097mm MBW : -16 mm
APP : 108mm MBP : 2 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : BRACKNELL.LP.SITE SAN 18 Pit Number : 1P

Grid Reference: SU82406200 Average Annual Rainfall : 672 mm
Accumulated Temperature : 1449 degree days
Field Capacity Level : 141 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- 36	LMS	10YR42 00	4	8	HR					
36- 49	LMS	10YR54 00	0	6	HR		MDCAB	FR	G	
49- 94	MS	10YR53 64	0	0		C	MDCSAB	FR	G	
94-120	MS	75YR56 00	0	40	HR			FR	G	

Wetness Grade : 1 Wetness Class : I
Gleying :049 cm
SPL : No SPL

Drought Grade : 3B APW : 080mm MBW : -32 mm
APP : 067mm MBP : -39 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU81906260	PGR			025		2	1	133	20	097	-9	2				DR	2	2-3A DR
1P	SU82256220	PGR	SW	02	028		2	1	140	27	114	8	2				DR	2	PBSAUG
2	SU82006260	PGR	W	04	030		2	2	156	43	118	12	1				WE	2	
2P	SU82306255	PGR	SW	02	029	052	3	2	097	-16	108	2	3A				WE	2	
3	SU82206260	PGR	W	02			1	1	090	-23	088	-18	3B				DR	3B	IMP80STN
4	SU82306260	PGR	W	02	055		1	1	103	-10	086	-20	3A				DR	3A	
5	SU82406260	PGR	SE	04	060		1	1	099	-14	083	-23	3A				DR	3A	
6	SU81906250	PGR	SE	02	025		2	1	123	10	107	1	2				DR	2	
7	SU82006250	PGR	S	02	060		1	1	151	38	110	4	2				DR	2	
8	SU82106250	PGR	SE	03	025		2	1	134	21	091	-15	3A				DR	3A	
9	SU82206250	PGR	W	03	025		2	1	147	34	107	1	2				DR	2	
10	SU82306250	PGR	SE	03	030		2	1	083	-30	087	-19	3B				DR	3B	IMP70STN
11	SU82406250	PGR	SE	03	030	080	2	1	117	4	087	-19	3A				DR	3A	
12	SU82006240	PGR	S		025		2	1	101	-12	085	-21	3A				DR	3A	
13	SU82106240	PGR	W		080		1	1	106	-7	101	-5	3A				DR	3A	IMP90STN
14	SU82206240	PGR	W	02	030	055	3	3A	000	0	000	0					WE	3A	
15	SU82306240	PGR	W		0	025	4	3B	000	0	000	0					WE	3B	
16	SU82406240	PGR		05	035		2	1	158	45	093	-13	3A				DR	3A	
18	SU82306230	PGR	W		020	020	4	3B	094	-19	099	-7	3A				WE	3B	
20	SU82456230	PGR	W		025		2	1	157	44	098	-8	2				DR	2	
21	SU82206220	PGR	W		070		1	1	132	19	102	-4	2				DR	2	
22	SU82306220	PGR	W		025		1	1	083	-30	084	-22	3B				DR	3A	
23	SU82356220	PGR	W		0		2	1	163	50	123	17	1				WE	3A	
26	SU82206210	PGR	W		0	065	3	2	136	23	092	-14	3A				DR	3A	
27	SU82306210	PGR	W		0		2	1	134	21	119	13	2				DR	2	

SAMPLE NO.	GRID REF	ASPECT USE		GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU82506220	PGR	N	05	035	035	4	3B		0		0					WE	3B	
1P	SU82406200	PGR	SE	02	049		1	1	080	-32	067	-39	3B				DR	3B	
2	SU82606220	PGR	N	01	040	060	3	2		0		0					WE	2	
3	SU82406220	PGR	W	06			1	1	082	-30	066	-40	3B				DR	3B	
4	SU82506210	PGR	N	02	050	105	1	1	086	-26	065	-41	3B				DR	3B	
5	SU82606210	PGR	N	01	040		1	1	149	37	109	3	2				DR	2	
6	SU82406200	PGR	SE	02			1	1	106	-6	090	-16	3A				DR	3A	
7	SU82506200	PGR	SE	04	030	045	3	2	102	-10	100	-6	3A				DR	3A	

