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West Wiltshire Local Plan

Westbury

Agricultural Land Classification
September 1996

Resource Planning Team
Taunton Statutory Group
ADAS Bristol

Job Number 21/96
Commission 1114
MAFF Reference EL 45/1201

Ministry of Agriculture, Fisheries and Food
Land Use Planning Unit

WEST WILTSHIRE LOCAL PLAN
WESTBURY

AGRICULTURAL LAND CLASSIFICATION SURVEY

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AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

1. This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of site area 749.1 ha of land at Westbury. Field survey was based on 328 auger borings and 14 soil profile pits, and was completed in August 1996.

2. The survey was conducted by the Resource Planning Team of ADAS Taunton Statutory Group on behalf of MAFF Land Use Planning Unit in its statutory role in the preparation of West Wiltshire Local Plan.

3. Information on climate, geology and soils, and from previous ALC surveys was considered and is presented in the relevant section. Apart from the published regional ALC map (MAFF, 1977), which shows the site at a reconnaissance scale as Grade 2 on the high land in the south east and south of Westbury Leigh. Most of the rest is mapped as Grade 3. Small areas of Grade 4 are mapped along Biss Brook and around the Cement Works in the east. Parts of the site had been previously surveyed in 1980 and 1986 at a scale of 1:5 000 and 1:10 000 (ADAS; 1980, 1986). These showed Subgrade 3b at Newtown and a mix of 3a, 3b, and 3c on the lower land. However, the current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF, 1988) and supersedes any previous ALC survey. Grade descriptions are summarised in Appendix I.

4. Several surveys, using the Revised Guidelines have been carried out at sites adjacent to the current survey (ADAS 1989, 1991, 1993 and 1994). The results of these surveys have been taken into account in the conclusions of current survey. Surveys around the cement works found Subgrade 3b. Around Frogmore Farm 3a and 3b were predominately mapped. At Chalford, and the Mausoleum better quality land, Grade 2 and 3a, was identified and at Westbury Leigh the predominant grade was 3a.

5. At the time of survey land cover was a mix of grassland and cereals.. Other land which was not surveyed included urban, industrial, water, woodland and recreational areas.

6. The distribution of ALC grades is shown on the accompanying 1: 25 000 scale ALC map. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas. Areas are summarised in the Table 1.

Table 1: Distribution of ALC grades: Westbury

Grade	Area (ha)	% Surveyed Area (560.9 ha)
1	34.2	6.1
2	23.0	4.1
3a	95.8	17.2
3b	367.2	65.5
4	39.9	7.1
5	0.8	0.1
Other land	188.2	
Total site area	749.1	

7. Over two thirds of the land surveyed is not "best and most versatile". This land corresponds to the low lying poorly drained clays and the clays over shallow chalk with main limitations of wetness and workability respectively, the latter partly imposed by the more severe climate of the higher land. There are areas of Subgrade 3a on the lower land but the majority of the "best and most versatile" land is found in the south on the higher land. Here lighter textured, better drained soils are more versatile and areas of excellent and very good quality, Grades 1 and 2 are found with minor or no limitations to agricultural versatility.

8. It has been noted that there is a potential risk associated with the possible presence of Anthrax in the vicinity of the Biss Brook originating from the old tannery at Westbury Leigh. The extent of the risk in this area to livestock or humans from exposure to Anthrax spores by inoculation, inhalation or ingestion is unknown and beyond the scope of the current survey. If areas were identified with spores present then the land would probably be Grade 4, and the gradings presented in this report would be superseded.

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CLIMATE

9. Estimates of climatic variables for this site were derived from the published agricultural climate dataset "Climatological Data for Agricultural Land Classification" (Meteorological Office, 1989) using standard interpolation procedures. Data for key points around the site are given in Table 2 below.

10. Since the ALC grade of land is determined by the most limiting factor present, overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions. Parameters used for assessing overall climate are accumulated temperature, a measure of relative warmth and average annual rainfall, a measure of overall wetness. The results shown in Table 2 indicate that there is no overall climatic limitation.

11. Climatic variables also affect ALC grade through interactions with soil conditions. The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes, which are compared with the moisture available in each profile in assessing soil droughtiness limitations. These are described in later sections. A critical boundary of 175 FC Days was

found running east-west across the site, approximately following the 70m contour in the east and along a line between the Station and Brook Cottage in the west.

Table 2: Climatic Interpolations: Westbury

Grid Reference		ST880508	ST860537	ST857520
Altitude (m)		140	50	60
Accumulated Temperature (day °C)		1392	1494	1484
Average Annual Rainfall (mm)		816	756	781
Overall Climatic Grade		1	1	1
Field Capacity Days		180	169	175
Moisture deficit (mm):	Wheat	95	104	103
	Potatoes	83	96	95

RELIEF

12. Altitude ranges from 50 metres at Hawkeridge to 140 metres above New Town with the majority of the land being relatively flat. Most of the sloping land in the south is not limiting except small areas at Town Farm and Westbury Leigh.

GEOLOGY AND SOILS

13. The underlying geology of the site is shown on the published geology map (IGS, 1965). The higher land in the south east is underlain by Cretaeous Lower Chalk, with Upper Greensand of the Jurassic era, at the foot slopes. Jurassic clays and Oxford clay underlie much of the site north of the railway. There are areas of Pleistocene Head deposits along Biss Brook in the west and on the low lying land in the east. Running along the railway lines in The Ham area are bands of Westbury Iron Stone, Limestone, marls and clay. There are small areas of alluvium mapped along the Biss Brook. The geology was reflected by the soils identified in the current Survey.

14. Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1:250 000 (SSEW, 1983). Soils derived from chalk are found in the south east, namely Upton 1 and 2, Blewbury and Ickneild Associations. Denchworth Association has developed over the Jurassic Clays in the east and also part of the Oxford Clay at Hawkeridge. Evesham 1 Association has developed over the rest of the Oxford Clay, extending to the edge of the town in the north west. Block Association is mapped in the Penleigh area and in the low lying area south of the railway to the east of the town. The Ardington Association is mapped at the foot of the scarp slope. A small area of Bearstead 2 Association is mapped around Bridge Farm at Westbury Leigh. Another small area of Fladbury 1 is mapped at Storridge along the Biss Brook.

15. Ickneild, Upton 1 and 2 Associations are similar soils being mostly shallow well drained calcareous soils over chalk. Blewbury Association is similar but deeper and may have clayey slowly permeable subsoils. The Denchworth Association is described as slowly permeable seasonally waterlogged clayey soils, whilst Evesham 1 is similar but associated with shallow well drained brashy calcareous soils over limestone. Fladbury 1 is also clayey and

variably affected by ground water. The Block Association is described as moderately permeable calcareous loamy soils over chalky gravel variably affected by ground water. Ardington and Bearstead 2 Association are deep well drained coarse loamy soils.

16. The soils found in the current Survey generally followed the mapped distribution and type. Local variations were found at the higher land at Penleigh where there were poorly drained clays, the Bearstead soils were not evident at Bridge Farm and Denchworth type soils extended further south of the railway than indicated.

AGRICULTURAL LAND CLASSIFICATION

17. The distribution of ALC grades found by the current survey is shown on the accompanying scale map and areas are summarised in Table 1. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas.

Grade 1

18. Two areas of Grade 1 have been mapped amounting to 34.2 ha. These soils are light textured sandy loams and are well drained, Wetness Class I (see Appendix II). Pits 6, 7 and 12 represent these soils. The area in the west is stony in the upper subsoil, but becomes stoneless in the lower subsoil. The area in the east is less stony and none of these soils experience a droughtiness limitation.

Grade 2

19. Two areas of Grade 2 are mapped. In the west the soils are light textured and similar to the adjacent area of Grade 1 but more stony. These soils are limited by a droughtiness limitation. The area of Grade 2 in the east near Fairview Farm experiences a workability limitation and is described by Pit 5. Here the FCD value is 176 and combined with medium clay loam topsoils, the soils are limited to Grade 2. The soil pit showed slight evidence of wetness below 40cm but the soils are assessed as Wetness Class I.

Subgrade 3a

20. Several areas of Subgrade 3a are mapped. To the west of the West Wilts Trading Estate the area around Ox's Leaze experiences a moderate wetness limitation. Heavy clay loam topsoils overlie the clay which is gleyed. The subsoil is not a slowly permeable layer as shown by Pit 1 and the soils is assessed as Wetness Class II. Near to Cutteridge Farm a similar profile was found but with less evidence of wetness and this area has a moderate workability limitation also leading to Subgrade 3a.

21. At the Ham the area of 3a is variable with clay and heavy clay loam topsoil over slightly stony subsoils. There is some evidence of wetness in the subsoils but these are not slowly permeable. Pit 9 was dug in this area. The soils are generally Wetness Class I and have a moderate workability limitation.

22. The area of Subgrade 3a at Penleigh is limited by a moderate workability limitation in an area where the FCD value is 176 or above. Heavy silty clay loam topsoils and silty clay subsoils lie over soft weathered chalk at variable depths. The soils show some evidence of wetness in the subsoil but are not gleyed and are assessed as Wetness Class I. The presence of chalk in the profile does not impose a droughtiness limitation. The 3a land around Bratton Road in the east also experiences a moderate workability limitation with deep well drained soils sometimes over chalk as indicated by Pit 13. The area of 3a at Lower Westbury Road is in an area where the FCD value is below 176 and here the soils have a moderate wetness limitation imposing Subgrade 3a despite lighter, medium clay loam topsoils. Pit 14 showed the soil to be Wetness Grade III at that point, although Wetness Class II profiles were also found.

Subgrade 3b

23. Two main soil types are found in this area. Above New Town clays overlie chalk. The main limitation is a moderate workability limitation caused by the clay topsoils in an area where the FCD value is over 176. Pit 11 showed fractured chalk at 35cm, which was well rooted. Workability overrides the droughtiness limitation. The other soil type is found on the low lying land and are poorly drained clays. Pits 2, 3, 4 and 8 describe these soils. The clay topsoils typically overlie gleyed and slowly permeable clays. In the majority of cases the soils are Wetness Class IV but some Wetness Class III soils are also found. All these soils are Subgrade 3b caused by moderate wetness limitations.

Grade 4

24. A small area at Westbury Leigh is limited to Grade 4 by slopes measuring 12-18°. The remaining areas of Grade 4 experience a severe wetness limitation. These areas have over 176 FCD and combined with clay topsoils and poorly drained subsoils (Wetness Class IV) are downgraded further than the same soils described under Subgrade 3b where the FCD value is 175 or below. The thin band of Grade 4 in the east marks a small area of the lowland clay where the FCD boundary is crossed, before the better drained soils mapped as Grade 2 are found. The area just to the north of Fair View Farm is complicated in terms of grading because of the FCD boundary occurring at the point where several soil types meet.

Grade 5

25. A small area of Westbury Leigh is limited to Grade 5 by slopes over 18°.

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APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report. Terms used and abbreviations are set out below. These conform to definitions contained in the Soil Survey Field Handbook (Hodgson, 1974).

1. ***Terms used on computer database, in order of occurrence.***

GRID REF: National 100 km grid square and 8 figure grid reference.

LAND USE: At the time of survey

WHT:	Wheat	**SBT:**	Sugar Beet	**HTH:**	Heathland
BAR:	Barley	**BRA:**	Brassicas	**BOG:**	Bog or Marsh
OAT:	Oats	**FCD:**	Fodder Crops	**DCW:**	Deciduous Wood
CER:	Cereals	**FRT:**	Soft and Top Fruit	**CFW:**	Coniferous Woodland
MZE:	Maize	**HRT:**	Horticultural Crops	**PLO:**	Ploughed
OSR:	Oilseed Rape	**LEY:**	Ley Grass	**FLW:**	Fallow (inc. Set aside)
POT:	Potatoes	**PGR:**	Permanent Pasture	**SAS:**	Set Aside (where known)
LIN:	Linseed	**RGR:**	Rough Grazing	**OTH:**	Other
BEN:	Field Beans	**SCR:**	Scrub		

GRDNT: Gradient as estimated or measured by hand-held optical clinometer.

GLEY, SPL: Depth in centimetres to gleying or slowly permeable layer.

AP (WHEAT/POTS): Crop-adjusted available water capacity.

MB (WHEAT/POTS): Moisture Balance. (Crop adjusted AP - crop potential MD)

DRT: Best grade according to soil droughtiness.

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				

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				

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)

MOTTLE COL: Mottle colour using Munsell notation.

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%+

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.

PED. COL: Ped face colour using Munsell notation.

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

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 or metamorphic rock

Stone contents are given in % by volume for sizes >2cm, >6cm and total stone >2mm.

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		

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		

SUBS STR: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G:** Good **M:** Moderate **P:** Poor

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

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

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

CALC: If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a 'Y' will appear this column.

2. Additional terms and abbreviations used mainly in soil pit descriptions.

STONE ASSESSMENT:

VIS:	Visual	**S:**	Sieve	**D:**	Displacement

MOTTLE SIZE:

EF:	Extremely fine <1mm	**M:**	Medium 5-15mm
VF:	Very fine 1-2mm>	**C:**	Coarse >15mm

F: Fine 2-5mm

MOTTLE COLOUR: May be described by Munsell notation or as ochreous (OM) or grey (GM).

ROOT CHANNELS: In topsoil the presence of 'rusty root channels' should also be noted.

MANGANESE CONCRETIONS: Assessed by volume

N:	None		**M:**	Many	20-40%
F:	Few	<2%	**VM:**	Very Many	>40%
C:	Common	2-20%			

STRUCTURE: Ped Development *

WA:	Weakly adherent	**M:**	Moderately developed
W:	Weakly developed	**S:**	Strongly developed

POROSITY:

P: Poor - less than 0.5% biopores at least 0.5mm in diameter
G: Good - more than 0.5% biopores at least 0.5mm in diameter

ROOT ABUNDANCE:

The number of roots per $100cm^2$:		Very Fine and Fine	Medium and Coarse
F:	Few	1-10	1 or 2
C:	Common	10.25	2 - 5
M:	Many	25-200	>5
A:	Abundant	>200	

ROOT SIZE

VF:	Very fine	<1mm	**M:**	Medium	2 - 5mm
F:	Fine	1-2mm	**C:**	Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS:

Sharp:	<0.5cm	**Gradual:**	6 - 13cm
Abrupt:	0.5 - 2.5cm	**Diffuse:**	>13cm
Clear:	2.5 - 6cm		

HORIZON BOUNDARY FORM: Smooth, wavy, irregular or broken.*

* See Soil Survey Field Handbook (Hodgson, 1974) for details.

Westbury

ALC REPORT CHECKLIST

For LUPU

1 summary page (unbound)
1 summary page (bound with title page, ALC map and Appendix I)
1 complete bound main report
3 loose ALC maps
1 disk with summary and main report texts

For ADAS

1 summary page (unbound)
1 complete main report (unbound) with title page, maps and soils data
1 spare ALC map to keep in file survey report envelope
1 ALC map to hang
☐ Optional surveyor's copy of report (bound)

SUMMARY (BOUND)

MAFF report cover
Title page
Main text (summary page)
ALC map
Appendix I: Description of ALC grades and subgrades

Summary (unbound) is just the summary page itself.

FULL ALC REPORT - STRUCTURE

MAFF report cover
Title page (start at 7.1")
Main text
Sources of reference
ALC map
Appendix I: Description of the grades and subgrades
Appendix II: Soils Wetness Classification
Appendix III: Soils Data

MINERAL SITE REPORT
After main text, pit forms, boring header data and profile data (fat one second)

As above, but with Soil Resource (ASP) map after the ALC map.

REFERENCES

ADAS RESOURCE PLANNING TEAM, (1980) Agricultural Land Classification Survey of Westbury New Town. Scale 1: 5 000, Reference 48, ADAS Bristol.

ADAS RESOURCE PLANNING TEAM, (1986) Agricultural Land Classification Survey of Westbury, Scale 1: 10 000, Reference 47, ADAS Bristol.

ADAS RESOURCE PLANNING TEAM, (1989) Agricultural Land Classification Survey of Westbury Cement Works. Scale 1: 10 000, Reference 23/89, ADAS Bristol.

ADAS RESOURCE PLANNING TEAM, (1991) Agricultural Land Classification Survey of Westbury, Scale 1: 10 000, Reference 10/91c, ADAS Bristol.

ADAS RESOURCE PLANNING TEAM, (1993) Agricultural Land Classification Survey of Westbury, Scale 1: 10000, Reference 66/93, ADAS Bristol.

ADAS RESOURCE PLANNING TEAM, (1994) Agricultural Land Classification Survey of Capps Lane, Westbury, Scale 1: 10 000, Reference 116/94, ADAS Bristol.

INSTITUTE OF GEOLOGICAL SCIENCES (1965) Sheet No. 281, Frome ,1:63 360, series Solid and Drift, edition. IGS, London.

HODGSON, J M (Ed) (1974) Soil Survey Field Handbook, Technical Monograph No 5. Soil Survey of England and Wales, Harpenden.

HODGSON, J M (In preparation) Soil Survey Field Handbook, Revised edition.

MAFF (1977) 1:250 000 series Agricultural Land Classification, South West Region. MAFF Publications, Alnwick.

MAFF (1988) Agricultural Land Classification of England and Wales. Revised Guidelines and Criteria for grading the quality of agricultural land. MAFF Publications, Alnwick.

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

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5, Soils of South West England, 1:250 000 scale. SSEW, Harpenden.

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in South West England, Bulletin No 14. SSEW, Harpenden.

APPENDIX I

DESCRIPTION OF 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 include 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 and horticultural crops can usually be grown but on some land in the 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.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 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 most 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Source: MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land, MAFF Publications, Alnwick.

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile.

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years.

Wetness Class 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 not wet within 40 cm depth for more than 30 days in most years.

Wetness Class 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 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 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years.

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

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

Source: Hodgson, J M (In preparation) Soil Survey Field Handbook, Revised Edition.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 1 (ASP74)	3° E	PGR	Av Rainfall: 781 mm ATO: 1484 day °C	Head
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 175 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	25/4/96	ST 847530	GMS		GMS 532

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	20	HCL	10YR41	None (visual	None	None	-	-	-		CVF		Clear smooth
2	50	C	10YR53	< 1% HR (visual)	FDFO 10YR56 CFFO 10YR54	C	MDCSAB	Friable	Moderate	Good many large worm holes	CVF		Gradual smooth
3	90+	C	10YR42	< 1% HR (visual)	CDFO,G 7.5YR46 10YR52	C	MDCSAB	Friable	Moderate	Good	FVF		

Profile Gleyed From: 20cm

Depth to Slowly Permeable Horizon: None

Wetness Class: II

Wetness Grade: 3a

Available Water Wheat: 142 mm

Potatoes: 118 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: +39 mm

Potatoes: +23 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks: Gleying in horizon 2 variable with greater mottling within peds.
Topsoil clay content 35% Pit Borderline A/B

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 2 (ASP 135)	0°	PGR	Av Rainfall: 781m ATO: 1484 day °C FC Days: 175 Climatic Grade: 1 Exposure Grade: 1	Head
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
21/96	25/4/96	ST850526	GMS		GMS 533

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	14	C	10YR41	None (visual)	Rusty Roots	None	-	-	-	-	MVF		Clear smooth
2	50	C	10YR53 (10YR52)	None (visual)	CDFO 10YR56	None	WCPr breaking into MCSAB	Friable	Moderate	Poor	CVF		Clear smooth
3	70+	C	2.5Y62	None (visual)	MDFO 10YR58	None	WCPr breaking into MCAB	Firm	Poor	Poor within ped Some large worm holes between peds	CVF		

Profile Gleyed From: 14cm

Depth to Slowly Permeable Horizon: 50cm

Wetness Class: III

Wetness Grade: 3b

Available Water Wheat: 133 mm

Potatoes: 110 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: +30 mm

Potatoes: +15 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 3 ASP 190	0°	PGR	Av Rainfall: 781m ATO: 1484 day °C FC Days: 175 Climatic Grade: 1 Exposure Grade: 1	Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
21/96	26/4/96	ST869523	GMS		GMS 534

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	18	C	10YR31	None (visual)	FFFO 10YR56	None	-	-	-	-	MVF		Clear smooth
2	40	C	10YR52	None (visual)	CDFO 10YR56	None	WCPr breaking into MCSAB	Friable	Moderate	Poor	MVF		Gradual smooth
3	75+	C	10YR62	None (visual)	CDFO 10YR56	None	WCPr easily breaking up into MCAB and WCSAB	Friable	Moderate	Border-line < 0.5	CVF		

Profile Gleyed From: 18cm

Depth to Slowly Permeable Horizon: 40cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 141 mm

Potatoes: 117 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 38 mm

Potatoes: 22 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Horizon 3 very moist and structure easily fell apart into many fragments, most of which seemed to be peds. High moisture content may give misleading indication of structural development. Water filled pit to 35cm.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 4	0°	PGR	Av Rainfall: 781 mm ATO: 1484 day °C	Oxford Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 175 Climatic Grade: 1	SOIL SAMPLE REFERENCES
21/96	30/4/96	ST860536	GMS	Exposure Grade: 1	GMS 535

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	15	C	10YR42	None (visual)	Few RR	None	-	-	-	-	MVF		Clear smooth
2	34	C	10YR53 (10YR52)	None (visual)	CDFOG 10YR56	Few	MCSAB	Friable	Moderate	Overall poor	MVF		Clear smooth
3	50	C	2.5Y64 (2.5Y62)	None (visual)	MDFO 10YR66	None	MCAB	Firm	Poor	Some large worm holes, overall poor	CVF		Clear smooth
4	70+	C	2.5764	5% SLST small module (visual)	MDMO 10YR56	Few	WCAB	Firm	Poor	As H3	CVF		

Profile Gleyed From: 15cm

Depth to Slowly Permeable Horizon: 34cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 124 mm

Potatoes: 102 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 21 mm

Potatoes: 7 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Horizon 3 has clear ped skins but horizon 4 does not

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 5 ASP 252	2° S	Cereal	Av Rainfall: 781 mm ATO: 1484 day °C	Head
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 176 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	3/5/96	ST 883518	GMS		GMS536

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	28	MCL	10YR41	< 1% (visual)	None	None	-	-	-	-	CVF	-	Sharp smooth
2	43	HCL	2.5Y52	None (visual)	None	None	MCSAB	Friable	Moderate	Low	FVF	-	Clear smooth
3	54	HCL	2.5Y62	None (Visual)	CDOG 10YR56 2.5Y72	None	MCSAB	Friable	Moderate	>0.5	FVF	Y	Gradual smooth
4	80+	HCL	2.5Y72	10% < 2cm CH 10% < 2cm HR (visual)	FDFO 10YR56	None	MCSAB	Friable	Moderate	>0.5	FVF	Y	

Profile Gleyed From: 43 cm

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 143 mm

Potatoes: 113 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 40 mm

Potatoes: 18 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability

Remarks: Drought calc used on all HR in H3

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 6 ASP254	2° S	Cereals	Av Rainfall: 781 mm ATO: 1484 day °C FC Days: 176 Climatic Grade: 1 Exposure Grade: 1	Head
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
21/96	3/5/96	ST 886518	GMS		GMS 537

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	26	FSL	10YR31	None (visual)	None	None	-	-	-	-	CVF		Sharp smooth
2	70	FSL	2.5Y62	None	FFFO 10YR56	None	MCAB	Friable	Moderate	Good	CVF		Gradual smooth
3	90	SCL	5Y52	None	None	None	MCAB	Friable	Moderate	Good	FVF		Clear smooth
4	110	HCL	2.5Y81	None	CDFO 10YR56	None	WCAB	Friable	Moderate	Good	FVF		

Profile Gleyed From: 90 cm

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 1

Available Water Wheat: 166 mm

Potatoes: 126 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 63 mm

Potatoes: 31 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 1

Main Limiting Factor(s):

Remarks: Topsoil texture within 1% of SCL

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 7 ASP268	0° S	PGR	Av Rainfall: 781 mm ATO: 1484 day °C	Upper Greensand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 176 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	8/5/96	ST 892516	GMS		GMS 538, 539, 540

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	20	FSL	10YR31	None (visual)	None	None	-	-	-	-	MVF		Sharp smooth
2	120	FSL	05Y42	None (visual)	FDFO 10YR46 (Colour variations in sand)	None	MCPr	Friable	Moderate	Good	CVF		

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 1

Available Water Wheat: 181 mm

Potatoes: 126 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 78 mm

Potatoes: 31 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 1

Main Limiting Factor(s):

Remarks: Still Grade 1 if LFS. Topsoil texture borderline FSL/LFS. However LFS not eligible for Grade 1.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 8	0°	PGR	Av Rainfall: 781 mm ATO: 1484 day °C FC Days: 175 Climatic Grade: 1 Exposure Grade: 1	Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
21/96	9/5/96	ST 894530	GMS		-

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	17	HCL	10YR41	None (visual)	None	None	-	-	-	-	MF,VF	-	Clear smooth
2	45	C	10YR51	None (visual)	CDFO 10YR58	None	WCPr (Some moderate)	Firm	Poor	Border line	CVF	-	Clear smooth
3	70+	C	10YR62	None (visual)	MDFO 10YR58	None	MCPr (in places weak)	Firm	Poor	Low	FVF	-	

Profile Gleyed From: 17cm

Depth to Slowly Permeable Horizon: 17cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 123 mm

Potatoes: 100 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: +20 mm

Potatoes: +8 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 9	2°	Ley	Av Rainfall: 781 mm ATO: 1484 day °C	Oxford Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 175 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	10/5/96	ST 879524	GMS		GMS 541

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	20	C/HCL	10YR42	1%SLST (visual)	None	None	-	-	-	-	CVF	-	Clear smooth
2	38	C	10YR53	1% SLST (visual)	None	None	MCSAB	Friable	Moderate	Good	FVF	-	Clear smooth
3	55	C	10YR54 (10YR53)	5% SLST (visual)	CDFO 10YR58 (patchy)	Few	MCSAB	Friable	Moderate	Good	FVF	-	Clear smooth
4	90+	HCL	10YR64	5% SLST Many shell fragments	CDFOG 10YR58, 52	None	MCSAB	Friable	Moderate	Good	FVF	-	

Profile Gleyed From: 38cm

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: II

Wetness Grade: 3b/3a

Available Water Wheat: 147 mm

Potatoes: 112 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 44 mm

Potatoes: 17 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b/3a

Main Limiting Factor(s): Wetness

Remarks: Topsoil Borderline HCL/C 35% clay

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 10	0°	PGR	Av Rainfall: 781 mm ATO: 1484 day °C	Head
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 176 Climatic Grade: 1	SOIL SAMPLE REFERENCES
21/96	23/5/96	ST 857511	GMS	Exposure Grade: 1	GMS 542

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	15	HZCL	10YR41	None (visual)	None	None	-	-	-	-	MVF		Clear smooth
2	45	ZC	10YR52	2%CH (visual)	FFFO 10YR46	None	MCSAB	Friable	Moderate	Many	CVF		Clear smooth
3	90+	Chalk	5Y81	Chalk	CDFO 10YR46	None	MCAB	Firm	NA	Many	CVF to at least Pit bottom		

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3a

Available Water Wheat: 127 mm

Potatoes: 98 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 24 mm

Potatoes: 3 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks: Chalk very soft and weathered almost like soil. No hard chalk stones.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 11	3° N	Cereals	Av Rainfall: 781 mm ATO: 1484 day °C	Lower Chalk
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 176 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	23/5/96	ST 88155075	GMS		-

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	24	C	10YR52	5% CH (visual)	None	None	-	-	-	-	MVF		Abrupt smooth
2	35	C	10YR62	50% CH (visual)	None	None	MFSAB	Friable	Good	Good	MVF		Clear smooth
3	70+	Fractured weathered chalk with soil between chalk stones and in cracks. Chalk mostly crushable although some hard chalk stones. Roots observed to at least bottom of pit passing down cracks. At least FVF roots and possibly CVF even at depth. Some orange staining of the chalk.											

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3b

Available Water	Wheat:	86 mm
	Potatoes:	92 mm
Moisture Deficit	Wheat:	103 mm
	Potatoes:	95 mm
Moisture Balance	Wheat:	-17 mm
	Potatoes:	-3 mm

Droughtiness Grade: 3a (Calculated to 70 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Workability

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 12	0°	Set Aside	Av Rainfall: 781 mm ATO: 1484 day °C	Chert beds
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 176 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	4/9/96	ST86554980	PRW		-

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	20	MSL	10YR 32	1% HR (Visual)	None	None	N/A	V Friable	Moderate	Many	Many Fine	-	Clear Smooth
2	35	SC	10YR 43	30% HR sieved	None	None	MMSAB	Friable	Moderate	Many	common Fine	-	Abrupt Smooth
3	52	SCL	5Y42 with SC lenses 10YR 44	None (Visual)	Common ocheous in SC lenses	None	MCAB	Friable	Moderate	Many	Few Fine	-	Clear Smooth
4	120	MSL	5Y 43	None (Visual)	10YR 56 Few medium distinct	None	WCAB	Loose	Good	Many	Few Fine	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 1

Available Water Wheat: 163 mm

Potatoes: 106 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 60 mm

Potatoes: 11 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 1

Main Limiting Factor(s): -

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 13	3° NE	Sown Cereals	Av Rainfall: 781 mm ATO: 1484 day °C	Lower Chalk
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 176 Climatic Grade: 1	SOIL SAMPLE REFERENCES
21/96	4/9/96	ST88305115	PRW	Exposure Grade: 1	PRW 147

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	35	HZCL	10YR 52	2% HR (Visual)	None	None	N/A	Friable	Moderate	Many	Many fine	Yes	Clear smooth
2	80+	C	25Y 72	30% CH sieved	None	None	MMSAB	Friable	Moderate	Many	Few fine	Yes	

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3a

Available Water Wheat: 110 mm

Potatoes: 115 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 7 mm

Potatoes: 20 mm

Droughtiness Grade: 2 (Calculated to 80 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Westbury	Pit 14	0°	Arable cultivated	Av Rainfall: 781 mm ATO: 1484 day °C	Head
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 175 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
21/96	4/9/96	ST 89105215	PRW		PRW 148

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	30	SCL	10YR43	-	-	-	N/A	Friable	Moderate	Many	Common fine	-	Clear smooth
2	52	HCL	10YR53	-	CDFMO 10YR56	-	MCSAB	Friable	Moderate	Many	Few fine	-	Clear smooth
3	100+	C	2.5Y63	-	CDMO 10YR58	-	MCAB	Firm	Moderate	< 0.5% Biopores	V Few fine	-	

Profile Gleyed From: 30cm

Depth to Slowly Permeable Horizon: 52cm

Wetness Class: III

Wetness Grade: 3a

Available Water Wheat: 139 mm

Potatoes: 115 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 95 mm

Moisture Balance Wheat: 36 mm

Potatoes: 20 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks: