4203/12/93

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WEST SUSSEX MINERALS PLAN
SITE 7 : KINGSHAM FARM
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
SEPTEMBER 1993

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AGRICULTURAL LAND CLASSIFICATION REPORT

1.0 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 West Sussex. The work forms part of MAFF's statutory input to the preparation of the West Sussex Minerals Plan.

1.2 Approximately 43 hectares of land relating to Site 7, south of the Chichester By-Pass (A27) and adjacent to the Chichester Canal, in West Sussex was surveyed during September 1993. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 43 soil auger borings and 3 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 long-term limitations on its use for agriculture.

1.3 Work was conducted by members of the Resource Planning Team in the Guildford Statutory Group. At the time of the survey part of the land was in permanent pasture and the remainder was stubble.

1.4 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement would be misleading. This map supercedes any previous information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
2	8.6	19.9	21.7
3b	31.1	72.0	78.3
Urban	0.2	0.5	100 (39.7 ha)
Non Agric	2.2	5.1	
Farm Buildings	0.3	0.7	
Woodland	0.8	1.8	
Total	43.2	100	

1.5 Appendix 1 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.

1.6 The site has been classified as a mixture of Grade 2 and Subgrade 3b. Approximately one-quarter of the agricultural land surveyed has been assessed as Grade 2, very good quality land. Very slightly stony medium clay loam topsoils are underlain by stoneless medium clay loam upper subsoils and slightly stony heavy clay loam lower subsoils. These soils can be classed no better than Grade 2 because of a very slight droughtiness limitation. The remainder of the site is classed as Subgrade 3b, moderate quality agricultural land. The amount of water available for extraction by crops in these soils is severely restricted by limited rooting into very stony subsoils.

2.0 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 the 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.

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

Table 2 : Climatic Interpolations

Grid Reference :	SU 589 037
Altitude (m) :	9
Accumulated Temperature (days) :	1540
Average Annual Rainfall (mm) :	765
Field Capacity (days) :	156
Moisture Deficit, Wheat (mm) :	119
Moisture Deficit, Potatoes (mm) :	116
Overall Climatic Grade :	1

3.0 Relief

3.1 The site is flat and lies at approximately 10m.

4.0 Geology and Soil

4.1 BGS Sheet 317, Chichester (1957) shows the entire survey area to be underlain by Valley Gravel.

4.2 The soil type for the site, as shown on the Soil Survey map of South East England (SSEW, 1983, 1:250,000), comprises the Hamble 2 Association. These soils are described as 'deep, stoneless well drained silty soils and similar soils affected by groundwater; over gravel locally.'

5.0 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 is shown on the attached sample point map.

Grade 2

5.3 Grade 2 land corresponds to soils with slight workability and droughtiness limitations. Very slightly stony medium clay loams overlie similar textured subsoils which tend to become heavier with depth. These subsoils are stoneless, or very slightly stony, and have moderate sub-structural conditions (moderately structured coarse sub-angular blocky). Some profiles exhibit very slight drainage impedance, as evidenced by gleyed lower subsoils. However, due to the lack of a slowly permeable horizon such profiles are still eligible for Wetness Class I. The interaction between medium topsoils and the local climatic regime results in a slight restriction on cultivations, trafficking by machinery or grazing by livestock. This workability limitation means the land can be classified as no better than Grade 2. In addition, these soils experience a slight droughtiness limitation, which also limits the land to Grade 2. The combination of textures, stone contents and local climatic factors means the available water in the profile is reduced. This restricts the range of crops which can be grown, and gives rise to a slight risk of drought stress for those crops which are grown.

Subgrade 3b

5.4 Nearly all of the Subgrade 3b land experiences a significant droughtiness limitation. The majority of topsoils are shallow, and comprise very slightly stony (2% hard flint) medium clay loams. Upper subsoils consist of very stony (45% hard flint) medium clay loams which are moderately structured. At approximately 40 cm these grade into lower subsoils which are similar to those above, but more stony (55% hard flint). Such profiles are represented by Pit 1, where rooting was observed to a depth of 60 cm.

5.5 In the south of the site, topsoils remain medium clay loams but are moderately stony (25% hard flint). At approximately 28 cm these grade into very stony (50% hard flint) heavy clay loam moderately structured upper subsoils. These are underlain by moderately structured very stony (55% hard flint) medium clay loams. As shown by Pit 3, soil profiles are gleyed within 40cm, but no slowly permeable layer is present within 80cm. Given the local climate, this slight impedance to drainage means Wetness Class II is appropriate. At the time of survey, roots were observed to 58 cm.

5.6 For both soil types, droughtiness is the most limiting factor. The amount of water is significantly restricted by limited rooting. This reduces the available water in the profile and restricts the range of crops which can be grown. This gives rise to a significant risk of drought stress for those crops which are grown. Consequently, this land is assessed as Subgrade 3b.

5.7 A small area of land in the north of the site, adjacent to the canal, has been downgraded because of a significant wetness limitation. Medium clay loam topsoils are underlain by gleyed heavier textured subsoils. Drainage is impeded by a poorly structured clay horizon at approximately 45 cm, such that Wetness Class IV is appropriate. The interaction between these soil conditions and local climatic regime means this land is classed as Subgrade 3b.

Non-Agricultural and Woodland

5.8 The Non-Agricultural land is occupied by a track and scrub areas; the Woodland by established deciduous trees.

Urban

5.9 The area marked on the map as urban consists of residential buildings and a tarmac track.

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Resource Planning Team
Guildford Statutory Group
ADAS Reading

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 on the 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.

Grade 3 : Good To Moderate Quality Agricultural Land

Land with moderate limitations which affect the choice of crops, 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.

Sub-grade 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.

Sub-grade 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 very 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 : housing, industry, commerce, education, transport, religious buildings, cemeteries. 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/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial 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

REFERENCES

* British Geological Survey (1957), Sheet No. 317, Chichester, 1:50,000

* 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 Sets for Agricultural Land Classification.

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

APPENDIX III

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for 31-90 days in most years.

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

(The number of days is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.)

APPENDIX IV

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 database. This has commonly used notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF** : national 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 **HRT** : Horticultural Crops **PGR** : Permanent Pasture **LEY** : Ley Grass **RGR** : Rough Grazing
SCR : Scrub **CFW** : Coniferous Woodland **DCW** : Deciduous Woodland **HTH** : Heathland **BOG** : Bog or Marsh
FLW : Fallow **PLO** : Ploughed **SAS** : Set aside **OTH** : Other

3. **GRDNT** : *Gradient as measured by a hand-held optical clinometer.*

4. **GLEY/SPL** : Depth in cm to gleying or slowly permeable layers.

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

6. **MB (WHEAT/POTS)** : Moisture Balance.

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

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

MREL : Microrelief limitation **FLOOD** : Flood risk **EROSN** : Soil erosion risk **EXP** : Exposure limitation **FROST** : Frost
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** : Soil Erosion Risk **WD** : Combined 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
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 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

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

6. STONE LITH : One of the following is used.

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

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

7. 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

8. 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

9. SUBS STR : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G : good M : moderate P : poor

10. POR : Soil porosity. If a soil horizon has less than 0.5% biopores > 0.5 mm, a 'Y' will appear in this column.

11. IMP : If the profile is impenetrable a 'Y' will appear in this column at the appropiate horizon.

12. SPL : Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

13. CALC : If the soil horizon is calcareous, a 'Y' will appear in this column.

14. 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 : W. SUSSEX MINS - SITE 7 Pit Number : 1P

Grid Reference: SU86400337 Average Annual Rainfall : 765 mm
Accumulated Temperature : 1540 degree days
Field Capacity Level : 156 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 20	MCL	10YR42 00	0	2		
20- 40	MCL	10YR43 00	0	45		
40-120	MCL	10YR54 00	0	55		

Wetness Grade : 1 Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 3B APW : 95 mm MBW : -24 mm
APP : 77 mm MBP : -39 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : W. SUSSEX MINS - SITE 7 Pit Number : 2P