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	0-25	msl	10YR32 00						0	0		0						
	25-45	msl	10YR51 00	75YR56 00	C			Y	0	0		0		M				
	45-100	lms	10YR52 00	75YR56 00	C			Y	0	0		0		G				
	100-120	scl	25Y 44 00	75YR56 00	C			Y	0	0		0		M				
1P	0-28	msl	10YR42 00						0	0	HR	2						
	28-58	mcl	10YR53 00	75YR56 00	C			Y	0	0		0	MCSAB	FR M				
	58-120	c	10YR42 52	10YR58 00	M			Y	0	0		0	MCSAB	FM M	Y			
2	0-30	mcl	10YR33 00						0	0		0						
	30-120	mcl	05Y 44 00	10YR58 00	C			Y	0	0		0		M				
2P	0-29	msl	10YR42 00						0	0	HR	0						
	29-47	msl	10YR52 00	75YR68 00	C			Y	0	0	HR	0		M				
	47-52	c	10YR42 61	10YR61 00	C			Y	0	0	HR	0		M				
	52-72	c	10YR42 61	75YR58 00	C			Y	0	0	HR	0		P			Y	
3	0-30	msl	10YR33 00						0	0	HR	2						
	30-80	lms	10YR44 00						0	0	HR	2		G				
4	0-35	msl	10YR32 00						0	0	HR	1						
	35-55	lms	10YR44 00						0	0	HR	2		G				
	55-120	ms	10YR62 00	10YR68 00	C			Y	0	0		0		G				
5	0-30	msl	10YR33 00						0	0	HR	3						
	30-60	lms	10YR44 00						0	0	HR	3		G				
	60-120	ms	10YR62 00	10YR68 00	C			Y	0	0	HR	2		G				
6	0-25	msl	10YR33 00						0	0	HR	1						
	25-50	msl	10YR41 00	75YR56 00	C			Y	0	0	HR	4		M				
	50-75	msl	10YR52 00	75YR56 00	C			Y	0	0	HR	3		M				
	75-120	ms	10YR52 00	10YR68 00	C			Y	0	0		0		G				
7	0-25	msl	10YR33 00						0	0	HR	1						
	25-60	msl	10YR44 00						0	0		0		M				
	60-120	scl	05Y 44 00	75YR56 00	C			Y	0	0		0		M				
8	0-25	msl	10YR51 00	75YR56 00	F				0	0		0						
	25-60	lms	10YR51 00	75YR56 00	C			Y	0	0		0		G				
	60-120	scl	05Y 44 00	75YR56 00	C			Y	0	0		0		M				
9	0-25	msl	10YR33 00						0	0	HR	5						
	25-45	msl	10YR52 00	10YR58 00	C			Y	0	0	HR	2		M				
	45-120	scl	05Y 44 00	75YR56 00	C			Y	0	0		0		M				
10	0-30	msl	10YR33 00						0	0	HR	2						
	30-70	lms	10YR52 00	10YR68 00	C			Y	0	0	HR	3		G				

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
11	0-30	msl	10YR32 00						0	0	HR	3						
	30-80	lms	10YR62 00	10YR68 00	C			Y	0	0	HR	3		G				
	80-120	c	05Y 44 00	75YR56 00	C			Y	0	0		0		P			Y	
12	0-25	msl	10YR33 00						0	0		0						
	25-75	lms	10YR51 00	75YR56 00	C			Y	0	0	HR	2		G				
	75-120	ms	25Y 52 00	10YR68 00	C			Y	0	0	HR	2		G				
13	0-30	msl	10YR33 00						0	0	HR	2						
	30-55	msl	10YR34 00						0	0	HR	3		M				
	55-80	lms	10YR44 00						0	0	HR	2		G				
	80-90	ms	10YR72 00	10YR68 00	C			Y	0	0	HR	5		G				
14	0-30	mcl	10YR33 00						0	0	HR	2						
	30-55	mcl	10YR51 00	75YR56 00	C			Y	0	0		0		M				
	55-75	c	05Y 44 00	75YR56 00	C			Y	0	0		0		P			Y	
15	0-25	mcl	10YR42 00	75YR46 00	C			Y	0	0	HR	0						
	25-120	c	10YR61 63	75YR58 00	C			Y	0	0	HR	0		P			Y	
16	0-35	msl	10YR43 00						0	0	HR	0						
	35-70	lms	10YR52 53	75YR58 56	C			Y	0	0	HR	0		G				
	70-120	scl	10YR42 00	75YR56 58	C			Y	0	0	HR	0		G				
18	0-20	c	10YR43 00						0	0	HR	0						
	20-80	c	10YR62 61	75YR58 56	C			Y	0	0	HR	0		P			Y	
20	0-25	fszl	10YR43 00	75YR46 00	F				0	0	HR	0						
	25-80	lms	10YR42 00	75YR58 56	M			Y	0	0	HR	0		G				
	80-120	scl	75YR42 00	75YR68 58	M			Y	0	0	HR	0		G				
21	0-35	fszl	10YR44 00	75YR46 00	F				0	0	HR	0						
	35-70	lms	10YR43 00						0	0	HR	0		M				
	70-90	scl	10YR42 00	10YR56 00	C			Y	0	0	HR	0		M				
	90-120	lms	10YR63 42	75YR46 00	C			Y	0	0	HR	0		M				
22	0-25	fszl	10YR43 00	75YR46 00	F				0	0	HR	0						
	25-55	lms	10YR61 42	75YR46 58	M			Y	0	0	HR	0		G				
23	0-25	fszl	10YR31 00	75YR46 00	C			Y	0	0	HR	0						
	25-80	scl	10YR61 62	75YR66 58	C			Y	0	0	HR	0		M				
	80-120	hcl	10YR61 62	75YR66 58	C			Y	0	0	HR	0		M				
26	0-30	msl	10YR42 00	75YR46 00	C			Y	0	0	HR	0						
	30-65	lms	10YR61 62	75YR46 00	C			Y	0	0	HR	0		G				
	65-120	sc	10YR62 63	75YR56 58	C			Y	0	0	HR	0		M			Y	
27	0-25	fszl	10YR42 00	75YR46 00	C			Y	0	0	HR	0						
	25-65	scl	10YR61 62	75YR46 00	C			Y	0	0	HR	0		M				
	65-120	lms	10YR61 00	75YR58 00	C			Y	0	0	HR	0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
1	0-20	mcl	10YR33 00						0	0	HR	1						
	20-35	mcl	10YR44 00						0	0		0		M				
	35-70	c	10YR51 00	75YR56 00	C			Y	0	0		0		P			Y	
1P	0-36	lms	10YR42 00						4	0	HR	8						
	36-49	lms	10YR54 00						0	0	HR	6	MDCAB	FR	G			
	49-94	ms	10YR53 64	10YR58 00	C			Y	0	0		0	MDCSAB	FR	G			
	94-120	ms	75YR56 00					Y	0	0	HR	40		FR	G			
2	0-25	msl	10YR33 00						0	0	HR	2						
	25-40	msl	10YR44 00						0	0		0		M				
	40-60	mcl	25Y 56 00	75YR56 00	C			Y	0	0		0		M				
	60-120	c	25Y 56 00	10YR58 00	C			Y	0	0		0		P			Y	
3	0-30	lms	10YR42 00						0	0	HR	5						
	30-50	lms	10YR52 00						0	0	HR	5		G				
	50-120	ms	10YR54 00						0	0	HR	5		G				
4	0-25	lms	10YR32 00						0	0	HR	2						
	25-50	lms	10YR33 00						0	0	HR	8		G				
	50-105	ms	10YR52 00	75YR56 00	C			Y	0	0	HR	3		G				
	105-120	c	25Y 56 00	10YR58 00	C			Y	0	0		0		P			Y	
5	0-25	msl	10YR33 00						0	0	HR	2						
	25-40	msl	10YR44 00						0	0		0		M				
	40-120	scl	25Y 56 00	75YR56 00	C			Y	0	0		0		M				
6	0-25	msl	10YR42 00						0	0	HR	5						
	25-40	msl	10YR43 00						0	0	HR	5		M				
	40-75	lms	10YR54 00						0	0	HR	2		G				
	75-95	ms	10YR56 00						0	0		0		G				
	95-120	ms	10YR58 00						0	0	HR	10		G				
7	0-30	msl	10YR42 00						0	0	HR	10						
	30-45	msl	10YR42 00	10YR56 00	C			Y	0	0	HR	5		M				
	45-70	c	25Y 53 00	75YR56 00	C			Y	0	0	HR	2		P			Y	
	70-80	ms	25Y 53 00	75YR56 00	C			Y	0	0	HR	10		G				
	80-120	ms	25Y 53 00	75YR56 00	C			Y	0	0	HR	40		G				