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Aylesbury Vale Local Plan
Land south of Maids Moreton, Buckinghamshire
Agricultural Land Classification
ALC Map and Report
September 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

AYLESBURY VALE LOCAL PLAN: LAND SOUTH OF MAIDS MORETON

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 54 hectares of land between Maids Moreton and the A422 (Stratford Road) in Buckinghamshire. The survey was carried out during September 1996.

2. The work was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading, in connection with MAFF's statutory input to the Aylesbury Vale Local Plan. This survey supersedes any previous ALC information for this land, including a detailed survey undertaken in 1988 (ADAS Ref: 0301/23/88), which was carried out prior to MAFF's revision of its ALC guidelines.

3. The current 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 agricultural land in the northern half of the site was under permanent pasture, with much of this land having remnant ridge and furrow features. Agricultural land in the southern half of the site was in arable use. The areas shown as 'Other Land' consist of a recreation ground, a track, woodland, a small hut and scrubby areas of land possibly disturbed through past uses. The agricultural land not surveyed comprises land which already has been allocated planning permission.

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 1 boring per hectare. A total of 49 borings and 4 soil pits were described.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area	% Surveyed Area
2	21.4	39.3	49.5
3a	13.0	23.9	30.1
3b	8.8	16.1	20.4
Other land	5.2	9.5	
Not Surveyed	6.1	11.2	
Total surveyed area	43.2	-	100.0
Total site area	54.5	100.0	-

8. The majority of land has been classified as Grade 2 (very good quality) because of minor soil droughtiness limitations, which sometimes act in conjunction with soil workability limitations. Topsoils typically comprise calcareous and non-calcareous medium and heavy clay loams. These overlie similarly textured or clay subsoils, all of which are permeable and moderately structured. These profiles are slightly stony. The interaction between these soil properties and the prevailing climate acts to impart a minor soil droughtiness limitation. This may lead to the soil available water being insufficient to fully meet crop needs. Consequently, this land will suffer from slightly lower and less consistent crop yields. Where the heavier topsoils occur, the land is also subject to minor soil workability limitations. This may result in slight restrictions on the flexibility of cropping, stocking and cultivations.

9. Land classified as Subgrade 3a (good quality) is subject to soil droughtiness or soil wetness limitations. The former occur in the north of the site. Non-calcareous and slightly stony medium clay loam topsoils overlie very stony similarly textured subsoils. In comparison to land classified as Grade 2, these profiles contain more stone and thus less soil water available for uptake by crop roots. Where soil wetness limitations occur, topsoils comprise either non-calcareous medium clay loams or calcareous heavy clay loams. These overlie permeable brownish clay upper subsoils and slowly permeable and gleyed clay lower subsoils. The interaction between the topsoil textures and imperfect soil drainage conditions with the local climate acts to impart some restrictions on the flexibility of cropping, stocking and cultivations.

10. The majority of land classified as Subgrade 3b (moderate quality) is limited by more severe soil wetness and workability. Non-calcareous and calcareous medium and heavy clay loam topsoils directly overlie poorly structured clay subsoils. These subsoils are slowly permeable and will significantly impede drainage. The resultant waterlogging will thus restrict seed germination and growth as well as limit the timing of cultivations. Wet soils such as these are susceptible to structural damage through trafficking by agricultural machinery and grazing livestock. Certain areas along the course of the spring are also subject to groundwater problems, as indicated by boggy areas with poached topsoils and, in parts, hydrophilic vegetation. Land to the east of Church Farm and to the west of the woodland is also subject to micro-relief limitations, resulting from irregular terrain over comparatively short distances.

Factors Influencing ALC Grade

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 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	Values
Grid reference	N/A	SP 711 353	SP 705 347
Altitude	m, AOD	90	110
Accumulated Temperature	day°C (Jan-June)	1393	1371
Average Annual Rainfall	mm	681	685
Field Capacity Days	days	146	146
Moisture Deficit, Wheat	mm	104	102
Moisture Deficit, Potatoes	mm	95	92

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 (Climatic Grade 1). However, climatic factors do interact with soil properties to influence soil wetness and droughtiness. At this locality the climate is relatively cool and dry, in regional terms, such that the risk of soil droughtiness will be enhanced.

