



Ministry of
Agriculture
Fisheries
and Food

A2
Land West of Princess Royal Sandpit
Runfold, Surrey
Statement of Site Physical Characteristics
ALC and Soil Resources Maps
November, 1994

STATEMENT OF SITE PHYSICAL CHARACTERISTICS

Land West of Princess Royal Sandpit, Runfold, Surrey

Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on land to the west of Princess Royal Sandpit at Runfold in Surrey. This work was in connection with an ad hoc planning application to extend the existing quarry. The report below provides information on the land quality and the soil resources, combined into a statement of the physical characteristics of the site
- 1.2 Approximately 33 hectares of land was surveyed in October, 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 4 soil pits and 20 borings 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 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of survey, the agricultural land use was a mixture of permanent and ley grassland with one field previously used for maize. The Non-agricultural area includes woodland, farm tracks and disturbed areas of spoil and the area of Urban includes part of the existing quarry.
- 1.5 The distribution of the 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 1:10,000. It is accurate at this scale but any enlargement would be misleading. This map supersedes any previous survey information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
2	4.4	13.4	19.0
3a	9.0	27.3	39.0
3b	9.1	27.7	39.4
4	0.6	1.8	<u>2.6</u>
Non Agricultural	2.8	8.5	100% (23.1 ha)
Agricultural Bldgs	0.5	1.5	
Urban	<u>6.5</u>	<u>19.8</u>	
Total	32.9 ha	100%	

- 1.6 A general description of the grades, subgrades and land use categories is provided in Appendix I. 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 land quality on the site has been classified as a mixture of grades mostly related to a soil droughtiness limitation caused by sandy textures and stony subsoils. Gradients, microrelief and disturbance are locally important, particularly in defining the areas of poorer quality.

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. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation.

Table 2 :Climatic Interpolation

Grid Reference	SU 865 469	SU 861 474
Altitude (m, AOD)	90	75
Accumulated Temperature (°days, Jan-June)	1428	1445
Average Annual Rainfall (mm)	738	726
Field Capacity Days	157	155
Moisture deficit, wheat (mm)	104	107
Moisture deficit, potatoes (mm)	96	99
Overall Climatic Grade	1	1

3. Relief

- 3.1 A varied topography exists across the site with gradients being locally limiting and microrelief a factor in one location. Altitude varies from 90 to 75 metres with the higher land in the south of the site being north-west facing with a prominent valley feature cutting into the central part of the site and a minor valley feature in the north near the farm buildings. Some of the land adjacent to the existing quarry has been disturbed or restored to a flat level position.

4. Geology and Soils

- 4.1 The published geology map for the site area, (BGS, 1978) shows the majority of the site to be underlain by Sandy Beds, part of the Folkestone Beds, with a small area of Lower Terrace River Gravels in the north-west of the site.

- 4.2 The published soils information for the area (SSEW, 1983) shows the site to generally comprise soils of the Frilford Association, described as deep, well drained sandy and coarse loamy soils.

5. **Agricultural Land Classification**

- 5.1 The ALC classification of the site 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

- 5.4 Soils of this grade occur in two discrete locations on the site. Pit 4 is typical of the soils in the northern map unit. Although impenetrable to the auger, the soils extend to depth and experience a slight soil droughtiness limitation. Medium sandy loam topsoils and upper subsoils overlie a sandy clay loam horizon and a lower subsoil of loamy coarse sand. The pit was not dug below 86 cm due to an increasing stone content but there is sufficient water available in the profile to allow this area to be placed in Grade 2.
- 5.5 Soils in the southern unit can be augered to depth and are less sandy and stony, particularly in the small dry valley bottom.

Subgrade 3a

- 5.6 The higher, flatter, southern land has been placed in this grade with soil droughtiness as the key limitation. Pit 1 is typical of these soils, some of which were again impenetrable to the auger. Medium sandy loam topsoils overlie deep subsoil horizons of loamy medium sand, extending down to at least 120 cm. The stone contents in the topsoil total approximately 13% (with approximately 8% >2 cm) and are in the range 5-11% in the subsoil. The sandy nature of the subsoils is the main factor in restricting the available water in these soils.

Subgrade 3b

- 5.7 A number of limitations and soil types comprise the Subgrade 3b map units.
- 5.8 Pit 2 represents the flatter land in the central map unit. Loamy medium sand topsoils overlie similar textures to depth; the soils extend to at least 120 cm. Total stone contents are approximately 10% in the topsoil and up to 20% in the upper subsoil but are scarce in the lower subsoils. The sandy nature of these soils from the surface to depth, together with the stone contents, significantly restricts the available water contents in the profile, causing a more severe droughtiness limitation than on the adjacent higher grade land.
- 5.9 Pit 3 represents the soils in the north-west of the site which overlie gravel geology. The profiles are sandy in nature (medium sandy loam over loamy coarse sand over medium sand over loamy medium sand) with high stone contents (25% in the topsoil and up to 50% in the subsoil). Given the very stony nature of the subsoils, the pit was only examined to 80 cm; the soil resource may extend further but there is limited root

penetration, with roots observed to 55cm in a grass ley. Taking the drought calculation down to 80 cm, this land does not have sufficient available water in the soils to be graded higher than Subgrade 3b.

- 5.10 Some of the land west of boring 23 experiences a microrelief limitation.
- 5.11 The eastern map unit of Subgrade 3b is adjacent to the existing quarry and shows signs of disturbance and/or restoration. The soils are very variable, as evidenced by borings 12 and 12A which are virtually coincident. The presence of clays in the subsoil which may not be indigenous suggest that this land is difficult to manage and should not be placed in any one of the top three grades. Gradients in excess of 7 degrees are also present in this area to reinforce the complex nature of this map unit.

Grade 4

- 5.12 This map unit defines an area of locally steep gradients.

6. Soil Resources

Topsoil

- 6.1 'Topsoil' is defined as the darker, organic-rich surface horizons, mostly of medium sandy loam topsoil and, occasionally, loamy medium sand. Two topsoil units have been identified across the site and are illustrated in the topsoil resource map.
- 6.2 *Topsoil Unit A* : this is the main unit covering the site and includes the disturbed/restored land. The resource extends down to an average depth of 30 cm, is dark brown in colour (10YR32, 42, 43) and has total stone contents ranging from approximately 3-13% (with up to 8% stones > 2 cm). The topsoils are very friable and subangular blocky in nature, though varying in size and degree of development. There is no evidence of soil wetness.
- 6.3 This unit produces a volume of 64,500m³.
- 6.4 *Topsoil Unit B* : the topsoils in the north-west of the site that have developed over gravel geology are broadly similar to the adjacent topsoils but are differentiated on the basis of their higher stone contents. Total stone content is approximately 25%, with up to 10% > 2 cm.
- 6.5 This unit produces a volume of 4,800m³.
- 6.6 There is a total available topsoil resource of 69,300m³.

Subsoil

- 6.7 'Subsoil' is defined as the non-organic-rich, lower horizons, mostly of loamy medium sand or medium sandy loam textures. Three subsoil resource units have been identified, and their distribution is illustrated in the subsoil resource map.

- 6.8 *Subsoil Unit A* : This unit covers the majority of the site and describes loamy medium sand or medium sandy loam subsoils that extend to depth. The resource is available to at least 120 cm. The subsoils are generally brown (75YR44, 46) in colour and subangular blocky in structural development and very friable. Stone contents are variable (see Pits 1,2 and 4) but generally in the 5-10% range.
- 6.9 This unit produces a volume of 161,100m³.
- 6.10 *Subsoil Unit B* : This unit relates to the soils developed over gravel geology in the north-west of the site. The subsoils are a mixture of loamy sand and sand horizons, yellowish brown (10YR56) in colour with stone contents approaching 50%. Given the high stone contents, the soils could not be examined below 80 cm. The resource probably extends below this depth and the volumetric figure is therefore a minimum available.
- 6.11 This unit produces a volume of 8,000m³.
- 6.12 *Subsoil Unit C* : This unit represents those subsoils that have been disturbed or restored, together with areas that experience microrelief and gradient limitations. A detailed assessment has not been made of the subsoils in this area, given their history and variability and, as a result, no subsoil resource figures have been calculated. The physical characteristics of these subsoils are likely to be significantly different from those on the rest of the site and the subsoil materials that are stripped in this area (above any gravel deposits) should be stored separately and replaced on this area alone.
- 6.13 There is a total available subsoil resource of 169, 100m³.

ADAS Reference : 4003/255/94
MAFF Reference : EL40/992

Resource Planning Team
Guildford Statutory Group
ADAS Reading

Sources of Reference

British Geological Survey (1978), Sheet Number 285, Aldershot, 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 for Agricultural Land Classification.

Soil Survey of England and Wales (1983), Sheet Number x, Soils of South East England, 1:250,000.

Soil Survey of England and Wales (1984), Soils and their Use in South East England

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, 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. 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.

¹The 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 :

Auger Sample Point Map

Soil Resource Maps

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. **GLEYSPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT** : Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

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

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

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

Soil Pits and Auger Borings

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

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

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

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

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

2. **MOTTLE COL** : Mottle colour using Munsell notation.
3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

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

4. **MOTTLE CONT** : Mottle contrast

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

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

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

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

HR :	all hard rocks and stones	SLST :	soft oolitic or 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 **MD** : moderately developed
 ST : strongly developed

ped size **F** : fine **M** : medium
 C : coarse **VC** : very coarse

ped shape **S** : single grain **M** : massive
 GR : granular **AB** : angular blocky
 SAB : sub-angular blocky **PR** : prismatic
 PL : platy

9. **CONSIST** : Soil consistence is described using the following notation:

L : loose **VF** : very friable **FR** : friable **FM** : firm **VM** : very firm
EM : extremely firm **EH** : extremely hard

10. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness : **G** : good **M** : moderate **P** : poor

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

12. **IMP** : If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

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

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

15. Other notations

APW : available water capacity (in mm) adjusted for wheat

APP : available water capacity (in mm) adjusted for potatoes

MBW : moisture balance, wheat

MBP : moisture balance, potatoes

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
1	su861 475	PGR		050 050	3	2	097	-10 105	6	3A				WE 2	IMPQDR
1P	su864 4685	MZE SE	02	000	1	1	091	-16 072	-27	3A				DR 3A	
2	su86154745	PGR W	03	000	1	1	065	-42 065	-34	3B				DR 3B	IMPX2QDR
2P	su8625471	LEY		000	1	1	080	-27 061	-38	3B				DR 3B	
3P	su8605474	PGR		000	1	1	061	-46 060	-39	3B				DR 3B	IMP RT55
4P	su86154745	PGR W	03	000	1	1	112	5 108	9	2				DR 2	IMPSTONE
5	su8605474	PGR		000	1	1	046	-61 046	-53	4				DR 3B	IMPQDR
6	su8605475	PGR		000	1	1	065	-42 065	-34	3B				DR 3B	IMPX2QDR
12	su863 473	PGR		000	3	2	049	-58 049	-50	4				DS 4	IMPRESTD
12A	su863 473	PGR		000	1	1	066	-41 068	-31	3B		Y		DR 3B	IMPRESTD
14	su861 472	PGR		000	1	1	078	-29 066	-33	3B				DR 3B	IMPQDR
15	su862 472	LEY		000	1	1	054	-53 054	-45	4				DR 3B	IMPX2QDR
20	su861 471	PGR		000	1	1	073	-34 073	-26	3B				DR 3A	IMPQDR
21	su862 471	LEY		000	1	1	046	-61 046	-53	4				DR 3B	IMPQDR
23	su864 471	PGR		000	1	1	075	-32 078	-21	3B				DR 3B	POSSDIST
25P	su86254705	PGR		000	1	1	113	6 095	4	2				DR 2	
26	su862 470	PGR		000	1	1	159	52 112	13	1					1
29	su865 470	PGR		000	1	1	097	-10 078	-21	3A				DR 3A	
30	su862 469	PGR N	06	000	1	1	155	48 094	-5	2				DR 2	
31	su863 469	PGR		000	1	1	070	-37 070	-29	3B				DR 3B	IMPX2QDR
33	su865 469	PGR		000	1	1	096	-11 103	4	3A				DR 3A	IMPQDR
34	su863 468	MZE		000	1	1	037	-70 037	-62	4				DR 3B	IMPX2QDR
35	su864 468	MZE		000	1	1	078	-29 083	-16	3B				DR 3A	IMPQDR
36	su865 468	PGR		000	1	1	097	-10 078	-21	3A				DR 3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----		PED COL.	----STONES----			STRUCT/ CONSIST	SUBS						
				COL	ABUN		CONT	GLE	>2		>6	LITH	TOT	STR	POR	IMP	SPL
1	0-30	msl	10YR42 00						0	0	HR	2					
	30-50	sc1	10YR54 00						0	0	HR	2		M			
	50-75	c	10YR53 00	000C00	00	C	Y	0	0	HR	1			P	Y		Y
1P	0-32	msl	10YR42 00						8	0	HR	13	WCSAB	VF			Y
	32-70	lms	75YR44 00						0	0	HR	11	WCSAB	VF	M		Y
	70-120	lms	75YR46 00						0	0	HR	5	WMSAB	VF	M		Y
2	0-40	msl	10YR42 00						0	0	HR	5					
2P	0-30	lms	10YR32 00						5	0	HR	10	WFSAB	VF			
	30-55	lms	10YR43 42						0	0	HR	19		VF	M		
	55-120	lms	75YR46 00						0	0	HR	2	WMSAB	VF	M		
3P	0-35	msl	10YR43 00						10	0	HR	25					
	35-60	lcs	10YR44 00						0	0	HR	45			M		
	60-75	ms	10YR56 00						0	0	HR	10	WMG	VF	G		
	75-80	lms	10YR56 00						0	0	HR	50			M		
4P	0-35	msl	10YR43 00						1	0	HR	3	MMSAB	VF			
	35-60	msl	75YR46 00						0	0	HR	5	MCSAB	VF	M		
	60-82	sc1	75YR46 00						0	0	HR	5	MVCP	VF	M		
	82-86	lcs	75YR46 00						0	0	HR	10			M		
5	0-30	msl	10YR43 00						0	0	HR	10					
6	0-40	msl	10YR42 00						0	0	HR	5					
12	0-25	msl	10YR42 00	000C00	00	C	Y	0	0	HR	2						
	25-30	zc	10YR81 00	000C00	00	C	Y	0	0		0				M		
12A	0-25	msl	10YR42 00						0	0	HR	2					
	25-40	lms	10YR43 00						0	0	HR	5			M		
	40-45	ms	10YR56 00						0	0	HR	2			M		
	45-55	sc1	10YR52 00						0	0	HR	10			M		
14	0-30	lms	10YR43 00						0	0	HR	2					
	30-55	lms	75YR43 00						0	0	HR	5			M		
	55-70	lms	75YR44 00						0	0	HR	5			M		
	70-85	lms	10YR54 00						0	0	HR	5			M		
	85-95	c	10YR64 00	000C00	00	F			0	0	HR	2			M		
	95-100	lcs	10YR66 00						0	0	HR	15			M		
15	0-35	msl	10YR42 00						0	0	HR	10					
20	0-28	msl	10YR43 00						0	0	HR	5					
	28-50	lms	75YR44 00						0	0	HR	2			M		
	50-80	lms	10YR64 00						0	0	HR	15			M		

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----		PED COL.	----STONES----			STRUCT/ CONSIST	SUBS						
				COL	ABUN		CONT	GLE	>2		>6	LITH	TOT	STR	POR	IMP	SPL
21	0-30	msl	10YR42 00				0	0	HR	10							
23	0-30	lms	10YR43 00				0	0	HR	2							
	30-58	msl	10YR31 00				0	0	HR	5			M				
25P	0-30	msl	10YR43 00				0	0	HR	5							
	30-55	msl	10YR43 00				0	0	HR	5			M				
	55-120	lms	10YR54 00				0	0	HR	2			M				
26	0-40	msl	10YR43 00				0	0	HR	2							
	40-120	msl	75YR43 00				0	0		0			M				
29	0-30	msl	10YR43 00				0	0	HR	2							
	30-60	lms	75YR34 00				0	0	HR	5			M				
	60-120	lms	75YR44 00				0	0	HR	2			M				
30	0-35	msl	10YR43 00				0	0	HR	10							
	35-50	lms	10YR53 00				0	0	HR	5			M				
	50-120	lfs	10YR63 00				0	0		0			M				
31	0-28	msl	10YR43 00				0	0	HR	10							
	28-48	lfs	10YR66 00				0	0	HR	10			M				
33	0-25	msl	10YR43 00				0	0	HR	2							
	25-50	msl	75YR43 00				0	0	HR	5			M				
	50-68	msl	75YR54 00				0	0	HR	5			M				
34	0-30	lms	10YR43 00				0	0	HR	5							
35	0-35	msl	10YR43 00				0	0	HR	2							
	35-70	lms	75YR43 00				0	0	HR	2			M				
36	0-30	msl	10YR43 00				0	0	HR	2							
	30-40	lms	10YR43 00				0	0	HR	2			M				
	40-80	lms	75YR44 00				0	0	HR	2			M				
	80-120	lms	10YR66 00				0	0	HR	2			M				

SOIL PIT DESCRIPTION

Site Name : SAND PIT RUNFOLD, SURREY Pit Number : 1P

Grid Reference: su864 4685 Average Annual Rainfall : 726 mm
 Accumulated Temperature : 1445 degree days
 Field Capacity Level : 155 days
 Land Use : Maize
 Slope and Aspect : 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 32	MSL	10YR42 00	8	13	HR		WCSAB	VF		
32- 70	LMS	75YR44 00	0	11	HR		WCSAB	VF	M	
70-120	LMS	75YR46 00	0	5	HR		WMSAB	VF	M	

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

Drought Grade : 3A APW : 091mm MBW : -16 mm
 APP : 072mm MBP : -27 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : SAND PIT RUNFOLD, SURREY Pit Number : 2P

Grid Reference: su8625471 Average Annual Rainfall : 726 mm
 Accumulated Temperature : 1445 degree days
 Field Capacity Level : 155 days
 Land Use : Ley
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	LMS	10YR32 00	5	10	HR		WFSAB	VF		
30- 55	LMS	10YR43 42	0	19	HR			VF	M	
55-120	LMS	75YR46 00	0	2	HR		WMSAB	VF	M	

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

Drought Grade : 3B APW : 080mm MBW : -27 mm
 APP : 061mm MBP : -38 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : SAND PIT RUNFOLD, SURREY Pit Number : 3P

Grid Reference: su8605474 Average Annual Rainfall : 726 mm
 Accumulated Temperature : 1445 degree days
 Field Capacity Level : 155 days
 Land Use : Permanent Grass
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	MSL	10YR43 00	10	25	HR					
35- 60	LCS	10YR44 00	0	45	HR				M	
60- 75	MS	10YR56 00	0	10	HR		WMG	VF	G	
75- 80	LMS	10YR56 00	0	50	HR				M	

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

Drought Grade : 3B APW : 061mm MBW : -46 mm
 APP : 060mm MBP : -39 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : SAND PIT RUNFOLD, SURREY Pit Number : 4P

Grid Reference: su86154745 Average Annual Rainfall : 726 mm
 Accumulated Temperature : 1445 degree days
 Field Capacity Level : 155 days
 Land Use : Permanent Grass
 Slope and Aspect : 03 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	MSL	10YR43 00	1	3	HR		MMSAB	VF		
35- 60	MSL	75YR46 00	0	5	HR		MCSAB	VF	M	
60- 82	SCL	75YR46 00	0	5	HR		MVCP	VF	M	
82- 86	LCS	75YR46 00	0	10	HR				M	

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

Drought Grade : 2 APW : 112mm MBW : 5 mm
 APP : 108mm MBP : 9 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Droughtiness