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Fareham Borough Local Plan Review
Site 10: Warsash Gap

Agricultural Land Classification
ALC Map and Report
April 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

FAREHAM BOROUGH LOCAL PLAN REVIEW
SITE 10: WARSASH GAP

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 53.2 hectares of land to the west of Fareham at Warsash in Hampshire. The survey was carried out during March 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 site was in a variety of land uses, including horticultural areas, (i.e., tree nurseries and flowers), permanent pasture sometimes being grazed by horses, overgrown grassland, along with considerable areas which were fallow. The areas of the site shown as 'Other Land' include glasshouses, both derelict and in use, residential areas, roads and tracks, a poultry unit, and areas of woodland and scrub. The area mapped as 'Not Surveyed' comprises impenetrable dense scrub.

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 overleaf.

7. The fieldwork was conducted at an average density of approximately 1 boring per hectare. A total of 38 borings and three soil pits were described on the agricultural land.

8. The land at this site has been classified as Grade 1 (excellent quality), Grade 2 (very good quality), and Subgrade 3b (moderate quality), primarily on the basis of soil droughtiness and/or soil wetness limitations. Less commonly topsoil stoniness acts as a minor limitation to the quality of the agricultural land across limited parts of the site.

Table 1: Area of grades and other land

Grade/Other Land	Area (hectares)	% Total Site Area	% Surveyed Area
1	6.2	11.6	23.9
2	12.6	23.7	48.7
3b	7.1	13.3	27.4
Other Land	26.1	49.1	
Not Surveyed	1.2	2.3	
Total Surveyed Area	25.9		100.0
Total Site Area	53.2	100.0	

9. Grade 1 land has been mapped where no or very minor limitations to agricultural use exist. Deep, silty soils have good reserves of available water for crop growth and are well drained.

10. Land has been classified as Grade 2 where minor limitations to agricultural use exist. Soils are essentially similar to those found within the Grade 1 mapping units but they are affected by slight soil wetness and/or droughtiness and/or topsoil stoniness. Evidence of mottling in some soil profiles is indicative of seasonal waterlogging which may be caused by either a fluctuating groundwater table or impeded drainage through clayey horizons. Moisture balance calculations suggest that some soils have inadequate reserves of soil moisture to fully meet the demands of a growing crop, due to the interaction between the soil characteristics and the local climatic regime. Across localised parts of the site, the volume of topsoil stones greater than 2cm in diameter exceeds 5%. These act to restrict the utilisation of the land to the extent that Grade 2 is appropriate.

11. Subgrade 3b land is mapped where significant soil wetness, droughtiness and/or topsoil stone limitations affect the potential of the land. Along part of the eastern site boundary the land is poorly drained as a result of the occurrence of clayey soils. The resultant soil wetness will affect crop growth and development and restrict the opportunities for and timing of cultivations. Elsewhere in the 3b mapping unit, the land is affected by soil doughtiness due to the presence of stony soil profiles which have limited reserves of available soil moisture. This will affect the level and consistency of crop yields. Discrete areas within that mapped as Subgrade 3b are limited by topsoil stone volumes in excess of 15% greater than 2cm in size. These will cause an impediment to crop germination and growth and will also increase the wear and tear to farm machinery.

Factors Influencing ALC Grade

Climate

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

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

Table 2: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 502 072	SU 495 064
Altitude	m, AOD	26	15
Accumulated Temperature	day°C (Jan-June)	1528	1541
Average Annual Rainfall	mm	797	787
Field Capacity Days	days	161	160
Moisture Deficit, Wheat	mm	115	118
Moisture Deficit, Potatoes	mm	111	114

14. 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.

15. 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 (ATO, January to June), as a measure of the relative warmth of a locality.

16. The combination of rainfall and temperature at this site means that there is no overall climatic limitation at this locality. In addition, local climatic factors such as frost risk and exposure are believed not to affect the site. The site is therefore climatically Grade 1. However, climatic factors do interact with soil factors to influence soil wetness and droughtiness. The climate at this site is relatively warm and moist, in regional terms, due to its proximity to the coast and the influence of the prevailing south-westerly winds. The result is that both rainfall and evapo-transpiration are moderately high, in a regional context.

Site

17. The site lies at an altitude of 15-30 m AOD, rising very gently towards the north. Nowhere on the site do gradient, microrelief or flood risk affect agricultural land quality.

Geology and Soils

18. The most detailed published geological information for the site (BGS, 1973) shows the it to be underlain by drift deposits of river terrace gravels with isolated pockets of 'loam and clay' resting on the gravels through the central parts of the site.

19. The most detailed published soils information for the site (SSEW, 1983) shows it as being in urban use. The nearest soil association which is mapped is the Sonning 1 association which is described as 'well drained flinty coarse loamy and sandy soils, mainly over gravel with some loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging' (SSEW, 1983).

20. Detailed field examination of the soils on the site found pockets of gravelly soils consistent with those described by the Soil Survey, most notably along the eastern site boundary and to the west of the site. The remainder of the site was found to comprise deep, fine loamy and silty soils, sometimes affected by slight seasonal waterlogging.

Agricultural Land Classification

21. 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, page 2.

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

Grade 1.

23. Excellent quality land has been mapped in two discrete units through the centre of the site, broadly coincident with the deposits of 'loam and clay' shown on the geology map (BGS, 1973). This land has no or very minor limitations to its agricultural use. Soil profiles were found to typically comprise non-calcareous fine sandy silt loam topsoils, containing 2-5% total flints by volume. These overlie similarly textured upper subsoil horizons and pass to heavier textures in the lower subsoil, i.e., medium or heavy silty clay loams or silty clays. Profiles were mottled and gleyed at variable depths below the topsoil, and contain 0-2% flints throughout. Soil pit 1 (see Appendix III) is representative of these soils and proved the heavy silty clay loam and silty clay horizons deep in the profile to be slowly permeable. Depending upon the depth to the gleyed and/or slowly permeable horizons, these soils equate to Wetness Classes I or II (see Appendix II) being generally well drained. These soils also have good reserves of profile available water which would be expected to meet the demands of a growing crop throughout the year. Given the prevailing climate and the light and easily workable topsoil textures, Grade 1 is therefore appropriate.

Grade 2.

24. Very good quality agricultural land has been mapped across the majority of the site, where minor soil wetness and/or soil droughtiness limitations exist. Soil profiles are similar to those described in paragraph 23 above, having non-calcareous fine sandy silt loam, or very occasionally medium silty clay loam, topsoils containing up to 5-10% total flints. Upper subsoils are similarly textured. Lower subsoils fall into one of two variants. Where slight soil wetness is the overriding limitation, lower subsoils comprise gleyed and slowly permeable heavy silty clay loam or silty clay horizons which impede drainage and cause seasonal waterlogging to the extent that Wetness Class II, or more usually III, is appropriate. Such a drainage status combines with the prevailing climate and the easily workable topsoil textures to result in a land classification of Grade 2. Where minor soil droughtiness limits land quality, lower subsoils become progressively more stony and pass to gravelly horizons containing 50% flints by volume below about 50-80 cm. Moisture balance calculations indicate that, with such high stone contents in the lower subsoils, profile available water is slightly reduced such that a slight soil droughtiness limitation exists.

Subgrade 3b.

25. Moderate quality agricultural land is mapped along the eastern edge of the site and also to the west, where the agricultural use of the land is significantly restricted by one or a combination of limitations, namely soil wetness, droughtiness or topsoil stoniness.

26. Most of the land mapped as 3b is limited by soil droughtiness, where soils are very shallow and/or stony over gravelly horizons. Typically these profiles were found to be impenetrable (to the soil auger) from below the topsoil but soil pit 3 (see Appendix III) showed that fine sandy silt loam topsoils containing 5% flints directly overlie very stony fine sandy silt loam upper subsoils containing 60-65% flints, and pass to sand and gravel below about 50 cm. As a result of the shallow soil depth and high stone contents of these soils, profile available moisture is severely restricted. This will have the effect of reducing the level and consistency of crop yields, as well as restricting the range of crops which can tolerate such droughty conditions.

27. Soil wetness and topsoil stone restrictions occur very infrequently across the site to the extent that land cannot be classified higher than 3b. Where severe soil wetness is a problem medium silty clay loam topsoils pass directly to gleyed and slowly permeable clay subsoils which significantly impede soil drainage. Wetness Class IV is assigned in such circumstances, resulting in a land classification of Subgrade 3b, given the prevailing climatic regime. Excessive soil wetness adversely affects crop growth and development and also restricts the opportunities for cultivations and grazing. Topsoil stoniness may be a problem where the volume of flints >2 cm in size in the top 25 cm of the profile exceeds 15%. These will act as an impediment to cultivations and will increase the cost of farming the land through additional wear and tear to farm machinery.

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SOURCES OF REFERENCE

British Geological Survey (1973) *Sheet No.315, Southampton and the Isle of Wight.* BGS: London.

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

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England* SSEW: Harpenden.

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

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	DRT	M.REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU50040716	RGR		28		2	2	115	0	119	8	3A				WD	2	SEE 3P
1P	SU50170710	PGR		54	63	2	1	169	54	147	36	1					1	PIT 90 AUG 120
2	SU50250723	RGR		45	55	3	2	180	65	143	32	1				WE	2	
2P	SU49700668	FLW		50		1	1	000	-24	000	-23	3B				DR	3B	
3	SU50320718	PGR		0	65	3	2	165	50	144	33	1				WE	2	
3P	SU50000680	FLW		44		1	1	128	13	135	24	2				DR	2	
4	SU50150718	OTH		28	65	3	2	185	70	148	37	1				WE	2	CHRISTMAS TREE
5	SU50300710	RGR		30	30	4	3B	142	27	117	6	2				WE	3B	
6	SU50100712	PGR		32		2	1	205	90	141	30	1					1	
7	SU50170710	PGR		50	65	2	1	171	56	147	36	1					1	
8	SU50230701	PGR				1	1	41	-74	41	-70	4				TS	3B	IMP FLINTS 30
9	SU50030706	PGR			40	3	2	172	57	136	25	1				WE	2	SL. GLEY 40
10	SU49830699	SCR				1	1	108	-7	111	0	3A				DR	2	SEE 3P
11	SU49900700	SCR				1	1	123	8	137	26	2				DR	2	SL. GLEY 60
12	SU50000700	PGR			70	2	1	184	69	146	35	1					1	SL. GLEY 70
13	SU49930690	PGR			70	2	1	173	58	137	26	1					1	SL. GLEY 55
14	SU50000690	FLW				1	1	183	68	143	32	1					1	SL. GLEY 60
15	SU50100687	SCR		70	80	1	1	179	64	147	36	1					1	
16	SU50200691	PGR				1	1	060	-55	060	-51	4				DR	3B	IMP 30
17	SU49750680	PGR		85	45	3	3A	129	14	124	13	2				WE	3A	SL. GLEY 0
18	SU49800680	PGR				1	1	103	-12	103	-8	3A				DR	2	SEE 3P
19	SU49900680	PGR			45	3	2	123	8	129	18	2				WD	2	SL. GLEY 30
20	SU50000680	FLW		50		1	1	122	7	132	21	2				DR	2	SEE 3P
21	SU50110680	PGR		45		1	1	113	-2	116	5	3A				DR	2	SEE 3P
22	SU49620670	SCR				1	1	066	-49	066	-45	3B				DR	3B	SEE 2P
23	SU49700668	FLW				1	1	066	-49	066	-45	3B				DR	3B	IMP 32, SEE 2P
24	SU49970670	FLW		40		1	1	116	1	122	11	3A				DR	2	IMP 60, SEE 3P
25	SU49600660	SCR				1	1	094	-21	094	-17	3B				DR	3B	
26	SU49800660	PGR		75	85	1	1	181	66	147	36	1					1	
27	SU49890660	PGR				1	1	095	-20	095	-16	3B				DR	2	IMP 45, SEE 3P
28	SU49740649	HOR		80	90	1	1	186	71	148	37	1					1	SL. GLEY 60
29	SU49820646	HOR			70	1	1	150	35	145	34	1					1	SL. GLEY 70
30	SU50000649	PGR				1	1	067	-48	067	-44	3B				DR	3B	IMP 35, SEE 2P
31	SU49500640	PGR		70	70	2	1	139	24	144	33	2				DR	2	
32	SU49600640	HOR				1	1	101	-14	108	-3	3A				DR	2	SEE 3P
33	SU49700640	PLO				1	1	118	3	131	20	3A				DR	2	SEE 3P
34	SU49900637	RGR		0		2	1	050	-65	050	-61	4				DR	3B	SEE 2P
35	SU50000640	PGR			75	1	1	124	9	124	13	2				DR	2	SL. GLEY 75
36	SU49600630	PGR				1	1	087	-28	087	-24	3B				DR	3B	SEE 2P
37	SU49700630	SCR				1	1	092	-23	092	-19	3B				DR	3B	SEE 2P
38	SU49800630	SCR				1	1	148	33	145	34	1					1	

