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WEST SUSSEX MINERALS PLAN
SITE 18 : WIGGONHOLT
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
SEPTEMBER 1993

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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 22 hectares of land relating to Site 18, east of the A283 at Wiggonholt, 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 24 soil auger borings and 4 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, the land use on the site was linseed and permanent grass.

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 supersedes any previous information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Agricultural Area
2	13.8	63.0
3a	3.4	15.5
3b	4.7	21.5
Total area of site	21.9	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 Approximately two-thirds of site has been classed as Grade 2, very good quality agricultural land, because of a slight soil droughtiness limitation. Profiles comprise medium sandy loam topsoils over similar light textured subsoils which become sandier with depth. Land assessed as good agricultural quality, Subgrade 3a, exhibits a significant soil wetness limitation. Profiles show clear evidence of seasonal waterlogging as drainage is impeded by the presence of a poorly structured slowly permeable clay horizon at depth. Land assessed as Subgrade 3b, moderate quality agricultural land, has been downgraded because of a severe soil wetness limitation, caused by the presence of a shallow slowly permeable subsoil.

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. However, climatic factors do interact with soil factors to influence soil wetness and soil droughtiness. At this locality, the field capacity days are high and the soil moisture deficits are moderately low, thus increasing the likelihood of soil wetness.

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

Table 2 : Climatic Interpolations

Grid Reference :	TQ 067 165	TQ 063 164
Altitude (m) :	10	30
Accumulated Temperature (days) :	1528	1506
Average Annual Rainfall (mm) :	872	885
Field Capacity (days) :	184	186
Moisture Deficit, Wheat (mm) :	107	104
Moisture Deficit, Potatoes (mm) :	102	98
Overall Climatic Grade :	1	1

3.0 Relief

3.1 To the east of the River Stor the land is flat and lies at approximately 10m AOD. To the west of the river, the land rises from 10m to 30m AOD. Nowhere on the site does gradient or relief impose any limitation to the land quality.

4.0 Geology and Soil

4.1 BGS Sheet 317, Chichester (1957) shows the survey area to be underlain by five different geological units, the predominant being Folkestone Beds. To the east of the river there is a band of Alluvium and in the centre of the site a strip of Valley Gravel. Along the western boundary there are Hill Gravel and Flint Rubble deposits, and in the north-west corner of the site Gault (Marly Clay).

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 Frilford Association. These soils are described as 'deep, well drained sandy and coarse loamy soils; some ferruginous sandy and coarse loamy soils affected by groundwater (SSEW, 1983).'

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 are shown on the attached sample point map.

Grade 2

5.3 Very good quality land, Grade 2, corresponds to land with a slight soil droughtiness limitation. Very slightly stony medium sandy loams are underlain by slightly stony moderately structured medium sandy loams. Lower subsoils comprise well structured (weakly developed coarse sub-angular blocky) stoneless medium sandy loams, which pass into well structured (moderately developed coarse sub-angular blocky) medium loamy sands at approximately 70cm. Such profiles are typified by Pit 2. The combination of coarse soil textures, substructural conditions and the local climatic regime means the available water in the profile is slightly 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. Such land can be classed no better than Grade 2. Within this mapping unit there are occasional sandier profiles, as evidenced by Pit 1. This land is downgraded to Subgrade 3a because of a moderate soil droughtiness limitation. However, such land does not constitute a large enough unit to be mapped separately, and consequently has been incorporated into the Grade 2 land.

Subgrade 3a

5.4 Moderate quality land, Subgrade 3a, corresponds to land exhibiting a moderate soil wetness limitation. Topsoils comprise medium clay loams or medium sandy loams. These are underlain by moderately structured subsoils of similar textures, though profiles generally become heavier with depth. Profiles are gleyed within 40 cm depth and at approximately 50cm there is a slowly permeable (weakly developed very coarse sub-angular blocky) clay horizon, which continues to depth. This layer impedes drainage such that Wetness Class III is appropriate. The interaction between these soil drainage conditions and the local climatic regime means this land is assessed as Subgrade 3a. Soil wetness adversely affects plant growth and imposes restrictions on cultivations, trafficking by machinery or grazing by livestock. The soil inspection pit dug within this mapping unit, Pit 4, is atypical. Within this profile, the slowly permeable horizon actually begins at 40 cm, such that Wetness Class IV is appropriate. Generally, however the soil borings in this area show a slightly deeper depth to the slowly permeable layer.

Subgrade 3b

5.5 Land classed as Subgrade 3b is restricted by a significant soil wetness limitation. Topsoils comprise medium clay loams. Adjacent to the River Stor subsoils become heavier with depth, with a clay lower subsoil extending to 120 cm depth. Profiles are gleyed and a poorly structured horizon is present within 40 cm depth. This slowly permeable subsoil impedes drainage such that Wetness Class IV is appropriate. The interaction between soil textures, soil drainage characteristics and the local climatic regime means these profiles are assessed as Subgrade 3b. However, along the eastern boundary of the site a different soil type exists, as represented by Pit 3. These soils have medium clay loam topsoils that overlie a shallow upper subsoil of medium sandy loam texture. The upper subsoil shows clear evidence of gleying caused by the presence of a slowly permeable clay horizon from approximately 35cm. The clay extends to approximately 65cm where there is an abrupt change into a stoneless, moderately structured medium sandy loam horizon that extends to depth. These soils also fall into Wetness Class IV and are thereby assigned to Subgrade 3a.

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 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 18 Pit Number : 1P

Grid Reference: TQ06601635 Average Annual Rainfall : 872 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 184 days
Land Use : Linseed
Slope and Aspect : 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 26	MSL	10YR43 00	0	1		WDCSAB
26- 40	MSL	10YR44 00	0	3		MDCSAB
40- 66	LMS	10YR56 00	0	0		WDCSAB
66-120	LMS	10YR68 00	0	0		MDCSAB

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

Drought Grade : 3A APW : 118mm MBW : 11 mm
APP : 087mm MBP : -15 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : W. SUSSEX MINS - SITE 18 Pit Number : 2P

Grid Reference: TQ06551625 Average Annual Rainfall : 872 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 184 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 26	MSL	10YR43 00	0	1		WCSAB
26- 54	MSL	10YR44 00	0	6		MCSAB
54- 72	MSL	10YR46 00	0	1		WCSAB
72-120	LMS	10YR56 00	0	0		MCSAB

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

Drought Grade : 2 APW : 140mm MBW : 33 mm
APP : 110mm MBP : 8 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : W. SUSSEX MINS - SITE 18 Pit Number : 3P

Grid Reference: TQ06811660 Average Annual Rainfall : 872 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 184 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 22	MCL	10YR42 00	0	0	C	MDCSAB
22- 35	MSL	10YR63 00	0	0	C	MDCSAB
35- 66	C	10YR51 00	0	0	M	MDCP
66-120	MSL	10YR62 00	0	0	F	

Wetness Grade : 3B Wetness Class : IV
Gleying :000 cm
SPL :035 cm

Drought Grade : 2 APW : 149mm MBW : 42 mm
APP : 105mm MBP : 3 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : W. SUSSEX MINS - SITE 18 Pit Number : 4P

Grid Reference: TQ06471660 Average Annual Rainfall : 872 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 184 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 20	MCL	10YR42 00	0	0	C	MDCSAB
20- 40	HCL	10YR52 00	0	2	M	MDCSAB
40-120	C	10YR51 00	0	0	M	WVCSAB

Wetness Grade : 3B Wetness Class : IV
Gleying :000 cm
SPL :040 cm

Drought Grade : 1 APW : 139mm MBW : 32 mm
APP : 115mm MBP : 13 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

MPLE 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	TQ06501660	SAS	NE	04	000	055	3	3A	130	23	114	12	2				WE	3A	
1P	TQ06601635	LIN	E	01	000		1	1	118	11	087	-15	3A				DR	3A	PIT DUG TO 100
2	TQ06601660	PGR			000	025	4	3B	092	-15	104	2	3A				WE	3B	IMPEN 70
2P	TQ06551625	PGR	E	02	000		1	1	140	33	110	8	2				DR	2	PIT DUG TO 100
3	TQ06701660	PGR			000	025	4	3B	120	13	104	2	2				WE	3B	
3P	TQ06811660	PGR			000	035	4	3B	149	42	105	3	2				WE	3B	SPL
4	TQ06801660	PGR			030	030	4	3B	137	30	104	2	2				WE	3B	
4P	TQ06471660	PGR			000	040	4	3B	139	32	115	13	1				WE	3B	WC IV
5	TQ06301650	SAS			000	075	3	3A	124	17	106	4	2				WE	3A	
6	TQ06401650	LIN	NE	04	050	050	3	3A	123	16	107	5	2				WE	3A	
7	TQ06501650	LIN	NE	04	075	075	2	2	133	26	111	9	2				WE	2	DR ALSO
8	TQ06601650	LIN	NE	04	000		1	1	103	-4	111	9	3A				DR	3A	IMPEN 70
9	TQ06701650	PGR			030	055	3	3A	137	30	118	16	2				WE	3A	SPL AT 55 CM
10	TQ06801650	PGR			020	040	4	3B	141	34	108	6	2				WE	3B	
11	TQ06301640	LIN			000		1	1	151	44	106	4	2				DR	2	POTATOES LIMIT
12	TQ06401640	LIN	E	02	050	066	3	3A	135	28	110	8	2				WE	3A	SPL
13	TQ06501640	LIN	E	02	000		1	1	117	10	099	-3	2				DR	2	V SANDY
14	TQ06601640	LIN	E	02	000		1		127	20	111	9	2				DR	2	V SANDY
15	TQ06701640	PGR			000		1	1	118	11	099	-3	2				DR	2	PIT DUG TO 100
16	TQ06801640	PGR	NE	04	000		1	1	157	50	110	8	2				DR	2	POTATOES LIMIT
17	TQ06401630	LIN	E	01	000		1	1	157	50	110	8	2				DR	2	POTATOES LIMIT
18	TQ06501630	LIN	E	02	000		1	1	156	49	108	6	2				DR	2	POTATOES LIMIT
19	TQ06601630	LIN	E	02	000		1	1	124	17	108	6	2				DR	2	LMS 70
20	TQ06701630	LIN	E	02	000		1	1	129	22	110	8	2				DR	2	LMS 75
21	TQ06501620	LIN	SE	03	000		1	1	113	6	111	9	2				DR	2	IMP70-80
22	TQ06601620	LIN	S	03	000		1	1	117	10	098	-4	2				DR	2	V SANDY
23	TQ06701620	LIN	SE	04	067		1	1	083	-24	067	-35	3B				DR	3B	IN DIP
24	TQ06691645	PGR			000		1	1	121	14	109	7	2				DR	2	

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	0-20	msz1	10YR53 00	10YR58 61	C			Y	0	0		0						
	20-45	mc1	10YR52 00	10YR58 61	C			Y	0	0		0		M				
	45-55	hc1	10YR63 00	10YR58 61	C			Y	0	0		0		M				
	55-110	c	10YR52 00	10YR68 00	C			Y	0	0		0		P	Y		Y	
1P	0-26	ms1	10YR43 00						0	0	HR	1	WDCSAB FR					
	26-40	ms1	10YR44 00						0	0	HR	3	MDCSAB FR	M	Y			
	40-66	lms	10YR56 00						0	0		0	WDCSAB VF	M	Y			
	66-120+	lms	10YR68 00						0	0		0	MDCSAB FR	G	Y			
2	0-25	mc1	10YR42 00	10YR58 00	C			Y	0	0		0						
	25-70	c	10YR51 00	10YR58 00	M			Y	0	0		0		P	Y		Y	
2P	0-26	ms1	10YR43 00						0	0	HR	1	WCSAB FR					
	26-54	ms1	10YR44 00						0	0	HR	6	MCSAB FR	M				
	54-72	ms1	10YR46 00						0	0	HR	1	WCSAB FR	G				
	72-120	lms	10YR56 00						0	0		0	MCSAB FR	G				
3	0-25	mc1	10YR42 00	10YR58 00	C			Y	0	0		0						
	25-110	c	10YR51 00	10YR58 00	C			Y	0	0		0		P	Y		Y	
3P	0-22	mc1	10YR42 00	10YR56 00	C			Y	0	0		0	MDCSAB FR					
	22-35	ms1	10YR63 00	10YR58 00	C			Y	0	0		0	MDCSAB FR	M	Y			
	35-66	c	10YR51 00	10YR58 00	M			Y	0	0		0	MDCP FM	P	Y		Y	
	66-120	ms1	10YR62 00	10YR58 00	F				0	0		0		M	Y			
4	0-20	mc1	10YR41 00						0	0		0						
	20-30	ms1	10YR62 00						0	0		0		M				
	30-65	c	10YR51 00	10YR58 00	M			Y	0	0		0		P	Y		Y	
	65-110	ms1	10YR62 00	10				Y	0	0		0		M			Y	
4P	0-20	mc1	10YR42 00	10YR58 61	C			Y	0	0		0	MDCSAB FR		Y			
	20-40	hc1	10YR52 00	10YR58 61	M			Y	0	0	HR	2	MDCSAB FM	M	Y			
	40-120	c	10YR51 00	10YR56 00	M			Y	0	0		0	WVCSAB FM	M	Y		Y	
5	0-25	ms1	10YR43 00	10YR58 61	C			Y	0	0		0						
	25-50	mc1	10YR53 00	10YR58 61	C			Y	0	0		0		M				
	50-60	hc1	10YR52 00	10YR58 00	C			Y	0	0		0		M				
	60-75	lms	10YR62 00	05YR44 00	C			Y	0	0		0		M				
	75-110	c	10YR61 00	10YR58 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
6	0-30	ms1	10YR43 00						0	0		0						
	30-50	ms1	10YR56 00	10					0	0		0		M				
	50-110	c	10YR53 00	75YR56 68	C		10YR51 00	Y	0	0		0		P	Y		Y	
7	0-30	ms1	10YR44 00						0	0		0						
	30-75	ms1	10YR42 00						0	0		0		M				
	75-110	c	10YR62 00	05Y 54 00	M		00MN00 00	Y	0	0		0		P	Y		Y	

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
8	0-30	msl	10YR43 00						0	0		0						
	30-70	msl	10YR56 00						0	0		0		M				
9	0-30	mcl	10YR44 00						0	0		0						
	30-55	hcl	10YR52 00	10YR58	61	C		Y	0	0		0		M				
	55-110	c	10YR52 00	10YR58	61	M		Y	0	0		0		M			Y	
	110-111	c	00ZZ00 00					Y	0	0		0		M				
	111-112	c	00ZZ00 00					Y	0	0		0		M				
10	0-20	mcl	10YR42 00						0	0		0						
	20-40	hcl	10YR52 00	10YR58	61	C		Y	0	0		0		M				
	40-65	c	10YR51 00	10YR58	00	M		Y	0	0		0		P	Y		Y	
	65-110	msl	10YR62 00					Y	0	0		0		M			Y	
11	0-25	msl	10YR43 00						0	0		0						
	25-35	msl	10YR43 00						0	0	HR	4		M				
	35-80	msl	10YR44 00						0	0	HR	8		M				
	80-120	msl	10YR44 00						0	0	HR	2		M				
12	0-30	msl	10YR43 00						0	0	HR	1						
	30-50	msl	10YR44 00						0	0		0		M				
	50-66	msl	10YR63 00	10YR56	00	M	00MN00	00 Y	0	0		0		M				
	66-120	c	10YR52 00	75YR66	00	M		Y	0	0	HR	3		P	Y		Y	
13	0-30	msl	75YR43 00						0	0		0						
	30-54	msl	05YR34 00	75YR58	00	C			0	0		0		M				
	54-85	lms	05YR46 00						0	0		0		M				
	85-120	lms	75YR56 00						0	0	HR	2		M				
14	0-35	msl	10YR43 00						0	0		0						
	35-58	msl	10YR44 00						0	0	HR	2		M				
	58-70	msl	75YR46 00						0	0	HR	5		M				
	70-120	lms	10YR56 58						0	0	HR	1		M				
15	0-30	msl	10YR43 00						0	0		0						
	30-55	msl	10YR56 00						0	0		0		M				
	55-120	lms	25Y 76 00						0	0		0		M				
16	0-33	msl	10YR43 00						0	0		0						
	33-50	msl	10YR46 00						0	0	HR	8		M				
	50-75	msl	10YR64 56	10YR58	00	C			0	0		0		M				
	75-120	msl	10YR68 00	10YR81	00	C			0	0		0		M				
17	0-30	msl	10YR43 00						0	0	HR	1						
	30-60	msl	10YR44 00	10YR54	00	F			0	0		0		M				
	60-90	msl	10YR54 00						0	0	HR	3		M				
	90-120	msl	10YR56 00	00MN00	00	C			0	0		0		M				

				----MOTTLES-----			PED		----STONES----			STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
18	0-28	msl	10YR43 00						0	0	HR	1						
	28-70	msl	10YR56 00	10YR58 00	F				0	0	HR	3		M				
	70-120	msl	10YR43 00						0	0		0		M				
19	0-28	msl	10YR43 00						1	0	HR	2						
	28-68	msl	10YR54 00						0	0		0		M				
	68-120	lms	10YR58 00						0	0	HR	1		M				
20	0-35	msl	10YR43 00						0	0		0						
	35-60	msl	10YR56 54						0	0	HR	3		M				
	60-75	msl	10YR56 00						0	0	HR	5		M				
	75-120	lms	10YR66 76	10YR58 00	M				0	0		0		M				
21	0-35	msl	10YR43 00						0	0		0						
	35-55	msl	10YR44 00						0	0		0		M				
	55-75	msl	10YR46 00						0	0	HR	5		M				
	75-80	msl	10YR46 00						0	0	HR	20		M				
22	0-28	msl	10YR43 00						0	0	HR	1						
	28-55	msl	10YR44 00						0	0		0		M				
	55-70	lms	10YR66 00						0	0		0		M				
	70-120	lms	25Y 66 00						0	0		0		M				
23	0-25	lms	10YR44 00						0	0	HR	1						
	25-67	lms	10YR66 00	10YR58 00	F				0	0		0		M				
	67-72	scl	10YR51 00	10YR56 00	C			Y	0	0		0		M				
	72-120	ms	10YR83 76					Y	0	0		0		M				
24	0-40	msl	10YR43 00						0	0		0						
	40-65	msl	10YR44 00						0	0		0		M				
	65-110	lms	10YR54 00						0	0		0		M				