16. Local climatic factors such as frost risk and exposure are not thought likely to adversely affect agricultural land use on this site.

Site

17. The land on this site ranges from 90m AOD along the north-eastern boundary to 110m AOD in the north-west. The land slopes gently from north-west to south-east. Gradient does not affect agricultural land quality across the site, but micro-relief does influence land quality across the northern-most part of the site.

18. Flooding does not appear to be limiting on this site.

Geology and soils

19. The relevant geological sheet (GSGB, 1863) shows most of the site to be underlain by Jurassic solid deposits of Cornbrash (interbedded rubbly limestone and clay). A survey of the Soils of Buckinghamshire (Temple, 1929), indicates that these solid deposits may in turn be overlain by superficial glacial drift deposits of boulder clay in the vicinity of Buckingham.

20. The most recently published soils information for this area (SSEW, 1983) maps the Ashley soil association across most of the site with areas of Evesham association soils towards the north-west of the site. Ashley soil are derived from deposits of chalky boulder clay and are described as 'fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging' (SSEW, 1983). Evesham soils are described as 'slowly permeable , calcareous clayey soils associated with shallower, well drained brashy calcareous soils over limestone' (SSEW, 1983).

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 2

23. Very good quality land has been mapped across the southern part of the site. The land is limited to a minor extent by soil droughtiness and/or soil wetness/workability.

24. Soils within this mapping unit were found to comprise calcareous, or more usually non-calcareous, medium or heavy clay loam topsoils which may contain up to 10% total hard limestone fragments. Subsoils are variable but commonly comprise similarly textured or clay subsoils which may contain up to 25% limestone fragments. Occasional profiles were found to become sandier with depth. Many of the observations were impenetrable to the soil auger at depths between 40 and 90cm, but soil pits 1 and 3 (see Appendix III) proved the existence of a rootable soil resource to at least 120cm.

25. Many of the soils in the Grade 2 mapping unit show signs of slightly impeded drainage through the presence of manganese concretions and ochreous mottling at depths below 23cm. This is likely to be the result of a fluctuating water table, rather than the occurrence of slowly permeable clayey horizons in the soil profile. The soils are thereby assessed as wetness class I, or very occasionally II, (see Appendix II) resulting in an ALC wetness grade of 1, or 2 where heavy topsoil textures restrict the workability of the land by affecting the timing of cultivations and/or grazing by livestock.

26. The overriding limitation to the Grade 2 land is minor soil droughtiness. The soil characteristics described in para. 24 above, combine with the prevailing climatic conditions (which are relatively cool and dry in a regional context), to restrict the amount of water in the profile which will be available to plants. Moisture balance calculations indicate that there is insufficient soil moisture to meet the demands of a growing crop throughout the growing

season. As a result the yield potential may be reduced, such that land cannot be classified higher than ALC Grade 2.

Subgrade 3a

27. Good quality land has been mapped across the north and west of the site. Soils are variable within this unit but they are affected by either soil droughtiness or soil wetness restrictions.

28. Soil profiles affected by wetness comprise calcareous or non-calcareous, medium or heavy clay loam topsoils which may be very slightly stony (i.e., 2-3% total hard limestone fragments). These overlie clay subsoils which are gleyed and slowly permeable below 40cm depth. As a result, soil drainage will be impeded to the extent that wetness class III is appropriate, which when combined with local climatic conditions, gives rise to a land classification of Subgrade 3a on the basis of soil wetness. This is likely to cause crop growth and development to be adversely affected, as well as restricting the timing of landwork and/or grazing.

29. Towards the north of the site, many soils were found to be impenetrable to the soil auger at shallow depth due to the presence of stony subsoil horizons. Non-calcareous, medium clay loam topsoils containing 2-5% total hard limestone fragments were described, but subsoils were impenetrable. Therefore a soil pit (4P) was described to determine the nature of the subsoil characteristics. They were found to be medium or heavy clay loams, which are friable and freely draining (wetness class I), but which contain upwards of about 40% total stone by volume. Plant roots were not able to penetrate below 90cm depth. The interaction between these stony soils, restricted rooting depth, and the prevailing climate (i.e., relatively dry), gives rise to moderate soil droughtiness which will adversely affect the yield potential of crops.

