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Fareham Borough Local Plan Review
Site 2: Coldeast Hospital - A & B

Agricultural Land Classification
ALC Map and Report
May 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference: 1504/048/96
MAFF Reference: EL 15/00967
LUPU Commission: 02460

AGRICULTURAL LAND CLASSIFICATION REPORT

FAREHAM BOROUGH LOCAL PLAN REVIEW
SITE 2: COLDEAST HOSPITAL, A & B

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 8.3 hectares of land to the east of Coldeast Hospital between Locks Heath and Sarisbury, near Fareham in Hampshire. The survey was carried out during April 1996.

2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Fareham Borough Local Plan Review. The results of this survey supersede any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey, the majority of the site was in grass. The areas of the site shown as Other Land include a domestic dwelling to the south of the site and an area of fenced woodland along the south west border of the site.

Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 below.

Table 1: Area of grades and other land

Grade/Other Land	Area (hectares)	% Total Site Area	% Surveyed Area
3a	3.0	36.2	40.5
3b	4.4	53.0	59.5
Other Land	0.9	10.8	-
Total Surveyed Area	7.4		100.0
Total Site Area	8.3	100.0	

7. The fieldwork was conducted at an average density of approximately 1 boring per hectare. A total of 10 borings and three soil pits were described on the agricultural land.

8. The land at this site has been classified as Subgrade 3a (good quality) and Subgrade 3b (moderate quality) on the basis of soil droughtiness and soil wetness limitations.

9. The soils across the site are quite variable. Towards the north of the site silty clay loam topsoils and upper subsoils commonly overlie impenetrable very stony silty clay loams. The impenetrable layers are likely to become either more stony with depth, or remain very stony. In either case Subgrade 3a is appropriate due to a soil droughtiness limitation. Towards the south and south east of the site, the soils become light loams and moderately stony in the topsoil and upper subsoil. The lower subsoils are very stony and are likely to pass to gravels at depths below which it was impossible to penetrate. The stone contents of these profiles cause them to be restricted by soil droughtiness to Subgrade 3b. Soil droughtiness may affect plant growth and yield in some years.

10. Towards the west of the site the land falls slightly. The soils in this area are restricted by soil wetness due to slowly permeable horizons in the profile as well as soil droughtiness due to varying stone contents throughout the profile. The slowly permeable horizons vary in depth causing drainage to be impeded such that potential land utilisation is restricted. The depth at which these horizons occur determines the severity of the soil wetness restrictions and therefore the ALC grade. Such land is included in the Subgrade 3b mapping unit, although occasional individual observations of slightly better quality land were noted.

Climate

11. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

12. The key climatic variables used for grading this site are given in Table 2 below and were obtained from the published 5km grid datasets using standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SU 509 078
Altitude	m, AOD	41
Accumulated Temperature	day°C	1510
Average Annual Rainfall	mm	810
Field Capacity Days	days	164
Moisture Deficit, Wheat	mm	112
Moisture Deficit, Potatoes	mm	107

13. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

14. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation and the site is climatically Grade 1. The site is however, shown as being 'Rather Exposed' in the Met. Office's unpublished data (1968); but there was no evidence on the site or in the surrounding area to show that this factor has a significant effect on plant growth. The area is not considered to be frost prone (Met. Office, 1968).

Site

16. The site lies between approximately 40 and 45m AOD. The majority of the site is relatively flat, however towards the west of the site, the land falls slightly. The gradient in this area is not sufficient to affect agricultural land quality.

Geology and soils

17. The published geological information for the site (BGS, 1987) shows it to be underlain by a drift cover of river terrace deposits overlying Tertiary Bracklesham Beds.

18. Due to limitations of scale the most recent published soils information for the site (SSEW, 1983 and 1984) shows this area as Urban and is therefore shown as not surveyed. The nearest area of recorded soils on similar geological parent material show the Sonning 1 association. These are described as 'Well drained flinty coarse loamy and sandy soils, mainly over gravel. Some coarse loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.' (SSEW, 1983). Soils of this broad type were found across part of the site to the south and west. Towards the north of the site the soils were of a moderate depth and of a medium silty nature over gravelly horizons. The earlier more detailed (1:21120 scale) soil survey of this area (Kay, 1939) maps the majority of this site as the Southampton series, described as a grey gravelly sandy soil overlying plateau gravel and sand derived from the Bracklesham Beds; a similar soil type to that encountered to the south east of the site. The area of the site at the lowest altitude to the west is mapped as the Titchfield Series. This is described as a transitional soil series commonly found where the plateau gravels are very thin over either Bracklesham Beds or London Clay. Soils in this area of the site conform to this description.

