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Land at West Park Farm,
Wing, Buckinghamshire
Agricultural Land Classification
ALC Map and Report
May 1995

AGRICULTURAL LAND CLASSIFICATION REPORT

LAND AT WEST PARK FARM, WING, BUCKINGHAMSHIRE

1. Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land affected by a proposed golf course development. The site lies to the west of the A418, near Wing, Buckinghamshire. An Agricultural Land Classification (ALC) survey of this site was carried out in May 1995.
- 1.2 The site comprises 67.8 hectares of land. Most of the survey work was undertaken at a detailed level of approximately one boring per hectare; the flatter, lower-lying land either side of the stream was undertaken at a semi-detailed level of approximately one boring for every two hectares. A total of 59 borings and three soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.
- 1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of the survey the agricultural land on the site was predominantly arable (wheat, barley and oilseed rape) with the two most eastern fields under permanent pasture. The areas marked as woodland comprise mature, deciduous trees; land mapped as non-agricultural is an overgrown area.
- 1.5 The attached ALC map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading. This map supersedes any previous ALC survey information for this site.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	10.6	15.6	15.8
3b	54.1	79.9	80.9
4	2.2	3.2	<u>3.3</u>
Non-agricultural	0.6	0.9	100.0 (66.9 ha)
Woodland	<u>0.3</u>	<u>0.4</u>	
Total area of site	67.8	100.0	

- 1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

- 1.7 The majority of agricultural land surveyed has been classified as Subgrade 3b, moderate quality. Smaller areas of Grade 2, very good quality, and Grade 4, poor quality, also occur.
- 1.8 Grade 2 land is restricted by either slight soil wetness or droughtiness limitations. Where wetness is limiting, loamy textured topsoils and subsoils overlie slowly permeable clay at depth. Where droughtiness is limiting, the loamy textured subsoils continue to depth.
- 1.9 Subgrade 3b land is restricted by significant soil wetness and workability limitations. Medium and heavy clay loam topsoils either directly overlie clay or overlie clay at moderate depths. This clay is slowly permeable, resulting in either poor or imperfect soil drainage conditions. To the east of the stream, Subgrade 3b land is limited by slope restrictions caused by gradients within the range of 7° to 11°.
- 1.10 Grade 4 land to the east of the stream is limited by gradients within the range of 11° to 18°. Elsewhere on the site the Grade 4 land is limited by severe soil wetness and workability limitations. This flatter, lower-lying land is very difficult to successfully drain and the presence of hydrophilic vegetation, such as rushes, indicates that this land is waterlogged for much of the year.

2. Climate

- 2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.
- 2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.
- 2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office, 1989). The details are given in Table 2 and these show that there is no overall climatic limitation affecting the site. However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. The field capacity days are slightly below the average for this region, thus slightly decreasing the likelihood of soil wetness limitations.
- 2.4 No local climatic factors such as exposure or frost risk are believed to affect the site.

3. Relief

- 3.1 The highest land, which occurs in the west of the site, is flat and lies at approximately 125 m AOD. The land then falls gently to the south and east, through gradients of 1-3°, to lie at 100 m AOD proximate to the stream. To the east of the stream the land rises sharply, through gradients of 7° to 18°, to lie at

115 m AOD. Such slopes act to impose restrictions on the agricultural land quality.

Table 2 : Climatic Interpolations

Grid Reference	SP 872 218	SP 867 217
Altitude (m)	105	125
Accumulated Temperature (degree days, Jan-June)	1356	1356
Average Annual Rainfall (mm)	665	665
Field Capacity (days)	143	143
Moisture Deficit, Wheat (mm)	104	102
Moisture Deficit, Potatoes (mm)	94	91
Overall Climatic Grade	1	1

4. Geology and Soil

- 4.1 The relevant geological sheet (GSGB, 1865) shows the majority of the site to be underlain by Gault. A narrow strip of land, either side of the stream, is shown to be underlain by Portland Stone and Sand.
- 4.2 The published Soil Survey map (SSEW, 1983) maps soils of the Evesham 2 Association across most of the site. These soils are described as 'slowly permeable calcareous clayey soils. Some slowly permeable seasonally waterlogged non-calcareous clayey and fine loamy or fine silty over clayey soils' (SSEW, 1983). To the east of the stream, soils of the Ragdale Association are shown. These soils are described as 'slowly permeable seasonally waterlogged clayey and fine loamy over clayey soils. Some slowly permeable calcareous clayey soils especially on slopes' (SSEW, 1983).
- 4.3 Detailed field examination generally found calcareous and non-calcareous loamy over clayey profiles, derived from the underlying Gault, which range from being moderately well drained to poorly drained.

5. Agricultural Land Classification

- 5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.
- 5.2 The location of the soil observation points are shown on the attached sample point map.

Grade 2

- 5.3 Land classified as Grade 2, very good quality, is restricted either by slight soil wetness or soil droughtiness limitations. Where soil wetness is limiting, non-calcareous medium clay loam topsoils typically overlie similarly textured upper subsoils and heavy clay loam lower subsoils. These profiles pass into gleyed clay subsoils at approximately 65 to 70 cm depth, which from Pits 1 and 2 (dug in the

Subgrade 3b mapping unit) are known to be slowly permeable. These clay subsoils act to slightly impede drainage (Wetness Class II), causing gleying at various depths within the soil profile. Occasionally, profiles comprise medium clay loam topsoils which overlie similarly textured or sandy clay loam upper subsoils, and sandy clay loam lower subsoils. These profiles, which are gleyed within 40 cm depth, are also assigned to Wetness Class II. The interaction between these soil properties (medium textured topsoils and the soil drainage status) with the prevailing climate means that this land is subject to minor restrictions on the flexibility of cropping, stocking and cultivations.

- 5.4 The remaining Grade 2 land is limited by slight soil droughtiness. Non-calcareous medium clay loam topsoils overlie sandy clay loam or heavy clay loam upper subsoils and, where penetrable to a soil auger, heavy clay loam or brown clay lower subsoils. Topsoils were found to be very slightly stony, containing 2-5% total flints by volume. Subsoils ranged from being stoneless to slightly stony, containing 0-10% total flints by volume. Due to the very dry subsoil conditions at the time of survey, these profiles proved impenetrable between 50 and 100 cm depth, with no gleying observed (Wetness Class I). However, no soil pit was dug to represent such profiles as they occur intermittently with the profiles exhibiting soil wetness. However, it has been assumed that roots could penetrate into the dry lower subsoils. Consequently this land should retain adequate levels of water such that Grade 2 is appropriate. This land will be subject to a minor risk of drought stress which may result in a slightly lower yield potential and less consistent crop yields.

Subgrade 3b

- 5.5 Land assessed as Subgrade 3b, moderate quality, is predominantly restricted by soil wetness and workability limitations. This land is subject to significant restraints on the flexibility of cropping, stocking and cultivations. Steep gradients restrict land quality to the east of the stream. Slopes within the range of 7° to 11° act to restrict the range of agricultural machinery that may be safely and efficiently used.
- 5.6 Most of the land classified as Subgrade 3b is restricted by significant soil wetness and workability limitations. Topsoils comprise calcareous and non-calcareous medium clay loams and heavy clay loams. Upper subsoils typically comprise slowly permeable clays or permeable heavy clay loams, which range from being non-calcareous to very calcareous. At approximately 40 to 65 cm depth these pass into slowly permeable clay lower subsoils, which also vary in their calcareous nature. Topsoils and subsoils are typically stoneless to slightly stony, containing 0-10% total flints by volume. Pit 1 typifies soils where the clay occurs at shallow depths within the soil profile, giving rise to poor drainage (Wetness Class IV).
- 5.7 Due to the very dry subsoil conditions at the time of survey, just under half of the auger borings within this mapping unit proved impenetrable to a soil auger. These borings became impenetrable at depths between 25 and 40 cm and, generally, occurred adjacent to borings assessed as Wetness Class IV. Consequently, two soil inspection pits (Pits 2 and 3) were dug to assess the subsoil conditions of these 'impenetrable' borings.

- 5.8 From Pits 2 and 3, it could be seen that the upper subsoils comprise heavy clay loams which are gleyed but permeable. In comparison to profiles which proved possible to auger, these subsoils contained moderate amounts of flints (approximately 15-20% total flints by volume) and were very dry and compact. In both of these pits, the slowly permeable clay lower subsoils occurred at approximately 60 cm depth. However, in Pit 2 gleying occurred within 40 cm depth; thus this pit was assigned to Wetness Class III. In Pit 3, gleying occurred below 40 cm depth; therefore this pit was placed into Wetness Class II.
- 5.9 Given the prevailing climate (143 field capacity days) and heavy clay loam topsoils, these pits respectively give rise to land classified as Subgrade 3b and Subgrade 3a. However, because many of the 'impenetrable' borings could not be augered below the topsoil it was not possible to determine the depth to gleying. Consequently, for such profiles, a 'worst case' scenario of gleying within 40 cm has been assumed. Thus this land would be classified as Subgrade 3b. Based upon Pit 3, the occasional profiles which proved impenetrable at 40 cm depth, with no gleying observed within 40 cm, would most likely give rise to land classified as Subgrade 3a. However, due to the sporadic nature of such profiles, Subgrade 3a land has not been delineated as a separate mapping unit.
- 5.10 Where lighter topsoils of medium clay loams occur, the land could potentially be upgraded. Hence, profiles assessed as Wetness Classes III or II would respectively give rise to Subgrade 3a and Grade 2 land. However, as before, the sporadic nature of such profiles means that any land of better quality has been incorporated into the Subgrade 3b mapping unit.

Grade 4

- 5.11 Land assessed as poor quality is either restricted by severe soil wetness and workability limitations, or gradient. To the east of the stream, gradients of 11° to 18° act to severely restrict or preclude mechanised farm operations from safe and efficient use. Such land is best suited to grazing. Elsewhere, land of Grade 4 quality is associated with severely waterlogged soils, which occur on the flat and lowest-lying part of the site. The predominance of hydrophilic vegetation, such as rushes, indicates that this land is likely to be saturated for much of the year (Wetness Class V). The low-lying nature of this land means that it would prove difficult to drain, and would thus be subject to severe restrictions in terms of cropping and cultivations. Restrictions on land use are more severe than land assigned to Subgrade 3b, with the land mainly being suited to seasonal grazing.

SOURCES OF REFERENCE

Geological Survey of Great Britain (1865), Sheet 46 SW, 1:63,360, Old Series Solid Geology Maps.

MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

Soil Survey of England and Wales (1983), Sheet 6, Soils of South East England, 1:250,000 and accompanying legend.

APPENDIX I

DESCRIPTION OF THE GRADES AND SUBGRADES

Grade 1 : Excellent Quality Agricultural Land

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

Grade 2 : Very Good Quality Agricultural Land

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

Grade 3 : Good to Moderate Quality Land

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

Subgrade 3a : Good Quality Agricultural Land

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

Subgrade 3b : Moderate Quality Agricultural Land

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

Grade 4 : Poor Quality Agricultural Land

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

Grade 5 : Very Poor Quality Agricultural Land

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

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

Open Water

Includes lakes, ponds and rivers as map scale permits.

Land Not Surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. ²
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

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

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

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

Soil Abbreviations - Explanatory Note

Soil Pit Descriptions

Database Printout - Boring Level Information

Database Printout - Horizon Level Information

SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

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

Boring Header Information

1. **GRID REF** : national 100 km grid square and 8 figure grid reference.
2. **USE** : Land use at the time of survey. The following abbreviations are used.

ARA : Arable	WHT : Wheat	BAR : Barley
CER : Cereals	OAT : Oats	MZE : Maize
OSR : Oilseed rape	BEN : Field Beans	BRA : Brassicae
POT : Potatoes	SBT : Sugar Beet	FCD : Fodder Crops
LIN : Linseed	FRT : Soft and Top Fruit	FLW : Fallow
PGR : Permanent Pasture	LEY : Ley Grass	RGR : Rough Grazing
SCR : Scrub	CFW : Coniferous Woodland	DCW : Deciduous Wood
HTH : Heathland	BOG : Bog or Marsh	FLW : Fallow
PLO : Ploughed	SAS : Set aside	OTH : Other
HRT : Horticultural Crops		
3. **GRDNT** : Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT** : Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

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

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

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

Soil Pits and Auger Borings

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

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

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

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

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

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

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

4. **MOTTLE CONT** : Mottle contrast

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

5. **PED. COL** : Ped face colour using Munsell notation.
6. **GLEYS** : If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.
7. **STONE LITH** : Stone Lithology - One of the following is used.

HR :	all hard rocks and stones	SLST :	soft oolitic or dolimitic limestone
CH :	chalk	FSST :	soft, fine grained sandstone
ZR :	soft, argillaceous, or silty rocks	GH :	gravel with non-porous (hard) stones
MSST :	soft, medium grained sandstone	GS :	gravel with porous (soft) stones
SI :	soft weathered igneous/metamorphic rock		

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT** : the degree of development, size and shape of soil peds are described using the following notation:

degree of development **WK** : weakly developed **MD** : moderately developed
 ST : strongly developed

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

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

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

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

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

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

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

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

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

15. Other notations

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

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

MBW : moisture balance, wheat

MBP : moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : WEST PARK FARM, WING Pit Number : 1P

Grid Reference: SP87302190 Average Annual Rainfall : 665 mm
 Accumulated Temperature : 1378 degree days
 Field Capacity Level : 143 days
 Land Use : Permanent Grass
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 22	MCL	10YR42 00	4	5	HR	C				
22- 35	HCL	10YR51 00	0	0		C	MDCSAB	FR	M	
35- 70	C	05Y 62 00	0	0		M	WKCSAB	FM	P	

Wetness Grade : 3B Wetness Class : IV
 Gleying : 0 cm
 SPL : 035 cm

Drought Grade : APW : mm MBW : 0 mm
 APP : mm MBP : 0 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : WEST PARK FARM, WING Pit Number : 2P

Grid Reference: SP86642150 Average Annual Rainfall : 665 mm
 Accumulated Temperature : 1378 degree days
 Field Capacity Level : 143 days
 Land Use : Barley
 Slope and Aspect : 02 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	HCL	10YR43 00	5	10	HR					
30- 58	HCL	10YR53 00	0	15	HR	M	MDCSAB	FM	M	
58- 90	C	10YR63 53	0	3	HR	M	WKCSAB	FM	P	

Wetness Grade : 3B Wetness Class : III
 Gleying : 030 cm
 SPL : 058 cm

Drought Grade : APW : mm MBW : 0 mm
 APP : mm MBP : 0 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : WEST PARK FARM, WING Pit Number : 3P

Grid Reference: SP86532170 Average Annual Rainfall : 665 mm
 Accumulated Temperature : 1378 degree days
 Field Capacity Level : 143 days
 Land Use : Barley
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	HCL	10YR43 00	5	10	HR					
25- 46	HCL	10YR44 00	0	20	HR			FR	M	
46- 60	C	10YR53 00	0	20	HR	M		FR	M	
60- 80	C	10YR53 00	0	10	HR	M		FM	P	

Wetness Grade : 3A Wetness Class : II
 Gleying : 046 cm
 SPL : 060 cm

Drought Grade : APW : mm MBW : 0 mm
 APP : mm MBP : 0 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT		--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
		USE		GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT	
1	SP87602220	PGR	S	03	025	025	4	3B		0	0					WE	3B	Very calc 40
1P	SP87302190	PGR			0	035	4	3B		0	0					WE	3B	Pit dug to 70
2	SP87102210	WHT	N	02	0	028	4	3B		0	0					WE	3B	
2P	SP86642150	BAR	E	02	030	058	3	3B		0	0					WE	3B	
3	SP87202210	WHT	W	01	025	025	4	3B		0	0					WE	3B	Slightly calc
3P	SP86532170	BAR			046	060	2	3A		0	0					WE	3A	Augd 80
5	SP87402210	WHT			025	025	4	3B		0	0					WE	3B	Slightly calc
6	SP87502210	PGR			025	025	4	3B		0	0					WE	3B	Slightly calc
8	SP86902200	WHT	NW	02	0	025	4	3B		0	0					WE	3B	
9	SP87002200	WHT	NW	02	0					0	0					WE	3A	Imp50dry Q WC
10	SP87102200	WHT	W	01	0	020	4	3B		0	0					WE	3B	Very calc 20
11	SP87202200	WHT	W	01	0	022	4	3B		0	0					WE	3B	
12	SP87302200	WHT	E	02			1	1	079	-25	079	-15	3B			DR	2	Imp50dry Q 2dr
15	SP87602200	PGR	S	02	040	040	4	3B		0	0					WE	3B	
16	SP86702190	BAR								0	0					WE	3B	Imp30dry Q WC
17	SP86802190	BAR								0	0					WE	3B	Imp25dry Q WC
18	SP86902190	WHT	SE	03	0	026	4	3B		0	0					WE	3B	
19	SP87002190	WHT	SE	03						0	0					WE	3A	Imp40dry Q WC
20	SP87102190	WHT					1	1	122	18	114	20	2			DR	2	Imp100 flinty
21	SP87202190	WHT	S	02	025		2	2	147	43	108	14	1			WE	2	Sandy
22	SP87302190	PGR			0	025	4	3B		0	0					WE	3B	Rushes nearby
24	SP87502190	PGR			030		4	3B		0	0					WE	3B	High gw table
25	SP86402180	BAR			025					0	0					WE	3B	Imp40dry Q WC
26	SP86502180	BAR			030	030	4	3B		0	0					WE	3B	Sandy
27	SP86602180	BAR			0	040	4	3B		0	0					WE	3B	
28	SP86702180	BAR			025	025	4	3B		0	0					WE	3B	Plastic 45
29	SP86802180	BAR			025	025	4	3B		0	0					WE	3B	Very calc 45
30	SP86902180	BAR	SE	02	025					0	0					WE	3B	Imp30dry Q WC
31	SP87002180	WHT					1	1	083	-21	083	-11	3B			DR	2	Imp50dry sandy
32	SP87102180	WHT					1	1	144	40	109	15	1				1	
33	SP87202180	WHT			028	028	4	3B		0	0					WE	3B	Non calc s/s
34	SP87302180	OSR	NW		0	068	2	2	138	34	114	20	1			WE	2	
35	SP87402180	OSR	NW		0	055	3	3B		0	0					WE	3B	
37	SP86302170	BAR	NW	03	025					0	0					WE	3B	Imp30dry Q WC
38	SP86402170	BAR			026	026	4	3B		0	0					WE	3B	
39	SP86502170	BAR								0	0					WE	3A	Imp40dry Q WC
40	SP86602170	BAR								0	0					WE	3B	Imp30dry Q WC
41	SP86702170	BAR								0	0					WE	3B	Imp25dry Q WC
42	SP86802170	BAR	E	02	025	025	4	3B		0	0					WE	3B	Very calc 40
44	SP87002170	BAR			0	030	4	3B		0	0					WE	3B	
45	SP87102170	OSR	NW		065	065	2	2	138	34	115	21	1			WE	2	
46	SP87202170	OSR	NW		029	070	2	2	140	36	117	23	1			WE	2	

SAMPLE NO.	GRID REF	USE	ASPECT		--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT			
47	SP87302170	OSR	NW		0	028	4	3B		0		0					WE	3B	
48	SP87402170	OSR	NW		027	027	4	3B		0		0					WE	3B	
49	SP86402160	BAR			025	025	4	3B		0		0					WE	3B	
50	SP86502160	BAR								0		0					WE	3B	Imp25dry Q WC
51	SP86602160	BAR								0		0					WE	3A	Imp40dry Q WC
52	SP86702160	BAR	S	02	025					0		0					WE	3B	Imp30dry Q WC
53	SP86802160	BAR			025	025	4	3B		0		0					WE	3B	Very calc 25
54	SP86902160	OSR	NW		040	040	4	3B		0		0					WE	3B	Just 3B WE
55	SP87002160	OSR					1	1	115	11	117	23	2				DR	2	Impen 80 dry
56	SP87102160	OSR			065	065	2	2	138	34	115	21	1				WE	2	
57	SP87202160	OSR			0	060	3	3A		0		0					WE	3A	
58	SP87302160	OSR								0		0					WE	3A	Imp40dry Q WC
59	SP86402150	BAR								0		0					WE	3B	Imp30dry Q WC
60	SP86502150	BAR			0					0		0					WE	3B	Imp40dry Q WC
61	SP86602150	BAR								0		0					WE	3B	Imp25dry Q WC
62	SP86702150	BAR	SE	03						0		0					WE	2	Imp50dry Q WC
63	SP86902150	OSR			025	025	4	3B		0		0					WE	3B	
64	SP87002150	OSR			0		2	2		0		0					WE	2	
65	SP86502140	BAR	SW	02						0		0					WE	3B	Imp25dry Q WC
66	SP86602140	BAR								0		0					WE	3B	Imp30dry Q WC

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL.	GLEYS	>2	>6	LITH		TOT	STR	POR	IMP	SPL	CALC
1	0-25	hc1	10YR42 00						0	0	HR	5						Y
	25-40	c	25Y 53 54	10YR56	00	C		Y	0	0	HR	10		P			Y	Y
	40-60	c	25Y 53 00	10YR58	51	M		Y	0	0		0		P			Y	Y
1P	0-22	mc1	10YR42 00	10YR56	00	C		Y	4	0	HR	5						
	22-35	hc1	10YR51 00	10YR56	61	C		Y	0	0		0	MDCSAB	FR	M			
	35-70	c	05Y 62 00	10YR68	00	M		Y	0	0		0	WKCSAB	FM	P	Y		Y
2	0-28	hc1	10YR42 00	10YR56	00	C		Y	0	0	HR	4						
	28-70	c	25Y 42 00	10YR58	51	M		Y	0	0	HR	2		P				Y
2P	0-30	hc1	10YR43 00						5	0	HR	10						Tending mc1
	30-58	hc1	10YR53 00	10YR56	52	M		Y	0	0	HR	15	MDCSAB	FM	M			
	58-90	c	10YR63 53	10YR68	71	M	00MN00	00	Y	0	0	HR	3	WKCSAB	FM	P	Y	
3	0-25	hc1	10YR42 00						0	0	HR	5						
	25-70	c	25Y 52 00	10YR58	51	M		Y	0	0	HR	5		P				Y
3P	0-25	hc1	10YR43 00						5	0	HR	10						
	25-46	hc1	10YR44 00						0	0	HR	20			FR	M		
	46-60	c	10YR53 00	10YR58	00	M	00MN00	00	Y	0	0	HR	20		FR	M		
	60-80	c	10YR53 00	10YR58	00	M	00MN00	00	Y	0	0	HR	10		FM	P	Y	
5	0-25	hc1	10YR42 00						0	0	HR	2						
	25-35	c	25Y 52 00	10YR58	51	M		Y	0	0		0		P				Y
	35-60	c	25Y 52 00	10YR58	51	M	00MN00	00	Y	0	0	0		P				Y
	60-70	c	25Y 51 00	10YR68	00	M		Y	0	0		0		P				Y
6	0-25	hc1	10YR42 00						0	0	HR	2						
	25-60	c	25Y 51 00	75YR58	00	M		Y	0	0		0		P				Y
8	0-25	hc1	10YR42 00	10YR58	00	C		Y	0	0	HR	3						
	25-40	c	10YR42 00	10YR58	61	C		Y	0	0		0		P				Y
	40-80	c	10YR72 00	10YR68	81	M		Y	0	0		0		P				Y
9	0-25	mc1	10YR42 43	10YR56	00	C		Y	0	0	HR	5						
	25-50	hc1	10YR53 43	10YR68	00	C		Y	0	0	HR	10			M			
10	0-20	hc1	10YR42 00	10YR56	00	C		Y	0	0	HR	4						Y
	20-70	c	25Y 42 00	10YR51	58	M		Y	0	0	HR	2		P				Y
11	0-22	hc1	10YR42 00	10YR56	00	C		Y	0	0	HR	2						
	22-70	c	25Y 51 00	10YR68	00	M		Y	0	0		0		P				Y
12	0-25	mc1	10YR44 00						0	0	HR	5						
	25-50	sc1	10YR56 00						0	0	HR	5			M			Impen 50 dry
15	0-25	mc1	10YR43 00						0	0		0						
	25-40	mc1	10YR43 00						0	0	HR	5			M			
	40-60	c	10YR53 00	10YR58	00	M	00MN00	00	Y	0	0	HR	5		P			Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS						
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	IMP	SPL	CALC	
16	0-25	hc1	10YR44 00						2	0	HR	10							
	25-30	sc1	10YR56 00						0	0	HR	10	M						Impen 30 dry Q WC
17	0-25	mc1	10YR44 00						4	0	HR	15							Impen 25 dry Q WC
18	0-26	mc1	10YR53 43	10YR56 00	C			Y	0	0	HR	3							
	26-40	c	10YR52 63	10YR68 00	C			Y	0	0	HR	10	P					Y	
	40-80	c	10YR54 00	10YR68 71	M		00MN00	00	Y	0	0		0	P				Y	
19	0-25	mc1	10YR43 00						0	0	HR	3							
	25-40	hc1	10YR54 00						0	0	HR	5	M						Impen 40 dry Q WC
20	0-25	mc1	10YR43 00						0	0	HR	3							
	25-40	hc1	10YR54 00						0	0	HR	2	M						
	40-100	c	10YR54 64						0	0	HR	2	M						Impen 100 flinty
21	0-25	mc1	10YR44 00						1	0	HR	5							
	25-50	sc1	10YR53 00	10YR56 00	M			Y	0	0	HR	5	M						
	50-120	sc1	10YR53 00	10YR56 00	M			Y	0	0	HR	2	M						
22	0-25	mc1	10YR42 00	10YR56 00				Y	0	0	HR	5							
	25-60	c	25Y 61 00	75YR58 00	M			Y	0	0		0	P					Y	
24	0-30	hc1	10YR42 00						0	0		0							
	30-90	p1	25Y 41 00	75YR58 00	C			Y	0	0		0	M						
25	0-25	mc1	10YR43 00						3	0	HR	4							
	25-40	c	10YR63 00	10YR68 00	C			Y	0	0	HR	10	M						Impen 40 dry Q WC
26	0-30	hc1	10YR42 00						2	0	HR	8							
	30-52	c	10YR53 00	10YR68 52	M		00MN00	00	Y	0	0	HR	8	P				Y	
	52-60	c	10YR53 00	75YR68 52	M		00MN00	00	Y	0	0	HR	15	P				Y	
27	0-22	mc1	10YR53 43	10YR56 00	C			Y	3	0	HR	5							
	22-40	c	10YR53 00	10YR58 00	C		00MN00	00	Y	0	0	HR	15	M					
	40-80	c	10YR62 00	10YR68 71	M		00MN00	00	Y	0	0		0	P				Y	
28	0-25	hc1	10YR42 00						2	0	HR	5							
	25-45	c	10YR53 00	10YR58 00	C		00MN00	00	Y	0	0	HR	5	P				Y	
	45-65	c	25Y 52 00	10YR68 00	M			Y	0	0		0	P					Y	
29	0-25	hc1	10YR43 00						0	0	HR	5							Y
	25-45	c	10YR53 00	10YR58 00	C			Y	0	0	HR	10	P					Y	Y
	45-70	c	10YR53 00	10YR58 51	M			Y	0	0		0	P					Y	Y
30	0-25	mc1	10YR42 00						3	0	HR	12							
	25-30	hc1	10YR53 00	10YR56 00	C			Y	0	0	HR	12	M						Impen 30 dry Q WC

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	IMP	SPL	CALC
31	0-29	mc1	10YR53 00						0	0	HR	3						
	29-50	hc1	10YR53 54						0	0	HR	5	M					Impen 50 dry/flinty
32	0-30	mc1	10YR53 00						0	0	HR	5						
	30-60	hc1	10YR54 00						0	0	HR	10	M					
	60-120	hc1	75YR54 00						0	0	HR	10	M					
33	0-28	hc1	10YR42 00						1	0	HR	5						Y
	28-70	c	25Y 41 00	10YR58	00	M		Y	0	0		0	P			Y		
34	0-30	mc1	10YR42 43	10YR56	00	C		Y	0	0	HR	3						
	30-45	hc1	10YR53 54	10YR58	00	C		Y	0	0		0	M					
	45-68	sc1	10YR53 00	10YR68	00	C		Y	0	0		0	M					
	68-120	c	05GY51 00	10YR68	00	C	00MN00	00	Y	0	0		0	P			Y	
35	0-26	hc1	10YR53 00	10YR56	00	C		Y	0	0	HR	3						Tending mc1
	26-55	hc1	10YR53 54	10YR58	00	C		Y	0	0		0	M					
	55-90	c	10YR63 00	75YR52	68	C		Y	0	0		0	P			Y		
37	0-25	hc1	10YR43 00						2	0	HR	8						
	25-30	hc1	10YR53 00	10YR58	00	C		Y	0	0	HR	8	M					Impen 30 dry Q WC
38	0-26	mc1	10YR43 00						2	0	HR	4						
	26-35	c	10YR53 00	10YR58	00	C		Y	0	0	HR	2	P			Y		
	35-70	c	10YR63 00	10YR68	71	M		Y	0	0		0	P			Y		
39	0-25	mc1	10YR44 00						4	0	HR	15						
	25-35	hc1	10YR44 00						0	0	HR	25	M					
	35-40	hc1	10YR56 00						0	0	HR	25	M					Impen 40 dry Q WC
40	0-20	mc1	10YR44 00						5	0	HR	8						
	20-30	mc1	10YR54 00						0	0	HR	10	M					Impen 30 dry Q WC
41	0-25	mc1	10YR44 00						4	0	HR	15						Impen 25 dry Q WC
42	0-25	c	10YR42 00						0	0	HR	5						Y
	25-40	c	10YR53 00	10YR56	00	C		Y	0	0	HR	10	P			Y	Y	
	40-60	c	10YR53 00	10YR58	51	M		Y	0	0		0	P			Y	Y	
44	0-22	hc1	10YR53 00	10YR56	00	C		Y	0	0	HR	2						Y
	22-30	c	10YR54 00	00MN00	00	C		S	0	0		0	M				Y	Q pale ped faces
	30-70	c	10YR63 00	10YR68	71	C		Y	0	0		0	P			Y	Y	
45	0-29	mc1	10YR53 00						0	0	HR	3						
	29-50	mc1	10YR54 00						0	0		0	M					
	50-65	hc1	10YR54 56						0	0		0	M					
	65-120	c	10YR52 00	10YR58	61	C		Y	0	0		0	P			Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		IMP
46	0-29	mc1	10YR43 00						0	0	HR	2					
	29-47	mc1	10YR53 00	10YR56	73	C		Y	0	0		0		M			
	47-70	hc1	10YR52 53	10YR58	61	C		Y	0	0		0		M			
	70-120	c	10YR52 53	10YR68	71	C	OOMN00	00	Y	0	0	0		P		Y	
47	0-28	mc1	10YR53 43	10YR56	00	C		Y	0	0	HR	3					
	28-40	c	10YR52 00	10YR58	61	C		Y	0	0		0		P		Y	
	40-70	c	10YR61 00	10YR68	00	M		Y	0	0		0		P		Y	
48	0-27	mc1	10YR42 43	10YR56	00	F			0	0	HR	5					
	27-70	c	10YR63 00	10YR68	71	M		Y	0	0		0		P		Y	
49	0-25	mc1	10YR43 00						3	0	HR	5					
	25-40	c	10YR53 00	10YR58	00	C	OOMN00	00	Y	0	0	HR	10		P		Y
	40-70	c	10YR63 00	10YR68	71	M	OOMN00	00	Y	0	0	HR	5		P		Y
50	0-25	hc1	10YR44 00						6	0	HR	20					Impen 25 dry Q WC
51	0-25	mc1	10YR43 00						5	0	HR	8					
	25-40	hc1	10YR44 00						0	0	HR	10		M			Impen 40 dry Q WC
52	0-25	mc1	10YR42 00						4	0	HR	15					
	25-30	hc1	10YR53 00	10YR58	00	C	OOMN00	00	Y	0	0	HR	15		M		Impen 30 dry Q WC
53	0-25	c	10YR42 00						0	0	HR	4					Y
	25-60	c	10YR53 00	10YR56	61	M		Y	0	0		0		P		Y	Y
54	0-29	mc1	10YR53 00						0	0	HR	2					
	29-40	hc1	10YR64 00						0	0		0		M			
	40-80	c	10YR63 00	10YR68	71	C		Y	0	0		0		P		Y	
55	0-30	mc1	10YR43 00						0	0	HR	2					
	30-50	hc1	10YR53 00						0	0		0		M			
	50-80	hc1	10YR53 54	10YR56	00	F			0	0		0		M			Impen 80 dry
56	0-30	mc1	10YR43 00						0	0	HR	3					
	30-65	hc1	10YR54 00	OOMN00	00	F			0	0		0		M			
	65-120	c	10YR63 00	10YR68	72	M	OOMN00	00	Y	0	0	0		P		Y	
57	0-27	mc1	10YR53 00	10YR58	00	C		Y	0	0	HR	2					
	27-60	hc1	10YR52 00	10YR68	72	C		Y	0	0	MSST	8		M			
	60-120	c	10YR52 00	10YR68	71	M		Y	0	0	MSST	10		P		Y	
58	0-27	mc1	10YR43 00	10YR56	00	C		S	0	0	HR	3					
	27-40	hc1	10YR54 00	10YR68	72	C		S	0	0	HR	10		M			Impen 40 dry Q WC
59	0-30	mc1	10YR43 00						5	0	HR	8					Impen 30 dry Q WC

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS						
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL	CALC
60	0-25	hc1	10YR43 00					3	0	HR	12							
	25-40	hc1	10YR53 00	10YR56	00	C		Y	0	0	HR	25		M				Impen 40 dry Q WC
61	0-20	mc1	10YR43 00					4	0	HR	5							
	20-25	mc1	10YR44 00					0	0	HR	10		M					Impen 25 dry Q WC
62	0-28	mc1	10YR44 00					4	0	HR	15							
	28-50	hc1	10YR46 00					0	0	HR	25		M					Impen 50 dry/flinty
63	0-25	mc1	10YR42 00					3	0	HR	5							
	25-70	c	25Y 52 00	10YR68	71	C		Y	0	0	0		P			Y		
64	0-28	mc1	10YR53 00	10YR56	00	C		Y	2	0	HR	5						
	28-70	mc1	10YR53 00	10YR58	00	C		Y	0	0	HR	10		M				
	70-120	sc1	10YR54 56	10YR58	72	C		S	0	0	HR	10		M				Q pale ped faces
65	0-25	mc1	10YR44 00					4	0	HR	15							Impen 25 dry Q WC
66	0-25	mc1	10YR43 00					3	0	HR	5							
	25-30	hc1	10YR44 00					0	0	HR	10		M					Impen 30 dry Q WC