Subgrade 3b

30. In common with land assigned to Grade 2 or Subgrade 3a, moderate quality, Subgrade 3b land is limited by soil wetness or soil droughtiness restrictions.

31. The land affected by soil wetness comprises non-calcareous, medium or heavy clay loam topsoils, directly overlying gleyed and slowly permeable clay subsoils which significantly impede soil drainage such that wetness class III or IV is appropriate. Soil pit 2 is typical of these soils. The combination of soils with such a poor drainage status, heavy topsoil textures and the prevailing climatic conditions results in a land classification of Subgrade 3b. This degree of soil wetness will significantly restrict the timing of cultivations and/or grazing and adversely affect crop development.

32. Across the northern part of the site, soils were found to be very shallow over stony horizons, such that a severe soil droughtiness restriction results. Soils within this unit of Subgrade 3b were also found to be extremely variable, and the landform was such that small scale undulations over short distances gave rise to localised micro-relief restrictions. In view of this combination of limitations affecting this land, Subgrade 3b is the most appropriate classification for the land.

Michelle Leek, RPT Reading

SOURCES OF REFERENCE

Geological Survey of Great Britain (1863) *Sheet No. 45 NE,* GSGB: 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.

Meteorological Office (1989) *Climatological Data for Agricultural Land Classification.* Meterological 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, Bulletin No. 15* SSEW: Harpenden.

Temple, M.S. (1929) *A Survey of the Soils of Buckinghamshire,* University of Reading.

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 that 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 that restricts 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 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 **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	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-30	mcl	10YR43 00				00MN00 00		0	0	HR	3						Y	Imp, stones
1A	0-25	mcl	10YR43 00						0	0	HR	2						Y	
	25-50	c	10YR52 53	10YR58 00	C		00MN00 00	Y	0	0		0		P	Y		Y	Y	
1P	0-30	mcl	10YR43 00						3	0	HR	5							
	30-50	c	10YR44 00		C		00MN00 00		4	1	HR	7	MDCSAB VF	M					
	50-67	c	10YR44 00	10YR58 00	C		00MN00 00	S	0	0	HR	5	WKCSAB FR	M					
	67-100	scl	10YR44 00	75YR58 00	C		00MN00 00	S	0	0	HR	5	WKCSAB VF	M					
	100-120	c	10YR44 00	75YR58 00	C		00MN00 00	S	0	0	HR	5		M					
2	0-25	mzcl	10YR43 00						0	0		0						Y	
	25-50	msl	10YR72 73	75YR58 00	C			Y	0	0		0		M				Y	
	50-70	msl	10YR72 73	10YR58 00	M		00MN00 00	Y	0	0	CH	5		M				Y	
	70-110	ozl	10YR43 00	10YR58 00	C		00MN00 00	S	0	0		0		M				Y	
2P	0-30	hcl	10YR42 00	10YR58 00	C			Y	3	0	HR	6						Y	
	30-43	c	10YR58 00	25YR52 53	M			Y	0	0	HR	5	MDCAB FM	P	Y		Y	Y	
	43-65	c	25YR62 00	10YR58 00	C		25YR52 00	Y	0	0	HR	3	MDVCAB FM	P	Y		Y	Y	+ 2% chalk
3	0-20	mzcl	10YR43 00						0	0	HR	2						Y	
	20-30	mzcl	10YR54 00						0	0	HR	2		M				Y	
	30-40	mcl	10YR53 00	10YR68 00	M			Y	0	0	HR	2		M				Y	
	40-50	hcl	10YR42 44	10YR58 00	M			Y	0	0	HR	2		M				Y	
	50-120	c	25Y 51 52	10YR58 00	M			Y	0	0	HR	2		P			Y	Y	
3A	0-20	mcl	10YR43 00						0	0	HR	3							
	20-30	hcl	10YR44 00						0	0	HR	5		M					
	30-60	c	10YR52 53	10YR58 00	C		00MN00 00	Y	0	0		0		P	Y		Y	Y	
3P	0-23	mcl	10YR43 00						0	0	HR	3							
	23-60	mcl	10YR43 44	10YR58 00	C			S	0	0	HR	6	MDCSAB FR	M					
	60-68	hcl	10YR44 00	10YR58 00	C			S	0	0	HR	10	MDCSAB FR	M				Y	
	68-90	mcl	25Y 64 66					S	0	0	HR	4	WDCSAB FR	M				Y	
4	0-20	mcl	10YR42 00						0	0	HR	2						Y	
	20-40	c	25Y 53 00	10YR56 00	M			Y	0	0	HR	2		P			Y	Y	
	40-100	c	25Y 51 53	10YR56 00	M			Y	0	0	HR	2		P			Y	Y	
4P	0-20	mcl	10YR43 00						0	0	HR	5							
	20-60	hcl	10YR56 00						10	0	HR	39		FR	M			Y	
	60-75	mcl	10YR46 56						0	0	HR	48		FR	M			Y	Roots to 90
5	0-28	mcl	10YR42 00						0	0	HR	2							
	28-38	c	25Y 52 00	10YR56 00	M			Y	0	0	HR	5		P			Y	Y	
	38-100	c	25Y 51 52	10YR56 00	M			Y	0	0	HR	2		P			Y	Y	
6	0-25	mcl	10YR44 00						0	0	HR	2							Imp, flints