Agricultural Land Classification

19. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1.

20. The location of the auger borings and pits is shown on the attached sample location map and details of the soils data are presented in Appendix III.

Subgrade 3a

21. Land of good quality extends over the north of the site in a single unit. Land in this area is principally limited by soil droughtiness.

22. Soils in this area comprise a very slightly stony (up to 5% v/v total flints) medium silty clay loam topsoil, passing to a slightly stony (up to 10% v/v total flints) medium silty clay loam upper subsoil horizon. Commonly this passes to a very stony (up to 51% v/v total flints) medium silty clay loam lower subsoil between 48 and 65cm. This lower subsoil horizon was impenetrable to the soil auger and spade. These well drained profiles (Wetness Class I) are limited by soil droughtiness. The subsoil stone content of the majority of the profiles examined cause the water retaining capability of the soil to be reduced to a level where, given the local climatic factors, Subgrade 3a is appropriate due to a soil droughtiness limitation which can affect plant growth and yield. The pit observation 1p is indicative of this soil type at this site.. One of the profiles examined in this area was of a slightly better quality, being relatively stone free to 120cm.

Subgrade 3b

23. Land of moderate quality has been mapped towards the south and west of the site in a single mapping unit. Principal limitations to land quality include soil droughtiness and soil wetness.

24. The area limited principally by soil droughtiness is towards the east of the map unit. Soils in this area commonly comprise a moderately stony (up to 30% v/v total flints, including up to 13%>2cm) fine sandy silt loam topsoil, which passes to an impenetrable, to the soil auger, fine sandy silt loam upper subsoil containing up to 40% v/v total flints. In the pit observation 3p this horizon was found to pass at 34cm to a very stony (53% v/v total flints) medium sandy silt loam horizon which was impenetrable at 55cm where the profile appeared to become more stony. These well drained profiles (Wetness Class I) profiles are limited to Subgrade 3b due to soil droughtiness as the stones in the profile restrict the water holding capacity of the soil. Given the local climate, Subgrade 3b is appropriate due to a significant soil droughtiness limitation which can affect plant establishment, growth and yield.

25. The second soil type in this grade is principally limited by soil wetness. It occurs to the west of the site on the lowest lying land. Soils in this area comprise a slightly stony (up to 10% v/v total flints), medium silty clay loam topsoil. This passes to a gleyed and slowly permeable very slightly stony (3% v/v total flints) heavy silty clay loam upper subsoil. The lower subsoil was found to comprise a gleyed and slowly permeable, moderately stony (up to 20% v/v total flints), heavy silty clay loam or heavy clay loam to depth (120cm). The pit observation 2p is indicative of this soil type on this site. The depth to the slowly permeable horizons in the local climate mean that Wetness Class IV is appropriate and subsequently Subgrade 3b is applied when the topsoil workability status is taken into account. Soil wetness causes land utilisation to be restricted, as machinery trafficking or stock grazing can cause the soil structure to breakdown during wetter periods.

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SOURCES OF REFERENCE

British Geological Survey (1987) *Sheet 315, Southampton. Solid & Drift Edition. 1:50 000 Scale.*
BGS: London.

Kay, F.F. (1939) *A Soil Survey of the Strawberry District of South Hampshire. 1:21 120 scale.*
University of Reading.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Met. Office (1968) *Unpublished Climate data relating to Sheet 180, 1:63,360.*
Met. Office: Bracknell.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Soils of South East England. 1:250 000 Scale.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils of South East England. Bulletin No. 15.*
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

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

Grade 2: Very Good Quality Agricultural Land

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

Grade 3: Good to Moderate Quality Land

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

Subgrade 3a: Good Quality Agricultural Land

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

Subgrade 3b: Moderate Quality Agricultural Land

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

Grade 4: Poor Quality Agricultural Land

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

Grade 5: Very Poor Quality Agricultural Land

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

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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.

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.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

[1] The number of days is not necessarily a continuous period.

[2] 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

Contents:

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF**: national 100 km grid square and 8 figure grid reference.

2. **USE**: Land use at the time of survey. The following abbreviations are used.

ARA:	Arable	**WHT:**	Wheat	**BAR**:	Barley
CER:	Cereals	**OAT**:	Oats	**MZE**:	Maize
OSR:	Oilseed rape	**BEN**:	Field Beans	**BRA**:	Brassicae
POT:	Potatoes	**SBT**:	Sugar Beet	**FCD**:	Fodder Crops
LIN:	Linseed	**FRT**:	Soft and Top Fruit	**FLW**:	Fallow
PGR:	Permanent Pasture	**LEY**:	Ley Grass	**RGR**:	Rough Grazing
SCR:		Scrub	**CFW**:		Coniferous Woodland
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 dolomitic 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 sandston	**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 appropriate horizon.

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

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

15. Other notations
APW: available water capacity (in mm) adjusted for wheat
APP: available water capacity (in mm) adjusted for potatoes
MBW: moisture balance, wheat
MBP: moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : FAREHAM LP COLDEAST HOSP Pit Number : 1P

Grid Reference: SU51000790 Average Annual Rainfall : 810 mm
Accumulated Temperature : 1510 degree days
Field Capacity Level : 164 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MZCL	10YR42 00	1	5	HR					
27- 48	MZCL	10YR43 00	0	10	HR	F	MDCSAB	FR	M	
48- 63	MZCL	10YR53 52	0	51	HR	F		FR	M	

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 3B APW : 90 mm MBW : -22 mm
APP : 94 mm MBP : -13 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : FAREHAM LP COLDEAST HOSP Pit Number : 2P

Grid Reference: SU50690786 Average Annual Rainfall : 810 mm
Accumulated Temperature : 1510 degree days
Field Capacity Level : 164 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MZCL	10YR41 00	0	10	HR	F				
27- 56	HZCL	25Y 51 52	0	3	HR	M	WKCSAB	FM	P	
56-120	HZCL	25Y 62 00	0	20	HR	M	MDCAB	FM	P	

Wetness Grade : 3B Wetness Class : IV
Gleying : 27 cm
SPL : 27 cm

Drought Grade : 3A APW : 108mm MBW : -4 mm
APP : 94 mm MBP : -13 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : FAREHAM LP COLDEAST HOSP Pit Number : 3P

Grid Reference: SU50800780 Average Annual Rainfall : 810 mm
Accumulated Temperature : 1510 degree days
Field Capacity Level : 164 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 21	FSZL	10YR42 00	8	23	HR					
21- 34	FSZL	10YR43 00	0	34	HR			FR	M	
34- 55	MSZL	10YR44 54	0	53	HR			FR	M	

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : - cm

Drought Grade : 3B APW : 71 mm MBW : -41 mm
APP : 72 mm MBP : -35 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	SU50900790	PGR			48	68	2	2	141	29	120	13	2				WD	2	
1P	SU51000790	PGR					1	1	90	-22	94	-13	3B				DR	3A	IMP PIT 63
2	SU51000790	PGR					1	1	83	-29	83	-24	3B				DR	3A	IMP 50 SEE 1P
2P	SU50690786	PGR			27	27	4	3B	108	-4	94	-13	3A				WE	3B	PIT 70 AUG 120
3	SU50600780	PGR	NW	1	45	55	3	3A	94	-18	100	-7	3A				WD	3A	IMP 60 SEE 2P
3P	SU50800780	PGR					1	1	71	-41	72	-35	3B				DR	3B	IMP PIT 55
4	SU50700780	PGR	NW	1	75	75	2	2	114	2	92	-15	3A				DR	3A	SL GLEY 55
5	SU50800780	PGR					1	1	57	-55	57	-50	4				DR	3B	IMP 40 SEE 3P
6	SU50900780	PGR					1	1	71	-41	71	-36	3B				DR	3B	IMP45 SEE1P/3P
7	SU51000780	PGR					1	1	101	-11	112	5	3A				DR	3A	IMP 70 SEE 1P
8	SU50800770	PGR					1	1	51	-61	51	-56	4				DR	3B	IMP 40 SEE 3P
9	SU50690786	PGR			28	28	4	3B	118	6	98	-9	2				WE	3B	SEE 2P
10	SU50730773	PGR					1	1	39	-73	39	-68	4				DR	3B	IMP 30 SEE 3P

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	0-28	mzcl	10YR42 00						0	0	HR	2							
	28-48	mzcl	10YR44 54						0	0	HR	5		M					
	48-55	mzcl	10YR54 00	10YR58 00	C			S	0	0		0		M					SLIGHTLY GLEYED
	55-68	mcl	25Y 53 00	10YR58 68	M			Y	0	0		0		M					
	68-120	hcl	25Y 62 00	10YR58 00	M		00MN00 00	Y	0	0	HR	3		P		Y			SEE 2P
1P	0-27	mzcl	10YR42 00						1	0	HR	5							IMP PIT 63
	27-48	mzcl	10YR43 00	10YR66 00	F				0	0	HR	10	MDCSAB	FR M					
	48-63	mzcl	10YR53 52	10YR56 00	F				0	0	HR	51		FR M					SIEVED
2	0-28	mzcl	10YR42 00						1	0	HR	5							SEE 1P
	28-45	mzcl	10YR44 54	10YR66 00	F				0	0	HR	10		M					
	45-50	mzcl	10YR54 00	10YR56 00	F				0	0	HR	30		M					IMP STONES 50
2P	0-27	mzcl	10YR41 00	10YR46 00	F				0	0	HR	10							
	27-56	hzcl	25Y 51 52	10YR68 00	M			Y	0	0	HR	3	WKCSAB	FM P	Y		Y		
	56-120	hzcl	25Y 62 00	10YR68 00	M			Y	0	0	HR	20	MDCAB	FM P	Y		Y		PIT 70 AUG 120
3	0-28	mzcl	10YR41 00						0	0	HR	3							SEE 2P
	28-45	mzcl	10YR42 52	10YR56 00	F				0	0	HR	5		M					
	45-55	mzcl	25Y 51 52	10YR58 00	C			Y	0	0	HR	5		M					
	55-60	hzcl	25Y 51 52	10YR58 00	M			Y	0	0	HR	30		P		Y			IMP STONES 60
3P	0-21	fszl	10YR42 00						8	3	HR	23							SIEVED
	21-34	fszl	10YR43 00						0	0	HR	34		FR M					SIEVED
	34-55	mszl	10YR44 54						0	0	HR	53		FR M					IMP PIT 55 (SIEVED)
4	0-23	mzcl	10YR42 00						5	2	HR	15							
	23-40	mszl	10YR43 00						0	0	HR	25		M					
	40-55	scl	10YR56 00	10YR52 00	F				0	0	HR	30		M					
	55-75	scl	10YR56 00	75YR58 00	C			S	0	0	HR	30		M			Q		SLIGHTLY GLEYED
	75-120	hcl	25Y 62 00	75YR58 56	M			Y	0	0	HR	20		P		Y			SEE 2P
5	0-28	mszl	10YR42 00						8	3	HR	20							SEE 3P
	28-35	mszl	10YR44 00						0	0	HR	30		M					
	35-40	mzcl	10YR44 54						0	0	HR	40		M					IMP STONES 40
6	0-20	mzcl	10YR32 42						0	0	HR	3							SEE 1P
	20-30	mzcl	10YR32 42						0	0	HR	15		M					
	30-40	mzcl	10YR44 54	10YR56 00	F				0	0	HR	20		M					
	40-45	mzcl	10YR44 54	10YR56 00	F				0	0	HR	40		M					IMP STONES 45
7	0-25	mzcl	10YR32 42						0	0	HR	3							SEE 1P
	25-50	mzcl	10YR43 44						0	0	HR	10		M					
	50-65	mzcl	10YR54 00	10YR56 00	F				0	0	HR	15		M					
	65-70	mzcl	10YR54 00	10YR56 00	F				0	0	HR	40		M					IMP STONES 70
8	0-28	mszl	10YR42 00						13	5	HR	30							SEE 3P
	28-40	mszl	10YR53 00						0	0	HR	40		M					IMP STONES 40

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
9	0-28	mzcl	10YR42 00						0	0	HR	5							SEE 2P
	28-60	hzcl	25Y 51 00	10YR58 00	M			Y	0	0	HR	5		P			Y		WITH CLAY LENSES
	60-120	hcl	25Y 61 00	10YR68 00	M			Y	0	0	HR	15		P			Y		
10	0-25	mszl	10YR42 00						12	3	HR	30							SIEVED SEE 3P
	25-30	mszl	10YR43 00						0	0	HR	40		M					IMP STONES 30