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SOUTH SOMERSET LOCAL PLAN

AGRICULTURAL LAND CLASSIFICATION

Report of Surveys

1. SUMMARY

Land at 6 sites in South Somerset District amounting to 490.2 ha was surveyed using the MAFF Agricultural Land Classification system in October 1993. The surveys were carried out on behalf of MAFF as part of its statutory role in preparation of the South Somerset Local Plan. Land at Ilminster, Chard, Crewkerne, Yeovil, Henstridge and Wincanton was surveyed.

Fieldwork was carried out by ADAS Resource Planning Team, Taunton Statutory Unit, at a scale of 1:10 000. The information is correct at this scale but any enlargement would be misleading.

The distribution of ALC grades and categories identified in the survey areas is detailed below and illustrated on the accompanying maps.

Distribution of ALC Grades: Ilminster Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	19.3	19.6	22.6	
3a	46.4	47.0	54.3	
3b	19.7	20.0	23.1	
Non-agricultural	5.1	5.2	0.0	
Urban	7.4	7.5	0.0	
Farm buildings	0.7	0.7	0.0	
TOTAL	98.6	100%	100%	(85.4 ha)

Over three-quarters of the land at Ilminster has been graded best and most versatile with the minor limitations mainly due to workability. Areas of moderate quality land suffer more serious limitations due to workability and wetness and are graded 3b.

Distribution of ALC Grades: Chard Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	57.7	79.4	92.3	
3a	4.8	6.6	7.7	
Non-agricultural	2.3	3.2	0.0	
Urban	7.3	10.0	0.0	
Farm buildings	0.5	0.8	0.0	
TOTAL	72.6	100%	100%	(62.5 ha)

The land surveyed is of mainly high quality which suffers only minor limitations due to workability.

Distribution of ALC Grades: Crewkerne Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
1	23.0	30.8	32.3	
2	17.7	23.7	24.9	
3a	12.5	16.7	17.5	
3b	6.1	8.2	8.6	
4	11.9	15.9	16.7	
Non-agricultural	1.9	2.5	0.0	
Urban	0.5	0.7	0.0	
Disturbed land	1.1	1.5	0.0	
TOTAL	74.7	100%	100%	(71.2 ha)

Over 70% of the land was found to be best and most versatile with only minor limitations of wetness and workability which where they occur cause downgrading to 2 and 3a. More serious limitations due to steep slopes and wetness cause downgrading to 3b and 4.

Distribution of ALC Grades: Yeovil Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	27.8	68.0	81.8	
3b	6.2	15.2	18.2	
Non-agricultural	1.5	3.7	0.0	
Urban	5.3	13.1	0.0	
TOTAL	40.8	100%	100%	(34.0 ha)

At Yeovil, mainly good quality land was found with only moderate limitations due to wetness and workability.

Distribution of ALC Grades: Henstridge Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3b	2.5	7.2	20.8	
4	9.5	27.3	79.2	
Urban	22.8	65.5	0.0	
TOTAL	34.8	100%	100%	(12.0 ha)

The agricultural land is of moderate to poor quality which suffers from moderate to severe wetness limitation. The majority of the site has been classified as urban, being a disused airfield.

Distribution of ALC Grades: Wincanton Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
1	14.4	5.5	10.4	
2	18.3	10.9	13.2	
3a	48.9	29.0	35.4	
3b	40.5	24.0	29.2	
4	12.6	7.5	9.1	
5	3.8	2.2	2.7	
Non-agricultural	8.7	5.2	0.0	
Urban	18.4	10.9	0.0	
Farm buildings	3.0	1.8	0.0	
TOTAL	168.6	100%	100%	(138.5 ha)

A mixture of all grades of land, mainly good and moderate quality with moderate limitations due to wetness and workability, was found around Wincanton.

2. INTRODUCTION

Land at 6 sites in South Somerset District amounting to 490.2 ha was surveyed using the MAFF Agricultural Land Classification system in October 1993. The surveys were carried out on behalf of MAFF as part of its statutory role in preparation of the South Somerset Local Plan. Land at Ilminster, Chard, Crewkerne, Yeovil, Henstridge and Wincanton was surveyed.

The fieldwork was carried out by ADAS Resource Planning Team, Taunton Statutory Unit, at a scale of 1:10 000, with one auger sample point approximately every hectare. Details of the findings of the surveys and the distribution of grades are detailed below for each site. The information is correct at this scale but any enlargement would be misleading.