Grid Reference: SU86250358 Average Annual Rainfall : 765 mm
Accumulated Temperature : 1540 degree days
Field Capacity Level : 156 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 29	MCL	10YR43 00	0	1		MDCSAB
29- 46	MCL	10YR44 00	0	0		MDCSAB
46-120	HCL	10YR44 00	0	2		MDCSAB

Wetness Grade : 1 Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 2 APW : 154mm MBW : 35 mm
APP : 117mm MBP : 1 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : W. SUSSEX MINS - SITE 7 Pit Number : 3P

Grid Reference: SU86310319 Average Annual Rainfall : 765 mm
Accumulated Temperature : 1540 degree days
Field Capacity Level : 156 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 28	MCL	10YR43 00	8	25		
28- 51	HCL	10YR62 00	0	50	C	MDCSAB
51-120	MCL	10YR53 00	0	55		

Wetness Grade : 2 Wetness Class : II
Gleying :028 cm
SPL : No SPL

Drought Grade : 3B APW : 91 mm MBW : -28 mm
APP : 73 mm MBP : -43 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	SU86000360	STB	000			1	1	50	-69	50	-66	4				DR	4	IMP 30, 3B DR
1P	SU86400337	PGR	000			1	1	95	-24	77	-39	3B				DR	4	PIT DUG TO 60
2	SU86100360	STB	040			1	1	109	-10	121	5	3A				DR	3A	IMP 70, 2 DR
2P	SU86250358	STB	000			1	1	154	35	117	1	2				DR	2	WK ; PIT 120
3	SU86200360	STB	060			1	1	141	22	117	1	2				DR	2	
3P	SU86310319	STB	028			2	2	91	-28	73	-43	3B				DR	3B	ROOTS58;PIT 85
4	SU86300360	STB	000			1	1	99	-20	108	-8	3A				DR	3A	IMP 65, 2 DR
5	SU86400360	BEN	000			1	1	52	-67	52	-64	4				DR	4	IMP 30, 3B DR
6	SU86500360	BEN	000			1	1	38	-81	38	-78	4				DR	4	IMP 22, 3B DR
7	SU86600360	BEN	000			1	1	48	-71	48	-68	4				DR	4	IMP 30, 3B DR
8	SU86700360	STB	000			1	1	42	-77	42	-74	4				DR	4	IMP 25, 3B DR
9	SU85900350	STB	030	045	4	3B		120	1	111	-5	3A				WE	3B	
10	SU86000350	STB	055			1	1	145	26	116	0	2				DR	2	NO SPL
11	SU86100350	STB	045			1	1	118	-1	120	4	3A				DR	3A	IMP 80, 2 DR
12	SU86200350	STB	055			1	1	142	23	117	1	2				DR	2	Q SPL
13	SU86300350	STB	000			1	2	87	-32	90	-26	3B				DR	3B	IMP 55, 3B DR
14	SU86400350	BEN	000			1	1	52	-67	52	-64	4				DR	4	IMP 30, 3B DR
15	SU86500350	STB	000			1	1	65	-54	65	-51	4				DR	4	IMP 40, 3B DR
16	SU86600350	STB	000			1	1	42	-77	42	-74	4				DR	4	IMP 25, 3B DR
17	SU85900340	STB	035	055	2	2		141	22	116	0	2				WE	3A	Q SPL
18	SU86000340	STB	075			1	1	145	26	117	1	2				DR	2	
19	SU86100340	STB	060			1	2	155	36	122	6	2				DR	2	NO SPL
20	SU86200340	STB	000			1	1	50	-69	50	-66	4				DR	4	IMP 30, 3B DR
21	SU86300340	BEN	000			1	1	84	-35	84	-32	3B				DR	3B	IMP 50, 3B DR
22	SU86400340	PGR	000			1	1	35	-84	35	-81	4				DR	4	IMP 20, 3B DR
23	SU86500340	PGR	000			1	1	35	-84	35	-81	4				DR	4	IMP 20, 3B DR
24	SU86600340	PGR	000			1	1	26	-93	26	-90	4				DR	4	IMP 15, 3B DR
26	SU86100330	BEN	000			1	1	41	-78	41	-75	4				DR	4	IMP 23, 3B DR
27	SU86200330	STB	035			2	2	73	-46	73	-43	3B				WE	3B	IMP 45, 3B DR
28	SU86300330	STB	000			1	1	41	-78	41	-75	4				DR	4	IMP 25, 3B DR
29	SU86400330	PGR	000			1	1	46	-73	46	-70	4				DR	4	IMP 30, 3B DR
30	SU86500330	PGR	000			1	1	49	-70	49	-67	4				DR	4	IMP 30, 3B DR
31	SU86600330	PGR	000			1	1	41	-78	41	-75	4				DR	4	IMP 25, 3B DR
32	SU86100320	BEN	020			1	1	40	-79	40	-76	4				DR	4	IMP 23, 3B DR
33	SU86200320	BEN	000			1	1	53	-66	53	-63	4				DR	4	IMP 30, 3B DR
34	SU86300320	STB	020			2	2	47	-72	47	-69	4				DR	4	IMP 30, 3B DR
35	SU86400320	PGR	000			1	1	39	-80	39	-77	4				DR	4	IMP 22, 3B DR
36	SU86500320	PGR	000			1	1	47	-72	47	-69	4				DR	4	IMP 27, 3B DR
38	SU86300310	STB	000			1	1	41	-78	41	-75	4				DR	4	IMP 25, 3B DR
39	SU86400310	PGR	000			1	1	34	-85	34	-82	4				DR	4	IMP 20, 3B DR
40	SU86500310	PGR	000			1	1	34	-85	34	-82	4				DR	4	IMP 20, 3B DR
42	SU86300300	PGR	000			1	1	39	-80	39	-77	4				DR	4	IMP 23, 3B DR

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
43	SU86300290	PGR		000			1	1	54	-65	54	-62	4				DR	4		IMP 30, 3B DR

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	0-30	mcl	10YR42 00						0	0	HR	8						
1P	0-20	mcl	10YR42 00						0	0	HR	2						
	20-40	mcl	10YR43 00						0	0	HR	45		M				
	40-120	mcl	10YR54 00						0	0	HR	55		M				
2	0-30	mzcl	10YR42 00						0	0		0						
	30-40	mcl	10YR54 00						0	0		0		M				
	40-70	hcl	10YR53 00	10YR58 61 C				Y	0	0		0		M				
2P	0-29	mcl	10YR43 00						0	0	HR	1	MDCSAB	FR		Y		
	29-46	mcl	10YR44 00						0	0		0	MDCSAB	FR	M	Y		
	46-120	hcl	10YR44 00						0	0	HR	2	MDCSAB	FR	M	Y		
3	0-25	mcl	10YR33 00						0	0		0						
	25-60	c	10YR56 00	00MN00 00 F					0	0		0		M				
	60-120	c	10YR53 00	10YR56 46 M			00MN00 00	Y	0	0		0		M				
3P	0-28	mcl	10YR43 00						8	0	HR	25						
	28-51	hcl	10YR62 00	10YR58 00 C				Y	0	0	HR	50	MDCSAB	FM	M	Y		
	51-120	mcl	10YR53 00					Y	0	0	HR	55		M				
4	0-25	mcl	10YR32 00						0	0	HR	2						
	25-65	hcl	10YR44 00						0	0		0		M				
5	0-28	mcl	10YR32 00						0	0	HR	1						
	28-30	mcl	10YR42 00						0	0	HR	25		M				
6	0-22	mcl	10YR32 00						1	0	HR	4						
7	0-25	mcl	10YR32 00						2	0	HR	8						
	25-30	mcl	10YR32 00						0	0	HR	25		M				
8	0-25	mcl	10YR42 00						0	0	HR	8						
9	0-30	mcl	10YR42 00						0	0		0						
	30-45	hcl	10YR53 00	10YR58 61 C				Y	0	0		0		M				
	45-100	c	75YR56 00	10YR58 61 C				Y	0	0		0		P	Y		Y	
10	0-25	mcl	10YR42 00						0	0	HR	1						
	25-55	hcl	10YR44 00						0	0	HR	1		M				
	55-75	hcl	10YR53 00	10YR56 52 C				Y	0	0		0		M				
	75-120	c	10YR53 00	10YR56 52 M				Y	0	0	HR	1		M				
11	0-25	mzcl	10YR42 00						0	0		0						
	25-45	mcl	10YR54 00						0	0		0		M				
	45-80	hcl	10YR56 00	00MN00 00 F				Y	0	0		0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
12	0-25	mcl	10YR32 00						0	0	HR	1						
	25-55	hcl	10YR44 00	10YR56 00	F				0	0		0		M				
	55-120	c	10YR53 00	10YR56 00	M		00MN00 00	Y	0	0		0		M				
13	0-25	hcl	10YR32 00						0	0	HR	2						
	25-55	hcl	10YR44 00						0	0	HR	5		M				
