36/95

Woodspring Local Plan
Objector Sites
Agricultural Land Classification

Prepared for MAFF by
H C Lloyd - Jones
ADAS Statutory Unit
Bristol

ADAS
FOOD FARMING, LAND & LEISURE

Ministry of Agriculture Fisheries and Food
Land Use Planning Unit
MAFF

WOODSPRING LOCAL PLAN

OBJECTOR SITES

AGRICULTURAL LAND CLASSIFICATION

CONTENTS

WOODSPRING LOCAL PLAN

OBJECTOR SITES

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The survey was carried out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the Woodspring Local Plan The fieldwork covered sites at Congresbury Nailsea Sandford St George s and Yatton and was completed in May and June 1995 at a scale of 1 10 000 Data on climate soils geology and from previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report The distribution of grades is shown on the accompanying ALC maps and summarised below Information is correct at this scale but could be misleading if enlarged

Distribution of ALC grades Congresbury

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (63 3 ha)
3b	24 5	38 8	44 4
4	30 7	48 5	55 6
Urban	3 5	5 5	0 0
Non Agricultural	3 7	5 8	0 0
Agricultural Buildings	0 9	1 4	0 0
TOTAL	63 3	100 0	100 0

None of the land that was surveyed at Congresbury was found to be best and most versatile All of the profiles have overall wetness limitations and were assessed as Wetness Classes III and IV depending on the depth to gleying and the depth at which the slowly permeable layers started

Distribution of ALC grades Engine Lane Nailsea

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (82 4 ha)
1	28 0	34 0	39 2
2	2 3	2 8	3 2
3a	35 9	43 6	50 3
3b	5 2	6 3	7 3
Urban	4 3	5 2	0 0
Non Agricultural	4 8	5 8	0 0
Agricultural Buildings	1 9	2 3	0 0
TOTAL	82 4	100 0	100 0

80% of the land surveyed at Engine Lane Nailsea was found to be best and most versatile The area of Grade 1 land consisted of deep well drained sandy loam profiles which had no limit to their agricultural versatility The small areas of Grade 2 and Subgrade 3b land have an overall minor and moderate wetness limitations and were assessed as Wetness Classes II and IV respectively The Subgrade 3a land has a moderate drought limitation caused by the relatively high stone contents 48% and over 70% hard rock by volume in the upper and lower subsoils respectively

Distribution of ALC grades Nailsea North

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (30 3 ha)
2	4 8	15 8	17 4
3a	4 2	13 9	15 2
3b	18 6	61 4	67 4
Urban	0 4	1 3	0 0
Non Agricultural	2 2	7 3	0 0
Agricultural Buildings	0 1	0 3	0 0
TOTAL	30 3	100 0	100 0

Nearly 30% of the survey area was found to be best and most versatile The Grade 2 land has a minor drought limitation caused by the relatively high stone content 42% hard rock by volume in the subsoil The Subgrade 3a and 3b land has a moderate wetness limitation The Subgrade 3a profiles were assessed as Wetness Classes II and III while the Subgrade 3b profiles were assessed as Wetness Class IV

Distribution of ALC grades Sandford

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (30 0 ha)
3a	13 8	46 0	62 4
3b	8 3	27 7	37 6
Urban	7 6	25 3	0 0
Agricultural Buildings	0 3	1 0	0 0
TOTAL	30 0	100 0	100 0

46% of the survey area was found to be best and most versatile All of the site has a moderate wetness limitation and most of the profiles were assessed as Wetness Class III The Subgrade 3a profiles have medium clay loam topsoils while the Subgrade 3b profiles have heavy clay loam topsoils A few of the Subgrade 3b profiles were assessed as Wetness Class IV

Distribution of ALC grades St George s Weston-Super Mare

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (59 9 ha)
3b	9 4	15 7	16 4
4	48 0	80 1	83 6
Urban	2 5	4 2	0 0
TOTAL	59 9	100 0	100 0

None of the land that was surveyed at St George s was found to be best and most versatile All of the profiles were fairly similar The differences between the Subgrade 3b profiles with a moderate wetness limitation and the Grade 4 profiles with a severe wetness limitation are that the Subgrade 3b profiles have medium clay loam topsoils where as the Grade 4 profiles have heavy clay loam topsoils Some of the Subgrade 3b profiles also have the slowly permeable layers starting lower down the profile so they were assessed as Wetness Classes III and IV while all of the Grade 4 profiles were assessed as Wetness Class IV

Distribution of ALC grades North End Yatton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (23 1 ha)
1	5 1	22 1	29 3
3a	8 5	36 8	48 9
3b	0 8	3 5	4 6
4	3 0	13 0	17 2
Urban	3 1	13 3	0 0
Non Agricultural	2 6	11 3	0 0
TOTAL	23 1	100 0	100 0

Nearly 80% of the agricultural land which was surveyed at North End Yatton was found to be best and most versatile The Grade 1 land consists of deep well drained profiles and was assessed as Wetness Class I The Subgrade 3a and 3b land has a moderate wetness limitation Both mapping units were assessed as Wetness Class III but the Subgrade 3a profiles have medium clay loam topsoils were as the Subgrade 3b profiles have heavy silty clay loam topsoils The Grade 4 land has a severe wetness limitation and was Assessed as Wetness Class IV

1 INTRODUCTION

Agricultural Land Classification (ALC) Surveys were carried out in May and June 1995 at six sites in the south Avon area on behalf of MAFF as part of its statutory role in the preparation of the Woodspring Local Plan The sites were at Congresbury Nailsea Sandford St George s and Yatton The fieldwork covering 289 0 ha of land was conducted by ADAS at a scale of 1 10 000 with approximately one boring per hectare of agricultural land A total of 211 auger borings were examined and 13 soil profile pits used to assess subsoil conditions

These recent surveys supersede any previous surveys having been carried out at a more detailed level and using the 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 agricultural use The grading takes account of the top 120 cm of the soil profile A description of the grades used in the ALC system can be found in Appendix 2

2 CLIMATE

The grade of the land is determined by the most limiting factor present The overall climate is considered first because it can have an overriding influence on restricting land to a lower grade despite other favourable conditions

Estimates of climatic variables were interpolated from the published agricultural climate dataset (Meteorological Office 1989) The parameters used for assessing overall climate are accumulated temperature a measure of the relative warmth of a locality and average annual rainfall a measure of overall wetness The results shown in Table 1 indicate there is no overall climatic limitation

Table 1 Climatic Interpolations

Congresbury

Grid Reference		ST 435 635
Altitude (m)		8
Accumulated Temperature (day)		1547
Average Annual Rainfall (mm)		846
Overall Climatic Grade		1
Field Capacity Days		190
Moisture deficit (mm)	Wheat	98
	Potatoes	89

Engine Lane Nailsea

Grid Reference		ST 456 702
Altitude (m)		8
Accumulated Temperature (day)		1545
Average Annual Rainfall (mm)		835
Overall Climatic Grade		1
Field Capacity Days		189
Moisture deficit (mm)	Wheat	96
	Potatoes	87

Engine Lane Nailsea

Grid Reference		ST 455 691
Altitude (m)		29
Accumulated Temperature (day)		1521
Average Annual Rainfall (mm)		845
Overall Climatic Grade		1
Field Capacity Days		191
Moisture deficit (mm)	Wheat	93
	Potatoes	83

Engine Lane Nailsea

Grid Reference		ST 455 696
Altitude (m)		20
Accumulated Temperature (day)		1531
Average Annual Rainfall (mm)		840
Overall Climatic Grade		1
Field Capacity Days		190
Moisture deficit (mm)	Wheat	94
	Potatoes	85

Nailsea North

Grid Reference		ST 475 715
Altitude (m)		12
Accumulated Temperature (day)		1539
Average Annual Rainfall (mm)		857
Overall Climatic Grade		1
Field Capacity Days		192
Moisture deficit (mm)	Wheat	96
	Potatoes	86

Sandford

Grid Reference		ST 419 594
Altitude (m)		25
Accumulated Temperature (day)		1531
Average Annual Rainfall (mm)		920
Overall Climatic Grade		1
Field Capacity Days		200
Moisture deficit (mm)	Wheat	93
	Potatoes	83

Sandford

Grid Reference		ST 424 599
Altitude (m)		13
Accumulated Temperature (day)		1544
Average Annual Rainfall (mm)		901
Overall Climatic Grade		1
Field Capacity Days		198
Moisture deficit (mm)	Wheat	94
	Potatoes	85

Sandford

Grid Reference		ST 419 591
Altitude (m)		40
Accumulated Temperature (day)		1544
Average Annual Rainfall (mm)		932
Overall Climatic Grade		1
Field Capacity Days		202
Moisture deficit (mm)	Wheat	91
	Potatoes	80

St George s Weston-Super Mare

Grid Reference		ST 386 635
Altitude (m)		5
Accumulated Temperature (day)		1552
Average Annual Rainfall (mm)		824
Overall Climatic Grade		1
Field Capacity Days		183
Moisture deficit (mm)	Wheat	101
	Potatoes	93

St George s Weston-Super Mare

Grid Reference		ST 383 630
Altitude (m)		5
Accumulated Temperature (day)		1552
Average Annual Rainfall (mm)		834
Overall Climatic Grade		1
Field Capacity Days		184
Moisture deficit (mm)	Wheat	101
	Potatoes	93

North End, Yatton

Grid Reference		ST 420 668
Altitude (m)		8
Accumulated Temperature (day)		1546
Average Annual Rainfall (mm)		823
Overall Climatic Grade		1
Field Capacity Days		185
Moisture deficit (mm)	Wheat	100
	Potatoes	91

North End, Yatton

Grid Reference		ST 424 667
Altitude (m)		8
Accumulated Temperature (day)		1546
Average Annual Rainfall (mm)		825
Overall Climatic Grade		1
Field Capacity Days		186
Moisture deficit (mm)	Wheat	100
	Potatoes	91

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat and potatoes are also shown These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections

3 CONGRESBURY

3 1 An area of 63 3 ha at Congresbury was surveyed in June 1995 A total of 57 auger borings were examined and three soil profile pit was used to assess subsoil conditions The published provisional one inch to the mile ALC map of the area (MAFF 1971) shows the grade of the site at a reconnaissance scale to be mainly Grade 3 The small site to the east of the town and the area of land around Cherry Tree Farm are shown as Grade 2

3 2 **Relief and Landcover**

The site occupies land on the western side of Congresbury as far as the disused railway and a smaller area of land on the eastern edge of the town around Park Farm The area is virtually flat with an altitude of 10 m above ordnance datum (AOD) At the time of survey all of the fields were under permanent pasture or silage grass

3 3 **Geology and Soils**

The geology of the site is shown on the published 1 50 000 scale Solid and Drift geology map Sheet 264 (British Geological Survey 1974) This shows most of the site to be underlain by estuarine and higher estuarine alluvium There are patches of Keuper Marl near Rookery Farm Park Farm Walnut Tree Farm and the bowling green A small area of land near Church Farm is underlain by head deposits

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 This shows two main soil types Most of the land at Park Farm around Cherry Tree Farm and between Rookery Farm and the disused railway is shown to consist of soils from the Brockhurst 2 Association These are described as being slowly permeable seasonally waterlogged reddish fine loamy over clayey and clayey soils Some reddish clayey alluvial soils are affected by groundwater The northern part of the two survey areas consist of soils from the Compton Association which are described as being stoneless mostly reddish clayey soils affected by groundwater The land around Church Farm Rookery Farm and to the south and west of Silver Street Farm contains soils from the Newchurch Association which are described as being deep stoneless mainly calcareous clayey soils The groundwater is controlled by ditches and pumps with the flat land being at risk from flooding

The soils found during the current survey are all clay loams over clay subsoils with evidence of poor drainage They are most like the soils from the Brockhurst 2 and Newchurch Associations with the reddish clays mirroring the areas of Keuper Marl geology

3 4 **Agricultural Land Classification**

The distribution of ALC grades is shown in Table 2 and on the accompanying ALC map This information could be misleading if shown at a larger scale

Table 2 Distribution of ALC grades Congresbury

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (63 3 ha)
3b	24 5	38 8	44 4
4	30 7	48 5	55 6
Urban	3 5	5 5	0 0
Non Agricultural	3 7	5 8	0 0
Agricultural Buildings	0 9	1 4	0 0
TOTAL	63 3	100 0	100 0

SUBGRADE 3b

The land mapped as Subgrade 3b has a moderate wetness limitation There are two types of profile within the mapping unit although they all have medium clay loam topsoils over deep stoneless reddish and grey clay subsoils In places the profiles have evidence of wetness above 40 cm but are not actually gleyed above 40 cm These profiles have slowly permeable layers starting above 68 cm and were assessed as Wetness Class III (see Appendix 3) The other type of profile has gleying above 40 cm and have slowly permeable layers starting above 52 cm so they were assessed as Wetness Class IV

GRADE 4

The land in this mapping unit has a severe wetness limitation The profiles are very similar to those in the Subgrade 3b unit which were assessed as Wetness Class IV They are also gleyed above 40 cm and have slowly permeable layers starting above 52 cm but they have heavy clay loam topsoils

OTHER LAND

Residential buildings gardens and hard core tracks or roads have been mapped as urban land Land not in agricultural use at the moment and agricultural buildings are mapped as such

4 ENGINE LANE NAILSEA

4 1 An area of 82 4 ha to the west of Engine Lane Nailsea was surveyed in May and June 1995 A total of 48 auger borings were examined and two soil profile pit was used to assess subsoil conditions The published provisional one inch to the mile ALC map of the area (MAFF 1971) shows the grade of the site at a reconnaissance scale to be mainly Grade 2 with areas of Grade 3 land around the northern and western edges of the site

The southern part of the site was also surveyed in 1991 at a scale of 1 10 000 This showed the site to be mainly Subgrade 3a with a moderate droughtiness There are also small areas of Grade 1 Grade 2 and Subgrade 3b land

4 2 Relief and Landcover

The site occupies land along the western side of Nailsea between Engine Lane and West End The site has gently undulating slopes which are all less than 7° except for the area below Nursebatch Farm which has gradients of 10° There is a high point of 29m AOD near Battens Farm and a low point of 8m AOD near Poplar Farm At the time of survey all of the fields were under permanent pasture except for one field of sugar beet

4 3 Geology and Soils

The geology of the site is shown on the published 1 50 000 Solid and Drift geology map Sheet 264 (British Geological Survey 1974) This shows most of the site to be underlain by sandstone of the Downend Group with areas of shale along the lane in the northern part of the site

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 This showed most of the site to consist of soils from the Neath Association which are described as being well drained fine loamy soils often over rock Small patches of similar soils with slowly permeable subsoils and slight seasonal waterlogging area also possible In the north west corner of the site an area of soils from the Altcar 1 Association is mapped These are described as being deep peaty soils with earthy topsoils

The soils found during the recent survey were similar to those from the Neath Association Most of the profiles are stony or stoneless deep well drained sandy loams There is however a small area of heavier soils with slowly permeable layers

4 4 Agricultural Land Classification

The distribution of ALC grades is shown in Table 3 and on the accompanying ALC map This information could be misleading if shown at a larger scale

Table 3 Distribution of ALC grades Engine Lane Nailsea

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (82 4 ha)
1	28 0	34 0	39 2
2	2 3	2 8	3 2
3a	35 9	43 6	50 3
3b	5 2	6 3	7 3
Urban	4 3	5 2	0 0
Non Agricultural	4 8	5 8	0 0
Agricultural Buildings	1 9	2 3	0 0
TOTAL	82 4	100 0	100 0

GRADE 1

The area of land mapped as Grade 1 has profiles containing sandy loam topsoils over deep well drained medium sandy loam subsoils They are well drained and were assessed as Wetness Class I The stone contents were measured as 5% hard rocks by volume in the topsoil with 10% and 20% hard rocks by volume in the upper and lower subsoils respectively Due to the high local rainfall there is no drought limitation

GRADE 2

A small area of land has been mapped as Grade 2 with a minor wetness limitation These profiles have medium sandy loam topsoils and upper subsoils over clay lower subsoils They are gleyed below 40 cm and have slowly permeable layers starting below 50 cm and so were assessed as Wetness Class II

SUBGRADE 3a

There are three types of profile within this mapping unit The main type has well drained medium sandy loam topsoils and subsoils over fractured rock and were assessed as Wetness Class I Stone contents were assessed as 8% hard rock by volume in the topsoil and 40% to 48% hard rock by volume in the upper subsoil The lower subsoils contained over 70% hard rock by volume but they had soil material and roots between the fractured rock The amount of stone causes a moderate drought limitation There are two small areas of land which have a moderate wetness limitation These profiles have medium clay loam topsoils and are either gleyed above 40 cm with no slowly permeable layer starting within 80 cm so they were assessed as Wetness Class II and have medium clay loam topsoils Or they have gleying starting above 40 cm and slowly permeable layers starting below 50 cm so they were assessed as Wetness Class III

SUBGRADE 3b

The small areas of Subgrade 3b land to the west and south of Nursebatch Farm have gradients between 8° and 11° These gradients cause a moderate limitation to the agricultural versatility of the land because they restrict the range of agricultural machinery which can be used safely The other areas of Subgrade 3b land have a moderate wetness limitation The profiles are gleyed above 40 cm and have slowly permeable layers staring above 50 cm They have medium clay loam topsoils and were assessed as Wetness Class IV

OTHER LAND

Residential buildings gardens roads and hard core tracks are shown as urban land Some playing fields have been mapped as non agricultural land while agricultural buildings and farmsteads are as shown

5 NAILSEA NORTH

5 1 An area of 30 3 ha on the northern edge of Nailsea was surveyed in June 1995 A total of 28 auger borings were examined and one soil profile pit was used to assess subsoil conditions The published provision one inch to the mile ALC map (MAFF 1971) shows the grade of the site at a reconnaissance scale to be all Grade 3 with an area of grade 4 land running along the northern edge of the site

The western two thirds of the site were also surveyed in 1987 at a scale of 1 25 000 This shows the site as a mixture of Subgrades 3a and 3b together with a small area of Grade 2 land on the northern edge of the site

5 2 Relief and Landcover

The site is a gently undulating area on the southern side of a small valley There are some small areas which have gradients of up to 11° but most of the site has gradients of less than 7° The site has a high point of 23m AOD near to the trading estate and a low point of 11m AOD at Jacklands Bridge At the time of survey the whole site was under permanent pasture

5 3 Geology and Soils

The geology of the site is shown on the published 1 50 000 Solid and Drift geology map Sheet 264 (British Geological Survey 1974) This shows that the site is mainly underlain by the Lower Coal Series with bands of rock from the Downend Group which include shales and sandstones running through it There are areas of Keuper Marl and alluvium along the northern edge of the site

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 This shows the southern half of the site to consist of soils from the Neath Association They are described as being well drained fine loamy soils often over rock Small patches of similar soils with slowly permeable subsoils and slight seasonal waterlogging may be present The northern part of the site on the valley floor consists of soils from the Whimple 1 Association which are described as being reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging They are associated with similar well drained soils some of which may be over gravel

The soils found during the current survey were similar to the poorly drained areas of the Neath Association They have medium clay loam topsoils over slowly permeable clay subsoils There were also patches of better drained stony medium clay loam profiles

5 4 Agricultural Land Classification

The distribution of ALC grades is shown in Table 4 and on the accompanying ALC map This information could be misleading is shown at a larger scale

Table 4 Distribution of ALC grades Nailsea North

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (30 3 ha)
2	4 8	15 8	17 4
3a	4 2	13 9	15 2
3b	18 6	61 4	67 4
Urban	0 4	1 3	0 0
Non Agricultural	2 2	7 3	0 0
Agricultural Buildings	0 1	0 3	0 0
TOTAL	30 3	100 0	100 0

GRADE 2

The two small areas of Grade 2 land have a minor droughtiness limitation The profiles are *deep well drained medium clay loam topsoils over medium clay loam subsoils which were* assessed as Wetness Class I There are 12% hard rocks by volume in the topsoil and 42% hard rocks by volume in the subsoil which leads to the drought limitation

SUBGRADE 3a

The area of Subgrade 3a land has a moderate wetness limitation There are two types of profile which both have medium clay loam topsoils and are gleyed above 40 cm In places there is no slowly permeable layer starting above 80 cm so the profiles were assessed as Wetness Class II On the whole though the slowly permeable layers were found to start above 80 cm but below 50 cm so the profiles were assessed as Wetness Class III

SUBGRADE 3b

Most of the profiles in this mapping unit were assessed as Wetness Class IV and have a moderate wetness limitation The profiles have medium clay loam topsoils over clay subsoils and are gleyed above 40 cm with slowly permeable layers starting above 50 cm Some of the profiles along the northern edge of the site have variable drainage and have been included in this mapping unit

OTHER LAND

A playing field has been mapped as non agricultural land and an area of the adjacent industrial estate is marked as urban Two small agricultural buildings are mapped as such

6 SANDFORD

6 1 An area of 30 0 ha on two sites at Sandford was surveyed in May and June 1995 A total of 25 auger borings were examined and two soil pit was used to assess subsoil conditions The published provisional one inch to the mile ALC map (MAFF 1971) shows the grade of the site at a reconnaissance scale The northern site is shown as Grade 1 land and urban The western site is also shown as Grade 1 with a small area of Grade 2 land near Sandford Batch

6 2 Relief and Landcover

The site occupies two areas of land one on the northern edge and one on the western edge of Sandford Both areas have relatively smooth gradients of less than 7° The northern area has a high point of 21m AOD at Greenhill Road and a low point of 12m AOD at Sandmead Road The altitude of the western site drops from 46m AOD at Sandford Batch to 18m AOD at Station Farm At the time of survey all of the fields were under permanent pasture except for one which was under maize

6 3 Geology and Soils

The geology of the site is shown on the published 1 50 000 Drift geology map Sheet 280 (British Geological Survey 1984) This shows that both sites are underlain by Mercia Mudstone (Keuper Marl) but the western site also has areas underlain by head deposits near Sandford Batch

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 and also in 1968 at a scale of 1 63 360 This shows the northern site as mainly consisting of soils from the Worcester Series They are described as being neutral to acid red brown to grey brown clayey soils over red marl with imperfect drainage The south west corner of the northern site and most of the western site consist of soils from the Tickenham Series These soils are described as being neutral to acid often stony brown to grey brown sandy and loamy soils They develop over gravel head and or Keuper Marl and are freely draining Small areas along the western edge of the western site and around Sandford Batch consist of soils from the Langford Series These are described as being the same as the Tickenham Series except that their parent material is less sandy

The soils found during the recent survey were fairly similar to those from the Worcester Series with clay loam topsoils over slowly permeable subsoils There was also a small area of profiles with sandy loam topsoils and subsoils which were similar to those of the Tickenham series

6 4 Agricultural Land Classification

The distribution of ALC grades is shown in Table 5 and on the accompanying ALC map This information could be misleading is shown at a larger scale

Table 5 Distribution of ALC grades Sandford

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (30 0 ha)
3a	13 8	46 0	62 4
3b	8 3	27 7	37 6
Urban	7 6	25 3	0 0
Agricultural Buildings	0 3	1 0	0 0
TOTAL	30 0	100 0	100 0

SUBGRADE 3a

Most of the site has been mapped as Subgrade 3a with a moderate wetness limitation The profiles in these mapping units have medium clay loam topsoils over heavy clay loam upper subsoils and reddish clay lower subsoils The profiles were assessed as Wetness Class III but have a mixture of conditions Some are gleyed above 40 cm with slowly permeable layers starting below 54 cm while others are either not gleyed or are gleyed below 40 cm and have slowly permeable layers starting above 73 cm Some of the profiles have reddish slowly permeable layers stating above 60 cm but not extending below 100 cm and were also assessed as Wetness Class III

SUBGRADE 3b

The areas of Subgrade 3b land also have moderate wetness limitations The profiles are very similar to those in the Subgrade 3a mapping units except that they have heavy clay loam topsoils There are also a few profiles that were assessed as Wetness Class IV because they are gleyed above 40 cm and have slowly permeable layers staring above 54 cm

OTHER LAND

Residential areas have been mapped as urban and agricultural buildings are mapped as such

7 ST GEORGE S WESTON-SUPER MARE

7 1 An area of 59 9 ha at near St George s Weston Super Mare was surveyed in June 1995 A total of 59 auger borings were inspected and three soil profile pit was used to assess subsoil conditions The published provisional one inch to the mile ALC map of the area (MAFF 1971) shows the grade of the site at a reconnaissance scale to be all Grade 3

7 2 Relief and Landcover

The survey area occupies two sites on the eastern side of the M5 at Junction 21 near St George s The land is flat with an altitude of about 5m AOD At the time of the survey all of the southern site was being used for cereal cultivation and all of the northern site was under permanent pasture

7 3 Geology and Soils

The geology of the site is shown on the published 1 50 000 Drift geology maps Sheet 264 (Institute of Geological Sciences 1974) and Sheet 280 (British Geological Survey 1984) This shows the whole site to be underlined by estuarine alluvium

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 This shows the whole site as consisting of soils from the Newchurch 2 Association These soils are described as being deep stoneless mainly calcareous clayey soils Groundwater is controlled by ditches and pumps but there is a risk of flooding in places

The soils found during the recent survey were similar to those of the Newchurch 2 Association The profiles have medium and heavy silty clay loam topsoils over poorly drained clay subsoils with evidence of wetness and gleying throughout the profiles

7 4 Agricultural Land Classification

The distribution of ALC grades is shown in Table 6 and on the accompanying ALC map This information could be misleading if shown at a larger scale

Table 6 Distribution of ALC grades St George's, Weston-Super Mare

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (59 9 ha)
3b	9 4	15 7	16 4
4	48 0	80 1	83 6
Urban	2 5	4 2	0 0
TOTAL	59 9	100 0	100 0

SUBGRADE 3b

There are two types of profile in this mapping unit which both have a moderate wetness limitation Both types are gleyed above 40 cm but in some the slowly permeable layer starts above 50 cm and these were assessed as Wetness Class IV and in others it starts below 50 cm These were assessed as Wetness Class III The Wetness Class IV profiles have medium silty clay loam topsoils and the Wetness Class III profiles have heavy silty clay loam topsoils

GRADE 4

The area mapped as Grade 4 has a severe wetness limitation The profiles are very similar to those in the Subgrade 3b mapping unit which were assessed as Wetness Class IV except that they have heavy silty clay loam topsoils

OTHER LAND

Residential areas gardens and roads have been mapped as urban

8 NORTH END YATTON

8 1 An area of 23 1 ha to the north of Yatton was surveyed in June 1995 A total of 21 auger borings were examined and two soil profile pit was used to assess subsoil conditions The published provisional one inch to the mile ALC map of the area (MAFF 1971) shows the grade of the site at a reconnaissance scale to be Grades 2 and 3 The Grade 2 land is in the northern part of the survey area with the Grade 3 land being around Park Farm

8 2 Relief and Landcover

The survey area occupies land in between North End and Yatton The land is relatively flat with a high point of 8m AOD near North End Road and a low point of 5M AOD near Stowey Rhyne At the time of survey most of the land was under permanent pasture although there was one field being used for cereal cultivation

8 3 Geology and Soils

The geology of the site is shown on the published 1 50 000 scale drift geology map Sheet 264 (Institute of Geological Sciences 1974) This shows that most of the site is underlain by head deposits There are also areas underlain by estuarine deposits along Stowey Rhyne and near Horsecastle Farm and a small area underlain by Keuper Marl near Park Farm

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1 250 000 This shows most of the site as consisting of soils from the Whimple 1 Association which are described as being reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging They are associated with similar well drained soils sometimes over gravel The land near Stowey Rhyne and The Grange is shown to consist of soils from the Altcar 1 Association which are described as being deep peat soils with earthy topsoils

The soils in the recent survey are similar to those of the Whimple 1 Association Some have medium sandy loam topsoils over medium sandy loam and sandy clay loam subsoils which are deep and well drained Other profiles have medium and heavy clay loam topsoils over slowly permeable clay subsoils

8 4 Agricultural Land Classification

The distribution of ALC grades is shown in Table 7 and on the accompanying ALC map This information could be misleading is shown at a larger scale

Table 7 Distribution of ALC grades North End Yatton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (23 1 ha)
1	5 1	22 1	29 3
3a	8 5	36 8	48 9
3b	0 8	3 5	4 6
4	3 0	13 0	17 2
Urban	3 1	13 3	0 0
Non Agricultural	2 6	11 3	0 0
TOTAL	23 1	100 0	100 0

GRADE 1

The land around Park Farm which was mapped as Grade 1 has deep well drained profiles with medium sandy loam topsoils and subsoils They were assessed as Wetness Class I and had negligible stone contents There is no drought limitation due to the relatively high local rainfall

SUBGRADE 3a

The land mapped as Subgrade 3a has a moderate wetness limitation The profiles have medium clay loam topsoils over slowly permeable clay lower subsoils with gleying either starting below 40 cm or not being present and slowly permeable layers starting below 50 cm They were assessed as Wetness Class III

SUBGRADE 3b

The small area of land mapped as Subgrade 3b has a moderate wetness limitation The profiles are very similar to those in the Subgrade 3a mapping unit in that they were assessed as Wetness Class III but they have heavy silty clay loam topsoils

GRADE 4

The profiles mapped as Grade 4 have a severe wetness limitation and were assessed as Wetness Class IV The profiles have Heavy clay loam topsoils over heavy clay loam and clay upper subsoils and clay lower subsoils They are gleyed above 40 cm and have slowly permeable layers staring above 35 cm

OTHER LAND

Residential and light industrial areas are mapped as urban A sports ground is shown as non agricultural land

Resource Planning Team
Taunton Statutory Unit
June 1995

APPENDIX 1

REFERENCES

ADAS (1990) Agricultural Land Classification report West End Nailsea 1 5 556 scale Bristol

BRITISH GEOLOGICAL SURVEY (1984) Solid and Drift Edition Sheet 280 Wells 1 50 000 scale

INSTITUTE OF GEOLOGICAL SCIENCES (1974) Drift Edition Sheet 264 Bristol 1 50 000 scale

MAFF (1971) Agricultural Land Classification Map Sheet 164 Provisional 1 63 360 scale

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

MAFF LAND AND WATER SERVICE (1987) Agricultural Land Classification report Nailsea Avon Structure Plan 1 25 000 scale Bristol

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification

SOIL SURVEY OF ENGLAND AND WALES (1968) Sheet 280 Wells 1 63 360

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

APPENDIX 2

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 (e g 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

Descriptions of other land categories used on ALC maps

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 park land public open spaces sports fields allotments and soft surfaced areas on airports/airfields Also active mineral workings and refuse tips where restoration conditions to soft after uses may apply

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses Temporary structures (e g 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 landcover types e g buildings in large grounds and where may be shown separately Otherwise the most extensive cover type will usually be shown

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

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

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)