The published Provisional 1" to one mile ALC maps (MAFF, 1974 etc)show the grades of the sites at a reconnaissance scale and for some of the sites more recent surveys may have been carried out. However, these are considered inadequate for Local Plan purposes and the recent survey was undertaken to provide a more detailed representation of the agricultural land quality. It supersedes any previous survey. The recent survey also uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF, 1988).

The Agricultural Land Classification system provides 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.

3. 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 lower grades despite other favourable conditions.

Estimates of climatic variables were obtained for each site by interpolation from the 5-km grid agricultural climate dataset (Meteorological Office, 1989) and are shown in the details for each site.

The parameters used for assessing overall climatic limitation are accumulated temperature, a measure of the relative warmth of a locality and average annual rainfall, a measure of overall wetness. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections. A description of the Soil Wetness Classes used can be found in Appendix 3.

4. ILMINSTER SITE

4.1 Ninety-eight hectares of land to the west of Ilminster were surveyed in March 1991 and October 1993 by examining a total of 88 auger borings and 3 soil profile pits. The area had previously been surveyed at 1:25 000 scale, but the level of fieldwork was considered inadequate for Local Plan purposes and the site has been resurveyed. This report combines the results of both surveys and supersedes any previous ALC information.

4.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown below and indicate that there is no overall climatic limitation. No local climatic limitations were noted.

Grid Reference		ST 353 154	ST 357 155
Altitude (m)		30	46
Accumulated Temperature (day °)		1546	1528
Average Annual Rainfall (mm)		832	848
Overall Climatic Grade		1	1
Field Capacity Days		172	175
Moisture Deficit (mm):	Wheat	102	99
	Potatoes	94	90

4.3 Relief and Landcover

With drainage to the River Isle, slopes are long and very gentle or flat and are not limiting. Altitude ranges from 25 to 45 m AOD. Traditionally, flooding has been a problem in the Isle flood plain, but local information indicates that only one field, to the south-west of the Somerset Cattle Breeding Centre, is currently liable to regular flooding. This amounts to inundation to a depth of approximately 50 cm which lasts for less than half a day and occurs no more than once every 5 years. This is not considered to be a significant limitation to land which otherwise would be graded 3a.

At the time of survey, landcover was mainly ley and permanent grass, with some arable cropping including maize and potatoes.

4.4 Geology and Soils

The published 1:50 000 scale solid and drift geology map, sheet 311 (Geological Survey of England and Wales, 1976), indicates that the site is underlain by Lower Lias deposits, with variable depths of alluvium, including valley gravel, over much of the site. The extreme south of the site is influenced by the Middle Lias deposits of Mitchell's Hill.

Soils mapped by the Soil Survey of England and Wales (1983) indicate Fladbury Association to the west of the disused railway and Curtisden to the east. Fladbury soils are described as stoneless clayey soils variably affected by groundwater and with

a local risk of flooding. Curtisden soils are described as silty soils over siltstone with slowly permeable subsoils and slight seasonal waterlogging. Well drained profiles may also occur.

The majority of the soils found in the site experience slight wetness limitations. However, there are some soils to the north and south of the Cattle Breeding Centre that are well drained. None of the soils are droughty.

4.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey is shown on the accompanying ALC map and summarised in the table below. The information is correct at the scale shown but any enlargement would be misleading.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	19.3	19.6	22.6	
3a	46.4	47.0	54.3	
3b	19.7	20.0	23.1	
Non-agricultural	5.1	5.2	0.0	
Urban	7.4	7.5	0.0	
Farm buildings	0.7	0.7	0.0	
TOTAL	98.6	100%	100%	(85.4 ha)

Grade 2

Areas of Grade 2 are Wetness Class I and generally have a minor limitation on workability imposed by heavy clay loam topsoil textures. These soils have low stone contents and are not droughty. Areas mapped as Grade 2 at this site include occasional profiles which would individually be Grade 1 on the basis of a lighter texture topsoil but are insufficient to make a separate mapping unit.

Grade 3a

Areas mapped as 3a frequently have a wetness limitation and are Wetness Class II, which when combined with a heavy loam topsoil texture creates a moderate limitation on the workability of the soils, particularly in relation to the timeliness of cultivations after rainfall. These soils have variable stone contents but are not droughty.

Grade 3b

Areas mapped as Grade 3b suffer more serious limitations due to wetness and workability, and are frequently Wetness Class III. Some profiles were found to be Wetness Class IV. This is associated with a slowly permeable layer which holds up the downward movement of water through the soil profile. The presence of the slowly

permeable layer was confirmed in a soil pit and the topsoil textures in this unit are heavy clay loams.

Other Land

The areas marked as non-agricultural in the west are playing fields. The buildings associated with the Cattle Breeding Centre and industrial units are mapped as urban.

5. CHARD SITE

5.1 An area of 72.6 ha of land south-east of Chard was surveyed by examining a total of 67 auger borings and 3 soil profile pits.

5.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown below and indicate that there is a Grade 2 climatic limitation at approximately 115 m AOD. No local climatic limitations were noted.

Grid Reference	ST 326 073	ST 327 075	ST 330 078
Altitude (m)	120	115	105
Accumulated Temperature (day °)	1447	1453	1464
Average Annual Rainfall (mm)	1064	1057	1044
Overall Climatic Grade	2	2	1
Field Capacity Days	211	210	208
Moisture Deficit (mm): Wheat	84	84	86
Potatoes	71	72	74

5.3 Relief and Landcover

The site occupies a gentle east facing slope, the highest point being 131 m AOD along Yatworth Road and the lowest point being 80 m AOD north of Lordleaze Farm. At the time of survey much of the site was growing grass leys with one large arable field between Two Ash Farm and Priorsford.

5.4 Geology and Soils

The published 1:50 000 scale solid and drift geology map, sheet 311 (Geological Survey of England and Wales, 1978), shows nearly all the site to be Upper Greensand and a small area around Fordham Grange to comprise valley gravel and rainwash.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250 000. This map shows soils of the Charity 1 Association overlying the Greensand. These soils are described as well drained fine silty and fine silty over clayey soils, locally very flinty with some shallow soils over flint gravel. Soils in the northern part of the site are mapped as Wickam 2 Association. These soils are described as slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils.

The recent survey indicates there are three soil types in the area. Soils around Holbear comprise medium silty clay loam and medium clay loam topsoils over heavy clay loam subsoils. Below a depth of approximately 50 cm subsoils are clay textures. Similar topsoils are found across the rest of the site although subsoils are lighter textures and slightly stony. Below approximately 60 cm stone contents increase to 35% hard rock. The most southern part of the site comprises a third soil type of heavy clay loam topsoils over chalky silty loam subsoils.

5.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed below and shown on the accompanying ALC map.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	57.7	79.4	92.3	
3a	4.8	6.6	7.7	
Non-agricultural	2.3	3.2	0.0	
Urban	7.3	10.0	0.0	
Farm buildings	0.5	0.8	0.0	
TOTAL	72.6	100%	100%	(62.5 ha)

All of the agricultural land in the survey area was found to be best and most versatile land with over 90% being Grade 2.

Grade 2

Nearly all the agricultural land has been mapped as Grade 2 and this relates to the well drained (Wetness Class I) profiles with medium clay loam and medium silty clay loam topsoils. There are occasional profiles particularly in the north of this mapping unit which comprise medium sandy silt loam topsoils. If significantly large areas had been found these soils would be graded as Grade 1. The high FC days combined with topsoil texture imposes a slight workability limitation. The soils are not droughty.

Subgrade 3a

The small area of 3a land in the southern part of the site relates to profiles with heavy clay loam topsoils over very chalky silty loam subsoils. The heavy clay loam topsoil imposes a moderate workabilty limitation under the prevailing FC days. The soils are not droughty.

Urban and Non-agricultural Land

The survey includes 6 ha of urban land including residential buildings, roads and an area of industrial land. Non-agricultural land includes small areas of woodland and a disused lime kiln.

6. CREWKERNE SITE

6.1 Sixty-nine hectares of land to the east of Crewkerne were surveyed in January 1993 and a further 5.7 ha in October 1993. A total of 63 auger borings and 3 soil profile pits were examined. This report combines the results of both surveys, and supersedes any previous surveys.

6.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown below and indicate that there is no overall climatic limitation.

Grid Reference		ST 458 096	ST 451 101
Altitude (m)		40	90
Accumulated Temperature (day °)		1534	1477
Average Annual Rainfall (mm)		854	896
Overall Climatic Grade		1	1
Field Capacity Days		179	185
Moisture Deficit (mm):	Wheat	100	92
	Potatoes	92	81

6.3 Relief and Landcover

The site is gently undulating in the south between 40 m and 60 m AOD. The land then rises steeply between Easthams Lane and Butts Quarry Lane to land at a higher level, reaching a maximum of 90 m. This area gently slopes towards Butts Quarry Lane, except for a valley opening out towards Easthams Gate Farm. The steep slopes limit the land to Subgrade 3B and Grade 4.

At the time of survey, landcover included a range of arable crops and grassland.

6.4 Geology and Soils

The published 1:50 000 scale geology map (Geological Survey of England and Wales, 1973) shows the northern area to be underlain by Yeovil Sands and the southern area by Fullers Earth Rock with small areas of Wattonensis Beds and Inferior Oolite.

The Soil Survey of England and Wales map (1983) shows three associations within the survey area. In the north soils are of the South Petherton Association which are described as deep, well drained stoneless fine sand and silt soils. To the south Denchworth Association soils are described as clayey and slowly permeable with seasonal waterlogging. The map indicates a small area of Elmton 1 Association by Hellings Farm. These soils are described as shallow but well drained.

Several different types of soil were identified in the area during the recent ALC survey. Soils to the north of the stream coming from the sewage works are deep and well drained. Generally to the west these soils are lighter in texture, fine sandy silt loams,

whilst to the east and south of this area medium clay loams are more typical. In the far south-west of the survey area there are well drained medium clay loams. The rest of the survey area has more poorly drained soils with heavy clay loam topsoil. These show varying degrees of restricted drainage.

6.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed below and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
1	23.0	30.8	32.3	
2	17.7	23.7	24.9	
3a	12.5	16.7	17.5	
3b	6.1	8.2	8.6	
4	11.9	15.9	16.7	
Non-agricultural	1.9	2.5	0.0	
Urban	0.5	0.7	0.0	
Disturbed land	1.1	1.5	0.0	
TOTAL	74.7	100%	100%	(71.2 ha)

Grade 1

Two areas of Grade 1 were identified. These soils are well drained and are assigned to Wetness Class I. Some profiles have fine sandy silt loams throughout, whilst others have fine sandy silt loam topsoils and medium clay loam subsoils. The soils are virtually stone free. With no overall climatic or other limitation these soils are Grade 1.

Grade 2

Several areas of Grade 2 have been identified. These soils are also well drained but have a slightly heavier topsoil than the Grade 1 areas. These topsoils are medium clay loams. The soils still qualify for Wetness Class I but the topsoil texture restricts the workability of the soils and so they are downgraded to Grade 2. These soils become heavier with depth.

Subgrade 3a

The blocks of Subgrade 3a land in the south have slightly restricted drainage in some areas. Here the topsoil textures are variable, being either medium clay loams or heavy clay loams. There is evidence of poor drainage in the form of gleying, caused by slowly permeable layers at depth. The variable depths at which these occur means that the soils are assigned to Wetness Classes II and III. A few profiles showed no

evidence of poor drainage but have heavy clay loam topsoils. These soils are Wetness Class I. All these soils are limited to Subgrade 3a on the basis of the combination of their Wetness Class and topsoil texture for the FCD in this area.

Subgrade 3b

The area of Subgrade 3b in the centre and north of the site has been downgraded on the basis of restricting slopes. The gradients here are between 7 and 11 degrees. These gradients restrict the types of machinery that can be safely used and hence the versatility of the land.

Grade 4

The small area of Grade 4 identified south of Higher Easthams Farm has been downgraded on the basis of gradient. Here the slopes are between 11 and 18 degrees, so the restriction on versatility is greater than that described for the Subgrade 3b land.

The larger area of Grade 4 land in the south of the site has more severe drainage problems than described for Subgrade 3a. Here the soils have heavy clay loam topsoils and show evidence of restricted drainage in the form of gleying near the surface. This is caused by shallow slowly permeable layers. These soils will remain wet for much of the year and are therefore restricted to Wetness Class IV. They can be graded no better than Grade 4.

Other Land

A small area north of Lower Easthams Farm has been used as a landfill site within the last 5 years and therefore is left ungraded and mapped as disturbed.

Small areas of non-agricultural land have been mapped where there are unsurfaced tracks, a small piece of woodland and land next to the industrial estate.

7. YEOVIL SITE

7.1 An area of 40.8 ha west of Yeovil was surveyed by examining a total of 36 auger borings and 2 soil profile pits.

7.2 Climate

Climatic data for the site was interpolated as described in Section 3 and indicates that there is no overall climatic limitation. No local climatic limitations were noted.

Grid Reference	ST 522 172	ST 516 168	ST 521 162
Altitude (m)	77	58	70
Accumulated Temperature (day °)	1487	1510	1496
Average Annual Rainfall (mm)	787	765	783
Overall Climatic Grade	1	1	1
Field Capacity Days	169	166	169
Moisture Deficit (mm): Wheat	103	107	104
Potatoes	95	100	97

7.3 Relief and Landcover

The site comprises gently undulating land with south, north-west and south-east facing slopes. The highest land occurs at Oak Farm (78 m AOD) and the lowest at Lufton Bridge (54 m AOD).

At the time of survey much of the site was under ley and permanent grass with some arable land occurring south of Pig Farm and north of Lufton Manor.

7.4 Geology and Soils

The published 1:50 000 scale solid and drift geology map, sheet 312 (Geological Survey of England and Wales, 1973), indicates that most of the site is underlain by Pennard Sands. The southern part of the site below the A3088 is composed of Yeovil Sands and a junction bed of ferruginous and argillaceous limestone outcrops between these deposits, running east to west.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaissance scale of 1:250 000. This map indicates that soils of the Elmton Association occur in the area between Lufton, New Road Bridge and Houndstone Corner. These soils are described as shallow, well drained, brashy, calcareous, fine loamy soils over limestone, some of which can be deeper. To the north and south of this area, soils of the Curtisden Association are indicated. These are described as silty soils over limestone with slowly permeable subsoils and slight seasonal waterlogging. Some similar soils are well drained. Local slumping occurs.

The recent survey indicates that there are 3 main soil types in the area. At the south end of the site, east of New Road Bridge, the survey found shallow soils, approximately 60 cm deep over limestone. These comprised silty clay loam topsoils

over clay loam subsoils. However, the most common soil type identified typically comprises medium clay loam and medium silty clay loam topsoils over clay loam upper subsoils and clay lower subsoils below 45 cm. The third soil type exhibits similar characteristics but with clay subsoils immediately below the topsoils..

7.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed below and shown on the accompanying ALC map.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	27.8	68.0	81.8	
3b	6.2	15.2	18.2	
Non-agricultural	1.5	3.7	0.0	
Urban	5.3	13.1	0.0	
TOTAL	40.8	100%	100%	(34.0 ha)

Over 80% of the agricultural land was found to be best and most versatile.

Subgrade 3a

The majority of the agricultural land has been graded 3a and this relates to 2 main groups of soils: Firstly, moderately drained profiles which are gleyed and have slowly permeable subsoils below 45 cm. The presence of the slowly permeable layer was confirmed in a soil pit. These soils are Wetness Class III which combined with medium silty clay loam topsoils and prevailing FC days imposes a moderate wetness limitation. Secondly, shallow but well drained (Wetness Class I) stony soils. These soil have a droughtiness limitation caused by the reduced soil depth. Subsoil stones were measured by sieving and found to be 25% limestone to 30 cm and 50% limestone to 60 cm. Small areas of poorly drained profiles, Wetness Class IV, occur throughout this unit. They tend to have medium clay loam and silty clay loam topsoils and if larger areas have been found, these soils would have been mapped as Subgrade 3b.

Subgrade 3b

These soils are either poorly drained, Wetness Class IV, with medium silty clay loam topsoils or moderately drained, Wetness Class III, with heavy silty clay loam topsoils. The combination of Wetness Class, topsoil texture and prevailing Field Capacity Days (166 days) imposes a moderately severe wetness limitation in these soils.

Urban and Non-agricultural Land

The survey identified 5.3 ha of urban land including roads, residential buildings and an educational centre.

Non-agricultural land includes small areas of woodland, a sports field and an orchard.

8. HENSTRIDGE SITE

8.1 Thirty-four hectares at Henstridge Airfield were surveyed in October 1993. The recent survey supersedes any previous ALC information.

8.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown in the table below and indicate that there is no overall climatic limitation. No local climatic limitations were noted.

Grid Reference		ST 755 205	ST 751 199
Altitude (m)		60	54
Accumulated Temperature (day °)		1500	1507
Average Annual Rainfall (mm)		818	815
Overall Climatic Grade		1	1
Field Capacity Days		176	176
Moisture Deficit (mm):	Wheat	103	103
	Potatoes	95	96

8.3 Relief and Landcover

The site is a very gently sloping area with altitude ranging from 54 to 60 m AOD. At the time of survey most of the area was in permanent grass, or ploughed for reseeding.

8.4 Geology and Soils

The published 1:50 000 scale geology map (Geological Survey of England and Wales, 1977) shows the site to be underlain by Oxford clay and Kellaways beds.

Soils are mapped by the Soil Survey of England and Wales as Denchworth Association over most of the site, described as slowly permeable seasonally waterlogged clayey soils with some Sutton 1 Association in the north-east of the site. These soils are described as well drained fine and coarse loamy soils, locally calcareous.

The soils found in the survey are typical of the Denchworth Association.

8.5 Agricultural Land Classification

The distribution of ALC grades found in the survey area is detailed in the table below and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3b	2.5	7.2	20.8	
4	9.5	27.3	79.2	
Urban	22.8	65.5	0.0	
TOTAL	34.8	100%	100%	(12.0 ha)

Grade 3b

Over 7 ha of land has been graded 3b. These soils have heavy clay loam topsoils. There are slowly permeable layers in the subsoils. The depth to gleyed horizons and the SPLS varies but the soils are all Wetness Class III. Under the prevailing FC days this imposes a moderately severe wetness limitation. The presence of the SPL was confirmed in a soil pit.

Grade 4

The Grade 4 areas have a more severe wetness problem caused by a slowly permeable layer higher in the subsoil which inhibits the downward movement of water. These soils are assessed as Wetness Class IV which combined with topsoil textures of heavy clay loam imposes a severe wetness limitation.

Other Land

The remainder of the site, which was not surveyed, is not capable of normal agricultural use and has been marked as urban. Part of this area is covered by the extensive runways of the wartime airfield and a large part of the land at the south end of the site has been stripped of topsoil in readiness for industrial development as a waste recycling site. The small area of grass remaining between the runways at the north end of the site is underlain by cables, drains and other services and has been proved impractical to plough. This area is considered best mapped within the Urban unit.

9. WINCANTON SITE

9.1 One hundred and sixty-three hectares of land around Wincanton were surveyed in September 1992 and a further 5.7 ha in October 1993. A total of 101 auger borings and 5 soil profile pits were examined. This report repeats the findings of the 1992 survey as the additional land included in the 1993 survey was found to be in urban use. Part of the area had been surveyed in 1984, but the recent survey supersedes this information.

9.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown below and indicate that there is no climatic limitation across the survey area.

Grid Reference	ST 718 290	ST 705 280
Altitude (m)	140	75
Accumulated Temperature (day °)	1406	1481
Average Annual Rainfall (mm)	916	877
Overall Climatic Grade	1	1
Field Capacity Days	191	185
Moisture Deficit (mm): Wheat	89	99
Potatoes	77	90

9.3 Relief and Landcover

Wincanton is dissected by the River Cale valley. The land to the east and west rises up from the river. The lowest parts of the survey area are at 75 m rising up to 140 m at Windmill Hill in the east and 125 m in the west towards Abergavenny.

At the time of survey most of the land was under permanent or ley grass, with some arable fields including potatoes and maize.

9.4 Geology and Soils

The published 1:50 000 scale geology map (Geological Survey of England and Wales, 1972) indicates several types of geology in the survey area, including Cornbrash limestone, Oxford clay with Kellaways Beds and Forest Marble (mainly clay).

Three Soil Associations were mapped by the Soil Survey of England and Wales. In the east and west the Elmton 1 Association is mapped. This is described as shallow well drained brashy soils over limestone. In the north the Evesham 1 Association is found, described as slowly permeable calcareous clayey soils. There is a band of Denchworth Association soils covering much of the site in the west. These are described as slowly permeable seasonally waterlogged clayey soils.

Several soil types exist in the survey area. On the higher land around Windmill Hill the soils are light in texture with medium sandy silt loam topsoils. These soils become

slightly heavier with depth. They are free draining. Soils in the lower lying parts of the area below New Barns Farm and Bayford Hill Farm are much heavier with clay or heavy clay loam topsoils. These soils have restricted drainage and are stone free. The remaining areas have medium clay loam topsoils which become heavier with depth. Some of these soils are stony and some show evidence of restricted drainage. Some of the soils are also calcareous.

9.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed below and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
1	14.4	5.5	10.4	
2	18.3	10.9	13.2	
3a	48.9	29.0	35.4	
3b	40.5	24.0	29.2	
4	12.6	7.5	9.1	
5	3.8	2.2	2.7	
Non-agricultural	8.7	5.2	0.0	
Urban	18.4	10.9	0.0	
Farm buildings	3.0	1.8	0.0	
TOTAL	168.6	100%	100%	(138.5 ha)

Over half of the agricultural land has been classified as best and most versatile.

Grade 1

Two areas of Grade 1 land have been identified in the survey area. These soils are free draining and are virtually stone free. They qualify for Wetness Class I and with the medium silty clay loam topsoils are eligible for Grade 1. These soils remain light in texture throughout the profile.

Grade 2

Three areas of Grade 2 land have been identified in the area. These soils have slightly heavier topsoils. They are mostly medium clay loams and medium silty clay loams. Some of the soils are calcareous and work as a lighter texture. The eastern area of Grade 2 is a free draining soil with low stone content. The soils become heavier with depth. The soils in the west are stony. The soft limestone increases in content with depth reaching a measured level of 50% below 45 cm in a soil pit. The stone content does not impose a significant droughtiness limitation. These soils are also free draining and qualify for Wetness Class I. In both these types of soil the main limitation to

agricultural use is the combination of topsoil texture and the local climatic situation. This workability limitation limits the soil to Grade 2.

Subgrade 3a

Many parts of the area surveyed have been classified as Subgrade 3a. Two main types of profile exist in these areas. The first is limited by topsoil texture. The heavy clay loams provide a more limiting situation than that described under Grade 2. These soils are mainly found in the west of the survey area near New Barns where there are high stone contents The other Subgrade 3a soils show evidence of wetness. These soils mainly have evidence of restricted drainage at lower depths and are placed into Wetness Classes II and III. The soils have medium clay loam topsoils. The combination of these factors in addition to the local climatic situation restrict the soils to Subgrade 3a. Some of the soils are stony. Soil pits were dug in these soils.

Subgrade 3b

Parts of the survey area have restrictive gradients. On these slopes the type of machinery that can be used is limited in terms of safety. Gradients are between 7 and 11 degrees and are found primarily to the north. The remaining areas of 3b land have poor drainage which is more severe than that described above. The soils are gleyed in the top 40 cm and have slowly permeable layers within 52 cm. These slowly permeable layers were confirmed in a soil pit. These soils must be placed into Wetness Class IV and with medium clay loam topsoils are limited to Subgrade 3b. The soils contain few stones.

Grade 4

The small areas of Grade 4 land are limited to this grade by gradient. The slopes are between 11 and 18 degrees. Here safety limits still further the type of machinery and thus the versatility of the land. The risk of soil erosion is also increased by cultivating steep slopes.

The larger area of Grade 4 to the south has poor drainage similar to that described for Subgrade 3b. Here the topsoils are heavier, heavy clay loam and heavy silty clay loam. With the heavier topsoil these soils are less versatile and are thus downgraded.

Grade 5

The small areas of Grade 5 have gradients over 18 degrees. This land has severe restrictions to agricultural use and is only suitable for permanent pasture or rough grazing.

Other Land

The additional 5.7 ha of land which is classified as urban is currently used as part of an industrial estate. Other areas of housing and roads have also been mapped as urban. Non-agricultural land was found north of Hawker Bridge related to recreational areas with other smaller areas elsewhere. Buildings connected with farms have been mapped as agricultural buildings.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES, 1:50 000 scale

Sheet 297	Solid and Drift, 1972, Wincanton
Sheet 311	Drift edition, 1976, Wellington
Sheet 312	Solid and Drift, 1973, Yeovil
Sheet 313	Drift edition, 1977, Shaftesbury

MAFF Agricultural Land Classification Map, Provisional 1:63 360 scale

Sheet 177	1974
Sheet 178	1970
Sheet 166	1972

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) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office

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

APPENDIX 2

DESCRIPTION OF ALC 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.

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 (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 landcover types, eg 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).

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Crewkerne	Pit 1	2° North East	Cereal	Av Rainfall: 854 mm ATO: 1534 day °C FC Days: 179 Climatic Grade: 1 Exposure Grade: N/A	Yeovil Sands
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
9/93	14/1/93	Near ASP 11; ST 4524 1008	GMS		None

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	25	FSZL	10YR42	1% HR (visual estimate)	-	-	-	-	-	-	Fine many	-	Abrupt smooth
2	50	FSL	10YR54	-	-	-	MCSAB	Friable	Moderate	>0.5	Fine many	-	Abrupt smooth
3	70+	HCL	10YR54, 53	-	Few ochreous mottles (due to weathering)	Few	Platey primary structure (v. coarse) breaks into MMSAB	Friable	Good	>0.5	V. fine common	-	-

Profile Gleyed From: Not

Depth to Slowly Permeable Horizon: None

Wetness Class: I

Wetness Grade: 1

Available Water Wheat: 197 mm

Potatoes: 141 mm

Moisture Deficit Wheat: 100 mm

Potatoes: 92 mm

Moisture Balance Wheat: 97 mm

Potatoes: 49 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 1

Main Limiting Factor(s): -

Remarks:

- Hit large stone at 70 cm.
- HCL assumed to 120 cm for AP calculation.
- MMSAB structure used in determining H3 structural condition.

NL336h

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Crewkerne	Pit 2	Flat	Permanent Grazing	Av Rainfall: 854 mm ATO: 1534 day °C	Fullers Earth Rock (clay)
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 179 Climatic Grade: 1	SOIL SAMPLE REFERENCES
9/93	15 Jan 93	Between ASP 54 and 61; ST 4516 0926	GSI	Exposure Grade: N/A	RPT/RC/10

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 (darker peaty layer 20-24)	HCL (MZCL)	Matrix: 10YR43 (10YR32)	0% (0%)	- (-)	- (-)	- (-)	- (-)	- (-)	Good (-)	Many fine + v. fine 0-20 (fibrous), (Abundant fine + v. fine, fibrous 20-24)	(-)	Smooth abrupt
2	50+	HCL	10YR46 (matrix)	-	-	-	Moderately developed CSAB	Friable	Moderate	Good	Many fine fibrous roots	-	-

Profile Gleyed From: Not

Depth to Slowly Permeable Horizon: None

Wetness Class: I

Wetness Grade: 3a

Available Water	Wheat:	155 mm
	Potatoes:	117 mm
Moisture Deficit	Wheat:	100 mm
	Potatoes:	92 mm
Moisture Balance	Wheat:	55 mm
	Potatoes:	25 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3A

Main Limiting Factor(s): Workability

Remarks:

Pit dug to 50 cm. Started filling with water at 30 cm.

NL336h

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Crewkerne	Pit 3	Flat	Permanent Grazing	Av Rainfall: 854 mm ATO: 1534 day °C FC Days: 179 Climatic Grade: 1 Exposure Grade: N/A	Fullers Earth Rock (Clay)
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
9/93	15 Jan 1993	Near ASP 40; ST 4545 0949	GMS		RPT/RC/11

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	10YR32	-	Few rusty roots no mottles	-	-	-	-	-	Many fine + v. fine	None	Abrupt smooth
2	35	HCL	10YR54	2-5% HR visual	None	-	WCSAB	Friable	Moderate	Good	Many fine + v. fine	Yes	Abrupt smooth
3	64	C	10YR53, 52 Ped face: 10YR51	-	10YR56, 51 Common	-	MCSAB (some weak some angular)	Firm	Moderate	Low	Common fine + v. fine	Yes	Abrupt
4	80+	C	10YR51, 52	-	10YR56	-	Weak (adherent) CSAB	V. firm	Poor	Low	-	Yes	-

Profile Gleyed From: 35 cm

Depth to Slowly Permeable Horizon: 64 cm

Wetness Class: III

Wetness Grade: 3B

Available Water Wheat: 134 mm

Potatoes: 114 mm

Moisture Deficit Wheat: 100 mm

Potatoes: 92 mm

Moisture Balance Wheat: 34 mm

Potatoes: 22 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3B

Main Limiting Factor(s): Wetness

Remarks:

Pit dug to 80 cm. In 3A unit with MCL topsoils.