				----MOTTLES-----			PED		----STONES----			STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
7	0-25	mcl	10YR44 00						0	0	HR	2							Imp, stones
8	0-30	mcl	10YR43 00						0	0	HR	2							
	30-40	hcl	10YR44 00				00MN00	00	0	0	HR	8		M					Imp, stones
9	0-25	mcl	10YR43 00						0	0		0							
	25-40	mcl	10YR44 00				00FE00	00	0	0	HR	2		M					Imp, stones
10	0-25	mcl	10YR44 00						0	0	HR	2							Imp, flinty
11	0-25	mcl	10YR44 00						0	0	HR	2							Imp, stones
12	0-32	mcl	10YR43 00						0	0	HR	5							Imp, stones
13	0-30	mcl	10YR43 00						0	0	HR	2							Imp, stones
14	0-30	mcl	10YR42 00						0	0	HR	1							
	30-50	hcl	10YR43 00				00FE00	00	0	0	HR	2		M					Imp, stones
15	0-25	mcl	10YR32 42	10YR58	00	C		Y	0	0		0							
	25-60	c	10YR52 53	10YR58	00	C	00MN00	00 Y	0	0	HR	3		P	Y		Y	Y	
16	0-20	mcl	10YR53 00						0	0	HR	2							
	20-30	mcl	10YR54 00						0	0	HR	2		M					
	30-48	hcl	10YR54 00						0	0	HR	5		M					
	48-65	c	10YR53 00	10YR68	00	C		Y	0	0	HR	2		P			Y		
	65-120	c	25Y 61 52	10YR58	00	M		Y	0	0	HR	2		P			Y	Y	
17	0-30	hcl	10YR42 00						0	0	HR	2						Y	
	30-42	c	25 Y43 00	10YR58	00	F	00MN00	00 S	0	0	HR	2		P			Y	Y	
	42-70	c	25 Y53 00	10YR58	00	C		Y	0	0		0		P			Y	Y	
18	0-20	mcl	10YR43 00						0	0	HR	1							
	20-30	mzcl	10YR44 00						0	0	HR	1		M					
	30-60	mcl	10YR44 00						0	0	HR	8		M					
	60-67	hcl	10YR54 00	10YR58	00	C		S	0	0	HR	8		M				Y	Imp, flints
19	0-20	mzcl	10YR43 00						0	0	HR	2							
	20-30	mzcl	10YR54 00						0	0	HR	2		M					
	30-58	mzcl	10YR54 00						0	0	HR	8		M					
	58-65	hcl	10YR56 00						0	0	HR	8		M					Imp, flinty
20	0-28	mcl	10YR44 00						0	0	HR	2							
	28-48	hcl	10YR54 00						0	0	HR	8		M					
	48-55	hcl	10YR54 00	10YR56	00	C		S	0	0	HR	8		M				Y	Imp, flinty
21	0-28	hcl	10YR42 00	10YR56	00	F	00MN00	00	0	0	HR	3							
	28-70	c	10YR53 54	10YR58	00	C	00MN00	00 S	0	0	HR	8		P	Y		Y	Y	Imp, stones