SOIL PIT DESCRIPTION

Site Name : FAREHAM BLP S10 WARSASH Pit Number : 1P

Grid Reference: SU50170710
Average Annual Rainfall : 797 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 161 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	FSZL	10YR42 43	0	2	HR					
28- 54	FSZL	10YR43 00	0	0		F	MDCAB	FR	M	
54- 63	FSZL	25Y 52 51	0	0		M	WKCSAB	FR	G	
63- 71	HZCL	25Y 52 51	0	2	HR	M	WKCAB	FR	M	
71-120	ZC	25Y 61 00	0	2	HR	M	WKCAB	FM	P	

Wetness Grade : 1
Wetness Class : II
Gleying : 54 cm
SPL : 63 cm

Drought Grade : 1
APW : 169mm MBW : 54 mm
APP : 147mm MBP : 36 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SOIL PIT DESCRIPTION

Site Name : FAREHAM BLP S10 WARSASH Pit Number : 2P

Grid Reference: SU49700668 Average Annual Rainfall : 797 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 161 days
Land Use : Fallow
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 33	FSZL	10YR32-00	0	5	HR					
33- 50	FSZL	10YR42-00	25	63	HR				M	
50-120	GH	10YR62-00	0	0		M			M	

Wetness Grade : 1 Wetness Class : I
Gleying : 50 cm
SPL : No SPL

Drought Grade : 3B APW : 000mm MBW : -24 mm
APP : 000mm MBP : -23 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : FAREHAM BLP S10 WARSASH Pit Number : 3P

Grid Reference: SU50000680
Average Annual Rainfall : 797 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 161 days
Land Use : Fallow
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	FSZL	10YR31 00	2	5	HR					
27- 44	FSZL	10YR42 00	0	5	HR		MDCSAB	FR	M	
44- 55	FSZL	10YR53 00	0	2	HR	C	MDCSAB	FR	M	
55- 68	MZCL	10YR62 00	0	5	HR	M	MDCSAB	FR	M	
68-120	GH	00ZZ00 00	0	0					M	

Wetness Grade : 1
Wetness Class : I
Gleying : 44 cm
SPL : No SPL

Drought Grade : 2
APW : 128mm MBW : 13 mm
APP : 135mm MBP : 24 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
1	0-28	mzcl	10YR43 00						0	0	HR	5						
	28-75	mzcl	10YR52 62	10YR56 00	C			Y	0	0	HR	5		M				
	75-82	mzcl	10YR51 61	10YR56 00	C		00MN00 00	Y	0	0	HR	25		M				IMP FLINTS 82
1P	0-28	fszl	10YR42 43						0	0	HR	2						
	28-54	fszl	10YR43 00	10YR46 56	F				0	0		0	MDCAB	FR M				
	54-63	fszl	25Y 52 51	10YR66 00	M			Y	0	0		0	WKCSAB	FR G				
	63-71	hzcl	25Y 52 51	10YR68 00	M		00MN00 00	Y	0	0	HR	2	WKCAB	FR M			Y	
	71-120	zc	25Y 61 00	10YR68 00	M			Y	0	0	HR	2	WKCAB	FM P	Y		Y	
2	0-30	fszl	10YR43 00	10YR46 00	F				0	0	HR	3						
	30-45	fszl	10YR44 00	10YR46 00	F				0	0		0		M				
	45-55	fszl	10YR52 00	10YR56 00	C			Y	0	0		0		G				
	55-120	hzcl	25Y 51 00	10YR58 00	M			Y	0	0		0		M			Y	
2P	0-33	fszl	10YR32-00						0	0	HR	5						
	33-50	fszl	10YR42-00						25	0	HR	63		M				
	50-120	gh	10YR62-00	75YR58-68	M			Y	0	0		0		M				
3	0-30	fszl	10YR41 00	10YR46 00	C			Y	0	0	HR	5						
	30-65	fszl	10YR52 00	10YR56 00	C		00MN00 00	Y	0	0	HR	5		G				
	65-75	hzcl	25Y 52 00	10YR58 68	M		00MN00 00	Y	0	0	HR	10		M			Y	
	75-120	zc	25Y 61 00	10YR58 00	M			Y	0	0	HR	10		P			Y	
3P	0-27	fszl	10YR31 00						2	0	HR	5						
	27-44	fszl	10YR42 00						0	0	HR	5	MDCSAB	FR M				
	44-55	fszl	10YR53 00	10YR58 00	C			Y	0	0	HR	2	MDCSAB	FR M				
	55-68	mzcl	10YR62 00	75YR58 00	M			Y	0	0	HR	5	MDCSAB	FR M				
	68-120	gh	00ZZ00 00					Y	0	0		0		M				
4	0-28	fszl	10YR41 42	10YR46 00	F				0	0	HR	3						
	28-45	fszl	10YR42 00	10YR46 00	C			Y	0	0	HR	5		M				
	45-65	fszl	10YR53 00	10YR56 00	C			Y	0	0		0		G				
	65-120	hzcl	25Y 52 00	10YR58 68	M			Y	0	0		0		M			Y	
5	0-10	omzcl	10YR21 00						0	0	HR	3						
	10-30	omzcl	10YR31 00						0	0	HR	20		M				
	30-60	hzcl	25Y 61 00	10YR68 00	M			Y	0	0	HR	10		M			Y	
	60-120	zc	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y	
6	0-32	fszl	10YR43 00						0	0	HR	3						
	32-55	fsl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	55-120	fszl	10YR62 00	10YR66 00	C		00MN00 00	Y	0	0		0		M				
7	0-25	fszl	10YR53 00	10YR46 00	F				0	0	HR	3						
	25-50	fszl	10YR44 00	10YR46 00	F				0	0		0		M				
	50-65	fszl	10YR52 00	10YR56 66	C			Y	0	0		0		G				
	65-75	hzcl	25Y 52 00	10YR58 00	M		00MN00 00	Y	0	0		0		M			Y	
	75-120	zc	25Y 62 00	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
8	0-30	mszl	10YR41 00						16	5	HR	30							IMP FLINTS 30
9	0-40	fszl	10YR43 00						0	0	HR	2							
	40-120	hzcl	10YR54 00	75YR58 00	C			S	0	0	HR	2		M			Y		
10	0-40	fszl	10YR43 00						0	0	HR	5							
	40-55	fszl	10YR44 00						0	0	HR	15		M					IMP FLINTS 55
11	0-40	fszl	10RR43 00						0	0	HR	2							
	40-60	mzcl	10YR54 00						0	0	HR	2		M					
	60-70	mzcl	10YR54 00	75YR58 00	C			S	0	0		0		M					IMP FLINTS 70
12	0-35	fszl	10YR43 00						0	0	HR	4							
	35-60	fszl	10YR44 00						0	0	HR	2		M					
	60-70	fszl	10YR54 00	10YR58 00	F				0	0	HR	2		G					
	70-120	hzcl	10YR54 00	75YR58 00	C			S	0	0		0		M			Y		
13	0-40	fszl	10YR43 00						0	0	HR	2							
	40-55	mzcl	10YR54 00						0	0	HR	2		M					
	55-70	mzcl	10YR54 00	75YR58 00	C			S	0	0		0		M					
	70-120	hzcl	10YR54 00	75YR58 00	C			S	0	0		0		M			Y		
14	0-40	fszl	10YR42 00						0	0	HR	2							
	40-50	fszl	10YR44 00						0	0	HR	2		M					
	50-60	fsl	10YR54 64						0	0		0		M					
	60-70	fsl	10YR54 00	75YR58 00	C			S	0	0		0		M					
	70-120	mcl	10YR54 00	75YR58 00	C			S	0	0		0		M					
15	0-30	fszl	10YR43 00						0	0	HR	2							
	30-70	fszl	10YR44 00						0	0	HR	2		M					
	70-80	mzcl	10YR53 00	75YR58 00	C			Y	0	0		0		M					
	80-90	hcl	10YR53 00	75YR58 00	C			Y	0	0		0		M			Y		
	90-120	c	10YR53 00	75YR58 00	M			Y	0	0		0		M			Y		
16	0-30	fszl	10YR32 00						0	0	HR	10							IMP FLINTS 30
17	0-35	mzcl	10YR42 00	75YR46 00	C			S	0	0	HR	2							
	35-45	mzcl	10YR43 00						0	0	HR	2		M					
	45-85	hzcl	10YR54 00	75YR58 00	C			S	0	0	HR	2		M			Y		
	85-90	hcl	10YR54 00	75YR58 00	C			Y	0	0	HR	15		M			Y		IMP FLINTS 90
18	0-40	fszl	10YR42 00						0	0	HR	5							
	40-50	fszl	10YR53 00						0	0	HR	10		M					IMP FLINTS 50
19	0-30	fszl	10YR32 00						0	0		0							
	30-45	mzcl	10YR54 00	75YR58 00	C			S	0	0		0		M					
	45-80	zc	10YR54 00	75YR58 00	M		10YR62 00	S	0	0		0		P			Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
20	0-30	fszl	10YR31 00						0	0	HR	5						
	30-50	fszl	10YR42 00						0	0	HR	5		M				
	50-60	fszl	10YR53 00	75YR58 00	C			Y	0	0	HR	2		M				
	60-65	mzcl	10YR53 00	75YR58 00	C			Y	0	0	HR	2		M				IMP FLINTS 65
21	0-30	fszl	10YR32 00						0	0	HR	2						
	30-45	fszl	10YR43 00						0	0	HR	2		M				
	45-55	fszl	10YR53 00	75YR58 00	C			Y	0	0	HR	2		M				IMP FLINTS 55
22	0-32	fszl	10YR32 00						0	0	HR	10						IMP FLINTS 32
23	0-30	fszl	10YR32 00						0	0	HR	5						
	30-32	fszl	10YR54 00						0	0	HR	20		M				IMP FLINTS 32
24	0-30	fszl	10YR31 00						0	0	HR	5						
	30-40	fszl	10YR32 00						0	0	HR	5		M				
	40-60	fszl	10YR53 00	75YR58 00	C			Y	0	0	HR	7		M				IMP FLINTS 60
25	0-45	fszl	10YR32 00						0	0	HR	5						IMP FLINTS 45
26	0-30	fszl	10YR32 00						0	0	HR	2						
	30-75	fszl	10YR43 00						0	0	HR	2		M				
	75-85	mzcl	10YR63 00	75YR58 00	C			Y	0	0		0		M				
	85-120	zc	10YR63 00	75YR58 00	M			Y	0	0		0		P		Y		
27	0-35	fszl	10YR32 00						0	0	HR	2						IMP FLINTS 45
	35-45	fszl	10YR54 00						0	0	HR	10		M				
28	0-30	fszl	10YR43 00						0	0	HR	2						
	30-60	fszl	10YR54 00						0	0	HR	2		M				
	60-80	fszl	10YR54 00	75YR58 00	C		10YR63 00	S	0	0		0		G				
	80-90	mzcl	10YR63 00	75YR58 00	M			Y	0	0		0		M				
	90-95	hzcl	10YR63 00	75YR58 00	M			Y	0	0		0		M		Y		
	95-120	zc	10YR63 00	75YR58 00	M			Y	0	0		0		P		Y		
29	0-35	fszl	10YR42 00						0	0	HR	2						
	35-60	fszl	10YR54 00						0	0		0		M				
	60-70	mzcl	10YR54 00						0	0		0		M				
	70-80	hzcl	10YR54 00	75YR58 00	C			S	0	0		0		M		Y		
	80-90	zc	10YR54 00	75YR58 00	C			S	0	0		0		P		Y		IMP FLINTS 90
30	0-25	fszl	10YR32 00						0	0	HR	7						
	25-35	fszl	10YR54 00						0	0	HR	25		M				IMP FLINTS 35
31	0-45	fszl	10YR32 00						0	0	HR	5						
	45-70	fszl	10YR42 00						0	0	HR	5		M				
	70-77	hzcl	10YR53 00	75YR58 00	C			Y	0	0	HR	10		M		Y		IMP FLINTS 77

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	
32	0-30	fszl	10YR33 00						0	0	HR	7							
	30-60	mzcl	10YR43 00						0	0	HR	10		M					IMP FLINTS 60
33	0-30	fszl	10YR32 00						0	0	HR	2							
	30-40	mzcl	10YR54 00						0	0	HR	2		M					
	40-70	hzcl	10YR54 00						0	0	HR	2		M					IMP FLINTS 70
34	0-25	fszl	10YR42 00	75YR46 00	C			Y	0	0	HR	10							IMP FLINTS 25
35	0-35	fszl	10YR32 00						0	0	HR	10							
	35-75	hzcl	10YR54 00						0	0	HR	10		M					
	75-87	zc	10YR54 00	75YR58 00	C			S	0	0	HR	10		P			Y		IMP FLINTS 87
36	0-40	fszl	10YR32 00						0	0	HR	10							
	40-45	mzcl	10YR54 00						0	0	HR	10		M					IMP FLINTS 45
37	0-37	fszl	10YR32 00						0	0	HR	10							
	37-48	fszl	10YR54 00						0	0	HR	20		M					IMP FLINTS 48
38	0-30	fszl	10YR33 00						0	0	HR	5							
	30-80	fszl	10YR54 00						0	0	HR	2		M					IMP FLINTS 80