14	0-28	mcl	10YR32 00						0	0	HR	2						
	28-30	mcl	10YR42 00						0	0	HR	25		M				
15	0-30	mcl	10YR42 00						0	0	HR	8						
	30-40	mcl	10YR43 00						0	0	HR	8		M				
16	0-25	mcl	10YR42 00						0	0	HR	6						
17	0-25	mcl	10YR32 00						0	0	HR	1						
	25-35	hcl	10YR53 00						0	0	HR	1		M				
	35-55	hcl	10YR52 00	10YR51 56	C			Y	0	0		0		M				
	55-120	c	10YR52 00	10YR68 00	M			Y	0	0	HR	1		M				
18	0-30	mcl	10YR42 00						0	0	HR	2						
	30-50	mcl	10YR54 00	00MN00 00	F				0	0		0		M				
	50-75	hcl	10YR56 00	00MN00 00	F				0	0		0		M				
	75-110	hcl	10YR52 00	10YR58 61	C		00MN00 00	Y	0	0		0		M				
19	0-29	hzcl	10YR43 00						0	0		0						
	29-60	c	10YR56 00						0	0		0		M				
	60-85	hzcl	10YR54 00	10YR56 51	M		00MN00 00	Y	0	0		0		M				
	85-120	hcl	10YR53 00	10YR58 51	M		00MN00 00	Y	0	0	HR	5		M				
20	0-30	mcl	10YR42 00						0	0	HR	8						
21	0-28	mcl	10YR32 00						0	0	HR	2						
	28-50	mcl	10YR42 00						0	0	HR	1		M				
22	0-20	mcl	10YR32 00						0	0	HR	2						
23	0-20	mcl	10YR32 00						0	0	HR	3						
24	0-15	mcl	10YR32 00						0	0	HR	3						
26	0-23	mcl	25Y 42 00						0	0	HR	1						
27	0-35	mcl	10YR42 00						0	0	HR	8						
	35-45	mcl	10YR51 00	10YR58 00	C			Y	0	0	HR	10		M				
28	0-25	mcl	10YR42 00						0	0	HR	10						

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
29	0-30	mcl	10YR42 00						0	0	HR	15						
30	0-30	mcl	10YR42 00						0	0	HR	10						
31	0-25	mcl	10YR42 00						0	0	HR	10						
32	0-20	mcl	25Y 42 00						0	0	HR	1						
	20-23	mcl	10YR52 00	10YR58 00	C			Y	0	0		0		M				
33	0-30	mcl	10YR42 00						0	0	HR	2						
34	0-20	mcl	10YR42 00						0	0	HR	15						
	20-30	c	10YR51 00	10YR58 00	M			Y	0	0		0		M				
35	0-22	mcl	10YR32 00						0	0	HR	2						
36	0-27	mcl	10YR32 00						0	0	HR	4						
38	0-25	mcl	10YR42 00						0	0	HR	10						
39	0-20	mcl	10YR42 00						0	0	HR	5						
40	0-20	mcl	10YR42 00						0	0	HR	5						
42	0-20	mcl	10YR42 00						0	0	HR	1						
	20-22	mcl	10YR51 00						0	0	HR	1		M				
43	0-30	mcl	10YR42 00						0	0		0						