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
22	0-30	mcl	10YR42 00		F		00MN00 00		1	0	HR	5							
	30-80	c	10YR53 54	10YR58 00	C		00MN00 00	S	0	0	HR	2		P	Y		Y		Imp, stones
23	0-33	mcl	10YR44 00						1	0	HR	3							
	33-40	c	10YR44 00	00FE00 00	F		00MN00 00		0	0	HR	10		M					
	40-45	c	10YR54 00	10YR58 00	C			S	0	0	HR	10		M					
	45-55	c	10YR53 00	10YR58 00	C			Y	0	0	HR	5		P			Y		
	55-80	c	10YR53 00	10YR58 00	C			Y	0	0		0		P			Y		
24	0-27	hcl	10YR42 00						0	0	HR	2						Y	
	27-40	c	10YR46 00						0	0	HR	2		M				Y	
	40-90	c	10YR53 00	10YR56 00	C			Y	0	0	HR	2		P			Y	Y	Imp, flints
25	0-28	mcl	10YR42 00						0	0	HR	2							
	28-40	c	10YR58 00		C		00MN00 00		0	0	HR	2		M					
	40-65	c	10YR46 00		C		00MN00 00		0	0	HR	2		M					
	65-75	c	25 Y56 00	10YR46 00	C		00MN00 00	Y	0	0	HR	5		M					Imp, flints
27	0-32	hcl	10YR43 00						0	0	HR	2						Y	
	32-45	c	10YR56 00		F		00MN00 00		0	0	HR	5		M					
	45-55	c	10YR56 00	00FE00 00	C		00MN00 00		0	0	HR	5		M					Imp, flints
28	0-28	hcl	25 Y42 00						0	0	HR	1						Y	
	28-70	c	25 Y53 00	10YR56 00	C		25 Y62 00	Y	0	0	HR	1		P			Y	Y	
29	0-28	hcl	10YR42 00						0	0	HR	1						Y	
	28-60	c	10YR53 00						0	0	MSST	5		M				Y	Imp, sst frags
30	0-32	mcl	10YR43 00						0	0	HR	2						Y	
	32-42	c	10YR46 00						0	0	HR	5		M				Y	
	42-45	c	10YR54 00	10YR58 00	C		00MN00 00	S	0	0	HR	5		M				Y	Imp, flints
34	0-25	hcl	10YR43 00						0	0	HR	2						Y	
	25-38	c	10YR53 00		F		00MN00 00		0	0	HR	2		M				Y	
	38-45	c	10YR53 00	10YR58 00	C		10YR62 00	Y	0	0	HR	2		M				Y	
	45-70	c	25 Y63 00	10YR56 00	C			Y	0	0		0		P			Y	Y	
35	0-30	hcl	10YR43 00						0	0	HR	2							
	30-70	hcl	10YR54 00		C		00FE00 00		0	0	HR	2		M					Imp, flints
36	0-30	hcl	10YR43 00						3	0	HR	5							
	30-45	c	10YR46 00		F		00MN00 00		0	0	HR	8		M					
	45-50	c	25 Y54 00	10YR58 00	C		00MN00 00	S	0	0	HR	8		M					
	50-80	c	25 Y53 00	25 Y56 00	C			Y	0	0	HR	2		P			Y	Y	
39	0-28	hcl	10YR42-00						0	0	HR	3							
	28-40	hcl	10YR44-00						0	0	HR	5		M					Imp, flints

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
40	0-28	hcl	10YR42 00						0	0	HR	3							
	28-40	c	10YR44 46						0	0	HR	8		M					
	40-50	c	10YR44 00	10YR58 00	C			S	0	0	HR	5		P	Y		Y		Imp, flints
41	0-30	hcl	10YR42 00						0	0	HR	3							
	30-50	c	10YR44 00				00MN00 00		0	0	HR	8		M					
	50-60	c	10YR44 00	10YR58 00	C		00MN00 00	S	0	0	HR	5		M					Imp, stones
42	0-30	hcl	10YR43 00						2	0	HR	4							
	30-42	c	10YR44 00	00FE00 00	C				0	0	HR	10		M					
	42-55	scl	10YR46 00	00MN00 00	C				0	0	HR	2		M					Imp, stones
43	0-32	hcl	10YR36 00						0	0	HR	2							
	32-40	hcl	10YR46 00						0	0	HR	2		M				Y	
	40-90	c	10YR46 00						0	0	HR	2		M					Imp, flints
46	0-28	hcl	10YR42 00						0	0	HR	3							
	28-50	c	10YR43 44						0	0	HR	5		M					Imp, flints
47	0-30	hcl	10YR42 00						0	0	HR	2							
	30-55	c	10YR44 00						0	0	HR	2		M				Y	
	55-70	c	10YR54 00	10YR58 00	C			S	0	0	HR	2		P			Y	Y	
	70-80	c	10YR53 00	10YR58 00	C			Y	0	0	HR	3		P	Y		Y	Y	Imp, flints
48	0-32	hcl	10YR43-00						1	0	HR	3						Y	
	32-75	c	10YR53-00	10YR58-00	C		10YR61-00	Y	0	0		0		P			Y		
49	0-35	mcl	10YR43 00						0	0	HR	2							
	35-50	c	10YR44 00						0	0	HR	2		M					
	50-65	c	10YR54 00	75YR58 00	C		00MN00 00	S	0	0	HR	2		M					
	65-120	hcl	10YR54 00	75YR68 00	C		00MN00 00	S	0	0	HR	2		M					Sandy lenses
50	0-30	mcl	10YR42 43						0	0	HR	2						Y	
	30-45	hcl	10YR44 00			C	00MN00 00		0	0	HR	2		M				Y	
	45-60	c	10YR44 00	75YR58 00	C		00MN00 00	S	0	0		0		M					
	60-80	msl	10YR58 00						0	0		0		M					Imp, flints
51	0-28	mcl	10YR43 00						1	0	HR	4						Y	
	28-40	hcl	10YR44 00						0	0	HR	2		M				Y	
	40-55	scl	10YR44 00						0	0	HR	1		M				Y	
	55-65	msl	10YR44 00	75YR58 00	C			S	0	0		0		M				Y	Imp, flints
53	0-35	mcl	10YR34 00						1	0	HR	5						Y	
	35-65	scl	10YR46 00						0	0	HR	2		M				Y	
	65-80	lms	10YR58 00						0	0		0		M				Y	
	80-90	ms	10YR58 00						0	0		0		M				Y	
	90-120	fs	10YR58 00						0	0		0		M				Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
54	0-35	mcl	10YR43 00						6	0	HR	10						Y	Sl. sandy
	35-50	scl	10YR44 00						0	0	MSST	15		M				Y	
	50-65	scl	10YR54 00						0	0	MSST	25		M				Y	Imp, sst frags
55	0-30	mcl	10YR42 43						2	0	HR	5						Y	
	30-50	mcl	10YR44 00						0	0	HR	8		M				Y	
	50-85	hcl	10YR44 00						0	0	HR	5		M				Y	Imp, stones
56	0-30	mcl	10YR43 00						2	0	HR	5						Y	
	30-50	hcl	10YR44 54						0	0	HR	2		M				Y	
	50-65	hzcl	10YR64 00						0	0		0		M				Y	
	65-82	c	75YR56 00	75YR58 00	C		00MN00 00	S	0	0		0		M					Sl. sandy
	82-120	hcl	10YR64 00	10YR58 00	C			Y	0	0		0		M				Y	Sandy lenses

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	SP71003560	PGR	S	02			1	1	052	-52	052	-43	4				DR	3B	IMP 30
1A	SP70943555	PGR	SE	03	025	025	4	3B	000	0	000	0					WE	3B	
1P	SP70803470	STB					1	1	141	37	112	17	1					1	SL. GLEY 50
2	SP70903550	PGR	E	02	025		2	2	187	83	115	20	1				WE	2	POSS 3B, WET
2P	SP70703510	ARA	E	02	0	030	4	3B	086	-18	095	0	3A				WE	3B	
3	SP71003550	PGR	S	02	030	050	3	2	133	29	111	16	2				WD	2	
3A	SP71023547	PGR	SE	02	030	030	4	3B	000	0	000	0					WE	3B	
3P	SP70803510	PGR	NE	02	023		2	2	119	15	111	16	2				WD	2	
4	SP71103550	PGR	W	02	020	020	4	3B	000	0	000	0					WE	3B	
4P	SP71003530	PGR	E	02			1	1	082	-22	087	-8	3B				DR	3A	DR TO 90
5	SP71203550	PGR	E	01	028	028	4	3B	000	0	000	0					WE	3B	
6	SP70903540	PGR	E	02			1	1	044	-60	044	-51	4				DR	3A	SEE 4P
7	SP71003540	PGR	NE	02			1	1	044	-60	044	-51	4				DR	3A	SEE 4P
8	SP71103540	PGR	E	02			1	1	068	-36	068	-27	3B				DR	3A	SEE 4P
9	SP70803530	PGR	E	01			1	1	069	-35	069	-26	3B				DR	3A	SEE 4P
10	SP70903530	PGR	SW	02			1	1	044	-60	044	-51	4				DR	3A	SEE 4P
11	SP71003530	PGR	E	03			1	1	044	-60	044	-51	4				DR	3A	SEE 4P
12	SP71103530	PGR					1	1	055	-49	055	-40	3B				DR	3A	SEE 4P
13	SP70703520	PGR	E	02			1	1	053	-51	053	-42	4				DR	3A	SEE 4P
14	SP70803520	PGR	E	03			1	1	085	-19	085	-10	3A				DR	3A	SEE 4P
15	SP70903520	PGR	E	01	0	025	4	3B	085	-19	091	-4	3A				WE	3B	
16	SP71003520	PGR	N	01	048	048	3	3A	129	25	107	12	2				WE	3A	
17	SP70703510	STB	S	01	042	030	3	3B	000	0	000	0					WE	3B	
18	SP70803510	PGR	NE	02			1	1	098	-6	107	12	3A				DR	2	SEE 3P
19	SP70903510	PGR	NE	04			1	1	099	-5	108	13	3A				DR	2	SEE 3P
20	SP71003510	PGR	N	03	048		1	1	087	-17	089	-6	3A				DR	2	SEE 3P
21	SP70503500	CER			028	028	4	3B	088	-16	100	5	3A				WE	3B	
22	SP70603500	CER	SE	01	030	030	4	3B	000	0	000	0					WE	3B	
23	SP70703500	STB	S	01	045	045	3	3A	000	0	000	0					WE	3A	SL. GLEY 40
24	SP70803500	PGR	SE	02	040	040	3	3A	000	0	000	0					WE	3A	
25	SP70903500	PGR	E	01	065		1	1	103	-1	115	20	3A				DR	2	SEE 3P
27	SP70603490	STB	S	01			1	2	088	-16	092	-3	3A				WK	2	+ DR
28	SP70703490	STB	S	02	028	028	4	3B	000	0	000	0					WE	3B	
29	SP70803490	STB					1	2	091	-13	099	4	3A				WK	2	SEE 1P
30	SP70903490	PGR	E	01			1	1	076	-28	076	-19	3B				DR	2	SEE 3P
34	SP70703480	STB	S	02	038	045	3	3A	000	0	000	0					WE	3A	
35	SP70803480	STB	S	01			1	2	104	0	116	21	3A				WD	2	SEE 3P
36	SP70903480	STB	S	01	050	050	3	3B	000	0	000	0					WE	3B	
39	SP70603470	CER					1	2	000	0	000	0	2				DR	2	SEE 1P
40	SP70703470	CER					1	2	079	-25	079	-16	3B				DR	2	SEE 1P
41	SP70803470	CER					1	2	090	-14	097	2	3A					1	SEE 1P
42	SP70903470	STB	NE	01			1	2	086	-18	089	-6	3A				DR	2	SEE 1P/3P

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
43	SP71003470	STB	E	01			1	2	116	12	116	21	2				WK	2	
46	SP70603460	CER	SE	02			1	2	083	-21	083	-12	3B				WK	2	
47	SP70703460	CER	SW	02	070	055	2	3A	105	1	111	16	3A				WE	3A	SL. GLEY 55
48	SP70803460	STB			032	032	4	3B	000	0	000	0					WE	3B	
49	SP70903460	STB	S	02			1	1	151	47	117	22	1					1	SL. GLEY 50
50	SP71003460	CER					1	1	115	11	116	21	2				DR	2	SL. GLEY 45
51	SP71103460	CER					1	1	098	-6	105	10	3A				DR	2	SEE 3P
53	SP70803450	STB	S	04			1	1	144	40	108	13	1					1	SANDY
54	SP70903450	STB	S	05			1	1	089	-15	095	0	3A				DR	3A	IMP 65
55	SP71003450	CER	SE	04			1	1	114	10	112	17	2				DR	2	
56	SP70803440	STB	W	03			1	1	149	45	116	21	1					1	SL. GLEY 65

SOIL PIT DESCRIPTION

Site Name : AYLESBURY LP S MAIDS MON Pit Number : 1P

Grid Reference: SP70803470 Average Annual Rainfall : 681 mm
Accumulated Temperature : 1393 degree days
Field Capacity Level : 146 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MCL	10YR43 00	3	5	HR					
30- 50	C	10YR44 00	4	7	HR	C	MDCSAB	VF	M	
50- 67	C	10YR44 00	0	5	HR	C	WKCSAB	FR	M	
67-100	SCL	10YR44 00	0	5	HR	C	WKCSAB	VF	M	
100-120	C	10YR44 00	0	5	HR	C			M	

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

Drought Grade : 1 APW : 141mm MBW : 37 mm
APP : 112mm MBP : 17 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SOIL PIT DESCRIPTION

Site Name : AYLESBURY LP S MAIDS MON Pit Number : 2P

Grid Reference: SP70703510
Average Annual Rainfall : 681 mm
Accumulated Temperature : 1393 degree days
Field Capacity Level : 146 days
Land Use : Arable
Slope and Aspect : 02 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	HCL	10YR42 00	3	6	HR	C				Y
30- 43	C	10YR58 00	0	5	HR	M	MDCAB	FM	P	Y
43- 65	C	25YR62 00	0	3	HR	C	MDVCAB	FM	P	Y

Wetness Grade : 3B
Wetness Class : IV
Gleying :0 cm
SPL :030 cm

Drought Grade : 3A
APW : 086mm MBW : -18 mm
APP : 095mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : AYLESBURY LP S MAIDS MON Pit Number : 3P

Grid Reference: SP70803510
Average Annual Rainfall : 681 mm
Accumulated Temperature : 1393 degree days
Field Capacity Level : 146 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 23	MCL	10YR43 00	0	3	HR					
23- 60	MCL	10YR43 44	0	6	HR	C	MDCSAB	FR	M	
60- 68	HCL	10YR44 00	0	10	HR	C	MDCSAB	FR	M	Y
68- 90	MCL	25Y 64 66	0	4	HR		WDCSAB	FR	M	Y

Wetness Grade : 2
Wetness Class : II
Gleying :023 cm
SPL : No SPL

Drought Grade : 2
APW : 119mm MBW : 15 mm
APP : 111mm MBP : 16 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name : AYLESBURY LP S MAIDS MOR Pit Number : 4P

Grid Reference: SP71003530 Average Annual Rainfall : 681 mm
Accumulated Temperature : 1393 degree days
Field Capacity Level : 146 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 20	MCL	10YR43 00	0	5	HR					
20- 60	HCL	10YR56 00	10	39	HR			FR	M	Y
60- 75	MCL	10YR46 56	0	48	HR			FR	M	Y

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

Drought Grade : 3B APW : 082mm MBW : -22 mm
APP : 087mm MBP : -8 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness