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Droskyn Point to Gannel Estuary Management Plan

AGRICULTURAL LAND CLASSIFICATION REPORT OF SURVEY

Resource Planning Team
Taunton Statutory Unit

August & December 1993

ADAS

DROSKYN POINT TO GANNEL ESTUARY MANAGEMENT PLAN

AGRICULTURAL LAND CLASSIFICATION

Report of Surveys

1. SUMMARY

Land at eleven villages in Carrick District was surveyed using the Agricultural Land Classification (ALC) System in August and November 1993. The surveys were carried out on behalf of MAFF as part of its statutory role in the preparation of the Droskyn Point to Gannel Estuary Management Plan. Land at the following villages was surveyed: Blackwater, Cubert, Goonhavern, Holywell, Mithian, Mitchell, Mount Hawke,Perranporth, Porthtowan, St Agnes and St Newlyn East.

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

Distribution of ALC Grades: Blackwater

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	10.4	50.2	54.5
3a	6.6	31.9	34.5
3b	2.1	10.2	11.0
Urban	1.5	7.2	100%
Non Agric	0.1	0.5	(19.1ha)
TOTAL	20.7	100%	

The majority of land surveyed at Blackwater is of best and most versatile quality. The soils are well drained.

Distribution of ALC Grades: Cubert

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	32.9	64.1	68.8
3a	9.1	17.7	19.1
3b	5.8	11.4	12.1
Urban	2.4	4.7	100%
Non Agric	1.1	2.1	(47.8ha)
TOTAL	51.3	100%	

The majority of the land at Cubert is of best and most versatile quality. The small area of Subgrade 3b land is downgraded on the basis of gradient.

Distribution of ALC grades: Holywell

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	4.8	50.0	57.8
4	3.5	36.5	42.2
Urban	0.6	6.3	100%
Non Agric	0.7	7.2	(8.3ha)
TOTAL	9.6	100%	

The land at Holywell that is not affected by steep gradients is of best and most versatile quality. Where the gradients are steep the land is downgraded to Grade 4.

Distribution of ALC grades: Goonhavern

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	16.9	70.1	97.1
3b	0.5	2.1	2.9
Urban	0.8	3.3	100%
Non Agric	5.9	24.5	(24.1ha)
TOTAL	24.1	100%	

Virtually all the agricultural land at Goonhavern is Grade 2 with slight limitations.

Distribution of ALC grades: Mithian

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	5.7	74.0	85.1
3b	0.1	1.3	14.9
Urban	1	13	100%
Farm bdgs	0.4	5.2	(6.7ha)
TOTAL	7.7	100%	

Eighty-five percent of the agricultural land at Mithian is Grade 2.

Distribution of ALC grades: Mitchell

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	14.1	77.1	81.1
3a	2.4	13.1	13.8
3b	0.9	4.8	5.1
Urban	0.6	3.3	100%
Non Agric	0.2	1.1	(17.4ha)
Agric Bdgs	0.1	0.6	
TOTAL	18.3	100%	

The majority of the land surveyed at Mitchell is of best and most versatile quality.

Distribution of ALC grades: Mount Hawke

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	29.8	74.3	79.7
3a	0.5	1.3	1.3
3b	5.2	13.0	13.9
4	1.9	4.7	5.1
Urban	1.1	2.7	100%
Non Agric	1.5	3.7	(37.4ha)
Agric Bdgs	0.1	0.3	
TOTAL	40.1	100%	

The majority of the land surveyed at Mount Hawke was found to be Grade 2. The steeper land in the north and a small area which is less well drained have been downgraded.

Distribution of ALC grades: Perranporth

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	35.9	34.9	42.0
3a	8.0	7.8	9.4
3b	34.1	33.1	39.9
4	6.3	6.1	7.3
5	1.2	1.2	1.4
Urban	4.8	4.7	100%
Non Agric	12.6	12.2	(85.5ha)
TOTAL	102.9	100%	

Half of the agricultural land at Perranporth is of best and most versatile land. The remaining land is affected by steep gradients and exposure.

Distribution of ALC grades: Porthtowan

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	17.8	65.7	69.8
3a	5.9	21.8	23.2
3b	0.8	2.9	3.1
4	1.0	3.7	3.9
Urban	0.5	1.8	100%
Non Agric	1.1	4.1	(25.5ha)
TOTAL	27.1	100%	

All except the steeper slopes at Porthtowan has been mapped as best and most versatile land. The soils are well drained.

Distribution of ALC grades: St Agnes

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	60.8	84.6	90.9
3a	3.4	4.7	5.1
3b	2.7	3.8	4.0
Urban	3.6	5.0	100%
Non Agric	1.4	1.9	(66.9ha)
TOTAL	71.9	100%	

Except for small areas of steep slopes all the agricultural land surveyed at St Agnes is of best and most versatile quality.

Distribution of ALC grades: St Newlyn East

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	46.3	90.3	93.0
3a	3.5	6.8	7.0
Urban	1.1	2.3	100%
Non Agric	0.3	0.6	(49.8ha)
TOTAL	51.2	100%	

Al the agricultural land surveyed at St Newlyn East is of best and most versatile quality.

2. INTRODUCTION

Land at eleven villages in Carrick District was surveyed using the Agricultural Land Classification (ALC) System in August and November 1993. The surveys were carried out on behalf of MAFF as part of its statutory role in the preparation of the Droskyn Point to Gannel Estuary Management Plan. Land at the following villages was surveyed: Blackwater, Cubert, Holywell, Goonhavern, Mithian, Mitchell, Mount Hawke,Perranporth, Porthtowan, St Agnes and St Newlyn East.

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

The recent surveys supersede any previous surveys and were undertaken to provide a more detailed representation of the agricultural land quality 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 long-term limitations on agricultural use. The gading takes account of the top 120cm 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 a lower grade despite other favourable conditions.

Estimates of climatic variables were interpolated for each site from the Agricultural Climate Dataset (Meteorological Office 1989). The data are shown in later sections.

The parameters used for assessing overall climatic conditions 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 Wetness Classes used in quantifying the degree of wetness can be found in Appendix 3.

4. BLACKWATER

4.1 Twenty hectares of land around the village of Blackwater were surveyed in November 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of the map is considered inadequate for local plan purposes and the area has been resurveyed.

The recent survey now supersedes any previous ALC information. The majority of the land surveyed is of best and most versatile quality. A total of 24 auger borings and 1 soil pit were examined.

4.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown in Table 1 and indicate that there is an overall climatic limitation for part of the site. Below 107m AOD the land could be Grade 1 if other factors permit, whereas above 107m AOD the land is limited to Grade 2 at best.

Table 1 Climatic Interpolations: Blackwater

Grid Reference	SW 735 465	SW 737 458
Altitude (m)	130	85
Accumulated Temperature (day deg)	1499	1551
Average Annual Rainfall (mm)	1130	1116
Overall Climatic Grade	2	1
Field Capacity Days	219	218
Moisture Deficit, Wheat (mm)	81	87
Moisture Deficit, Potatoes (mm)	67	75

4.3 Relief and Landcover

The area surveyed around Blackwater rises gently from the south west. At its lowest point by the A30 the land is at 85m AOD, rising to 130m AOD near to Two Burrows Farm. There are no slopes which are limiting to agricultural use.

At the time of survey the agricultural land was in grass.

4.4 Geology and Soils

The geology of the area is shown on the published 1:50,000 scale drift map, sheet 352 (Geological Survey of England and Wales 1974). Similarly the soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The geology map shows the site to be underlain by Portscatho Series sandstone and slate, apart from a small section in the south which is alluvium.

The soils have been mapped as the Manod Association. These soils are described as well drained fine loamy or fine silty soils over rock, which may be shallow in places.

The soils found in the recent survey are similar across the site. Medium clay loams lie over medium clay loam and heavy clay loam subsoils. The subsoil stone contents varied from between 5 and 40% silty rock.

4.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 2 and shown on the accompanying ALC map. The information is correct at the scale but any enlargement would be misleading.

Table 2 Distribution of ALC grades: Blackwater

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	10.4	50.2	54.5
3a	6.6	31.9	34.5
3b	2.1	10.2	11.0
Urban	1.5	7.2	100%
Non Agric	0.1	0.5	(19.1ha)
TOTAL	20.7	100%	

Grade 2

Land to the north and east of the village was found to be Grade 2. The medium clay loam topsoils over well drained subsoils impose a slight workability limitation. The soils are Wetness Class I and are slightly stony.

Subgrade 3a

Land to the west of the village comprises similar soils to those described for Grade 2, however there is a slight drainage impediment indicated by gleying between 30 and 60cm. These soils are thus assessed as Wetness Class II and III, and are Subgrade 3a with a moderate wetness limitation.

Other Land

Land associated with the village has been marked as urban.

5. CUBERT

5.1 Fifty one hectares of land around the village of Cubert were surveyed in November 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 185 (MAFF 1961). The scale of this map is

considered inadequate for local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. The majority of the land surveyed is of best and most versatile quality. A total of 46 auger sample points and 2 soil pits were examined.

5.2 Climate

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

Table 3 Climatic Interpolation: Cubert

Grid Reference	SW 787 576	SW 779 574
Altitude (m)	85	27
Accumulated Temperature (day deg)	1544	1611
Average Annual Rainfall (mm)	1002	974
Overall Climatic Grade	1	1
Field Capacity Days	198	193
Moisture Deficit, Wheat (mm)	94	102
Moisture Deficit, Potatoes (mm)	84	95

5.3 Relief and Landcover

The village of Cubert is on a ridge. To the south the land slopes away quite steeply whilst to the north the land is less steep. The lowest part of the area surveyed is near Trebisken House at 30m AOD. The highest part of the area is at 85m AOD.

At the time of survey the landcover was predominantly grass with some brassicas and cereals.

5.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). Similarly the soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The geology map shows a band of St Agnes Beds (sand and clay) runs through the west of the site. Adjacent to the south west boundary there is an area of alluvium and submerged forest. Throughout the rest of the site Meadfoot Beds, grey calcareous slates with thin limestones, are the underlying geology.

The whole area surveyed was mapped as the Denbigh 2 Association by the Soil Survey. These soils are described as well drained fine loamy soils over slate or slate rubble.

The recent survey found soils to be of two types. The gently sloping land to the north and east of Cubert and the south western part of the site comprises slightly stony sandy clay loam and medium clay loam topsoils over heavy and medium clay loam subsoils. The stone content in the lower horizons (40-80cm) increases to approximately 40% silty rock (visually estimated in a soil profile pit). Secondly a narrow band of very shallow soils follows the 75 and 80m AOD contour lines south of the village. These soils have between 50 and 60% silty rock from a depth of 20cm (stone contents measured by water displacement) Below approximately 50cm the stone content increases to over 70%.

5.5 Agricultural Land Classification

The distribution of the ALC grades identified in the survey area is detailed in Table 4 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 4 Distribution of ALC grades: Cubert

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	32.9	64.1	68.8
3a	9.1	17.7	19.1
3b	5.8	11.4	12.1
Urban	2.4	4.7	100%
Non Agric	1.1	2.1	(47.8ha)
TOTAL	51.3	100%	

Grade 2

Over half the agricultural land has been assessed as Grade 2. These soils are deep,well drained and are Wetness Class I. However the sandy clay loam and medium clay loam topsoils impose a slight restriction on the workability of the land under the prevailing FCDays for the site. The high stone contents also impose a slight droughtiness limitation due to reduced available water.

Subgrade 3a

Land of this grade relates to the shallow droughty soils decribed in Section 5.4. The relatively shallow rootable depth (approximately 90cm) and very high stone contents reduces the available water thus imposing a moderate drought limitation.

Subgrade 3b

Land with a gradient of 7-11 degrees has been mapped as this grade due to restrictions on the safe use of some agricultural machinery.

Other Land

Roads and residential areas are mapped as urban and a large garden is mapped as non agricultural.

6. HOLYWELL

6.1 Nine hectares of land south of the village were surveyed in November 1993. The only existing ALC information is from the one inch to the mile national map series, sheet 185 (MAFF 1961). The scale of this map is considered inadequate for local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. Five auger sample points were examined.

6.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown in Table 5 and indicate that there is no overall climatic limitation for the site.

Table 5 Climatic Interpolations: Holywell

Grid Reference	SW 768 587	SW 773 595
Altitude (m)	10	60
Accumulated Temperature (day deg)	1630	1573
Average Annual Rainfall (mm)	949	964
Overall Climatic Grade	1	1
Field Capacity Days	189	191
Moisture Deficit, Wheat (mm)	104	98
Moisture Deficit, Potatoes (mm)	98	90

6.3 Relief and Landcover

The survey area is on sloping land. There is steep land in the west dropping down to the dunes at 10m AOD. The higher land is less steep. The highest land is at 60m AOD.

At the time of survey the landcover on steep land was rough grassland whilst the two gentler sloping fields were arable stubble and grazing land.

6.4 Geology and Soils

The geology of the area is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The majority of the site is mapped as Meadfoot Beds which are grey calcareous slates with thin limestone bands. The lower south western part of the site is composed of alluvium and submerged forest.

The soils were mapped as the Powys Association in a small part of the west and the rest of the site as Denbigh 2 Association. Powys soils are described as shallow well drained loamy soils over rock. Denbigh 2 soils are described as well drained fine loamy soils over slate or slate rubble.

The soils found in the recent survey were of a single soil type comprising medium clay loam topsoils over clay loam subsoils. Below a depth of 35-45cm stone contents increased to 50% silt rock.

6.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 6 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 6 Distribution of ALC grades: Holywell

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	4.8	50.0	57.8
4	3.5	36.5	42.2
Urban	0.6	6.3	100%
Non Agric	0.7	7.2	(8.3ha)
TOTAL	9.6	100%	

Grade 2

The gently sloping land in the site has been mapped as Grade 2. These are well drained soils which are Wetness Class I. They have a slight workability limitation due to the high FCDays and the medium clay loam topsoils. A slight drought restriction due to shallow stony soils is experienced in places.

Grade 4

Gradients of betwee 13 and 17 degrees were measured in this area. This reduces the versatility of the land because few types of agricultural machinery can be safely used on such slopes.

Other Land

Urban land comprises a road, house and garden and part of a holiday park. The non agricultural land is a golf course.

7. GOONHAVERN

7.1 Twenty four hectares of land around the villlage of Goonhavern were surveyed in August 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of this map is considered inadequate for local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. 20 auger sample points and one soil profile pit were examined.

7.2 Climate

Climatic data for the site was interpolated as described in Section 3. The results are shown in Table 7 and indicate that there is no overall climatic limitation.

Table 7 Climatic Interpolation: Goonhavern

Grid Reference	SW 787 533	SW 789 541
Altitude (m)	78	55
Accumulated Temperature (day deg)	1554	1580
Average Annual Rainfall (mm)	1048	1026
Overall Climatic Grade	1	1
Field Capacity Days	205	202
Moisture Deficit, Wheat (mm)	93	97
Moisture Deficit, Potatoes (mm)	83	88

7.3 Relief and Landcover

The site has gentle slopes and generally flat areas except in the north east where the slope has a gradient of over 7 degrees. The highest point at the site is in the south west at a height of 78m AOD. The lowest point is at 55m AOD in the north east.

At the time of survey all the agricultural land was under grass except in the north east where there has been cereals.

7.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The geology map shows that apart from a very small section of alluvium and submerged forest to the east, the site is entirely underlain with Ladock Beds or Grampound Grit. Two mineral lodes are present crossing the boundary between the two geologies.

The soils were mapped entirely as Denbigh 2 Association. These are described as well drained fine loamy soils over slate or slate rubble.

The soils found in the recent survey are typical of the mapped association.

7.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 8 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 8 Distribution of ALC grades : Goonhavern

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	16.9	70.1	97.1
3b	0.5	2.1	2.9
Urban	0.8	3.3	100%
Non Agric	5.9	24.5	(24.1ha)
TOTAL	24.1	100%	

Grade 2

All the agricultural land at Goonhavern except for a small area north of Rose Meadows has been mapped as Grade 2. The soils are well drained and are Wetness Class I. The topsoil texture of the soils is medium clay loam and this in combination with the number of days that the soils are at field capacity at the site allows the soils to be Grade 2. The soils are slightly stony in the topsoil and become stonier in the subsoils. The soils do not experience a droughtiness limitation. There is a slight risk from exposure across parts of the site.

Subgrade 3b

A small area of the site has a slope with gradient over 7 degrees and this land is downgraded.

Other Land

There are several areas mapped as non agricultural land. Near the Government Building and at Rosehill Farm there is are caravan parks. At the west and east sides of the village there is some scrub land and the land associated with the nursery near Croft Farm has all been mapped as non agricultural. The urban land is associated with the village.

8. MITHIAN

8.1 Seven hectares of land around Mithian were surveyed in November 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of this map is considered inadequate for local plan purposes and the site has been resurveyd. The recent survey now supersedes any previous ALC information. 8 auger sample points were examined.

8.2 Climate

Climate data for the site was interpolated as described in Section 3. The results are shown in Table 9 and indicate that there is no overall climatic limitation.

Table 9 Climatic Interpolation: Mithian

Grid Reference	SW 743 503	SW 746 505
Altitude (m)	95	65
Accumulated Temperature (day deg)	1537	1571
Average Annual Rainfall (mm)	1068	1060
Overall Climatic Grade	1	1
Field Capacity Days	208	207
Moisture Deficit, Wheat (mm)	88	92
Moisture Deficit, Potatoes (mm)	77	82

8.3 Relief and Landcover

The village lies in a small valley with the land surveyed sloping into the village. The highest land in the west is at 95m AOD, and the lowest land in the east is at 65m AOD.

At the time of survey all the agricultural land surveyed was in grass.

8.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The entire site is mapped as Ladock Beds or Grampound Grit. There is a mineral lode crossing the southernmost boundary.

The site has been mapped as two soil associations. The western half of the site is mapped as the Denbigh 2 Association whilst the eastern part has Denbigh 1 Association. Both these soils are described as well drained fine loamy soils over slate.

The recent survey found similar soils across the site, comprising medium clay loam topsoils over stony clay loam subsoils. The depth to the stony subsoils varied from 20cm to 75 cm. The stony subsoils were estimated to contain approximately 35% silty rock.

8.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 10 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 10 Distribution of ALC grades: Mithian

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	5.7	74.0	85.1
3b	0.1	1.3	14.9
Urban	1.0	13.0	100%
Farm Bdgs	0.4	5.2	(6.7ha)
TOTAL	7.7	100%	

Grade 2

Nearly all the agricultural land has been assessed as Grade 2. These soils are limited by the medium clay loam topsoil which imposes a slight workability limitation under the prevailing Field Capacity days. The stony subsoils also impose a slight droughtiness limitation.

Subgrade 3b and Grade 4

The two small areas of these grades are located on the steeper slopes to the east of the village. Slopes of 10 degrees are Subgrade 3b and those of 14 degrees are Grade 4. These slopes impose a restriction on the safe use of some agricultural machinery.

Other Land

Land associated with the village has been mapped as urban and the buildings at Mithian Farm are marked as agricultural buildings.

9. MITCHELL

9.1 Eighteen hectares of land at the village of Mitchell were surveyed in November 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of this map is considered inadequate for local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. 19 auger sample points and one soil profile pit were examined.

9.2 Climate

Climate data for the site was interpolated as described in Section 3. The results are shown in Table 11 and indicate that there is a climatic limitation across part of the site. The small area in the north is Grade 1 climatically but the larger area is limited to Grade 2. There is also an important Field Capacity Day value change at 130m AOD. This means that the same soil above this height may be down graded because it is wetter for longer and therefore less workable.

Table 11 Climatic Interpolation: Mitchell

Grid Reference	SW 856541	SW 864547	SW 857542
Altitude (m)	144	92	130
Accumulated Temperature (day deg)	1477	1537	1493
Average Annual Rainfall (mm)	1189	1123	1170
Overall Climatic Grade	2	1	2
Field Capacity Days	228	219	225
Moisture Deficit, Wheat (mm)	77	87	79
Moisture Deficit, Potatoes (mm)	62	75	65

9.3 Relief and Landcover

The site is on a north facing slope. The highest point in the south is at 144m AOD and the lowest point in the north is at 92m AOD.

At the time of survey there were cabbages to the north of Mitchell and to the south the landcover was grass. There was one large arable field.

9.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The entire site is mapped as Meadfoot Beds which are grey calcareous slates with thin limestone layers. Immediately to the south of the northern block there is a band of alluvium and submerged forest.

The soils were mapped as the Denbigh 2 Association. These soils are described as well drained fine loamy soils over slate or slate rubble.

The recent survey found soils of a single type. Slightly stony medium clay loam topsoils overlie heavy clay loam and medium silty clay loam subsoils. The stone contents increase with depth to approximately 35% (estimate in a profile pit) between 45 and 70cm..

9.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 12 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 12 Distribution of ALC grades: Mitchell

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	14.1	77.1	81.1
3a	2.4	13.1	13.8
3b	0.9	4.8	5.1
Urban	0.6	3.3	100%
Non Agric	0.2	1.1	(17.4ha)
Agric Bdgs	0.1	0.6	
TOTAL	18.3	100%	

Grade 2

Most of the agricultural land is shown as Grade 2. These soils are well drained, Wetness Class I, although some profiles are gleyed below 70cm. The medium clay loam topsoils and high FCD value limits the workability of the land.

Subgrade 3a

Land above 130m AOD experiences a slightly wetter climate and is at field capcity for more than 225 days in a year. These soils are similar to those described for Grade 2, but the wetter climate imposes a greater workability limitation.

Subgrade 3b

This area has a slope of 9 degrees which restricts the versatility of the land.

10. MOUNT HAWKE

10.1 Forty hectares of land at Mount Hawke were surveyed in August 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of this map is considered inadequate for local plan purposes and the site has been resurveyd. The recent survey now supersedes any previous ALC information. 39 auger sample points and 2 soil profile pits were examined.

10.2 Climate

Climate data for the site was interpolated as described in Section 3. The results are shown in Table 13 and indicate that there is no overall climatic limitation.

Table 13 Climatic Interpolation: Mount Hawke

Grid Reference	SW 717481	SW 719471	SW 724479
Altitude (m)	113	126	80
Accumulated Temperature (day deg)	1518	1504	1556
Average Annual Rainfall (mm)	1066	1096	1064
Overall Climatic Grade	1	1	1
Field Capacity Days	208	213	108
Moisture Deficit, Wheat (mm)	87	84	90
Moisture Deficit, Potatoes (mm)	75	70	79

10.3 Relief and Landcover

The southern part of the site is relatively flat, but in the north there is some steep land forming part of a valley. There are slopes here exceeding 7 degrees. The lowest land is in the north at 80m AOD. The land rises to its highest point in the south east at 126m AOD.

At the time of survey the landcover was predominantly grass.

10.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 352 (Geological Survey of England and Wales 1974). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The site is underlain by Grampound Grit, and sandstone and slate. There is a small area of Portscatho series sandstone in the south west.

The soils have been mapped as the Denbigh 2 Association with a band of the Manod Association running east west in the north. Denbigh 2 soils are described as

well drained fine loamy soils over slate or slate rubbble. The Manod soils are also well drained fine loamy soils but over rock.

The recent survey found soils which were slighty stony but well drained.

10.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 14 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 14 Distribution of ALC grades: Mount Hawke

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	29.8	74.3	79.7
3a	0.5	1.3	1.3
3b	5.2	13.0	13.9
4	1.9	4.7	5.1
Urban	1.1	2.7	100%
Non Agric	1.5	3.7	(37.4ha)
Agric Bdgs	0.1	0.3	
TOTAL	40.1	100%	

Grade 2

The majority of the site has well drained soils on shallow slopes. The soils are Wetness Class I and have medium clay loam topsoils. These soils are Grade 2. The soils are slightly stony in the topsoil and become much stonier with depth. The soils do not have a droughtiness limitation. Parts of the site have a slight exposure risk.

Subgrade 3a

There is a small area of land at Lower Banns which is less well drained and is Wetness Class III. This area is downgraded to Subgrade 3a.

Subgrade 3b and Grade 4

There are areas of the site in the north where the slope gradients exceed 7 degrees. This land is marked as Subgrade 3b. Where the gradients are over 11 degrees the land is further downgraded to Grade 4. Land with steeper gradients is less versatile because the full range of agricultural machinery cannot be used safely.

Other Land

There are small areas of land not in agricultural use which have been marked as urban and non agricultural.

11. PERRANPORTH

11.1 One hundred and three hectares of land around Perranporth were surveyed in August and November 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of this map is considered inadequate for local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. 78 auger sample points and three soil profile pits were examined.

11.2 Climate

Climate data for the site was interpolated as described in Section 3. The results are shown in Table 15 and indicate that there is no overall climatic limitation.

Table 15 Climatic Interpolation: Perranporth

Grid Reference	SW 747539	SW 763541	SW 765526
Altitude (m)	80	10	45
Accumulated Temperature (day deg)	1552	1632	1592
Average Annual Rainfall (mm)	1003	996	1031
Overall Climatic Grade	1	1	1
Field Capacity Days	196	196	202
Moisture Deficit, Wheat (mm)	94	102	97
Moisture Deficit, Potatoes (mm)	85	96	88

11.3 Relief and Landcover

The survey areas run along valleys which run to the sea at Perranporth. Much of the land is steeply sloping, particularly in the western valley. The highest parts of the site are at about 85m AOD and the lowest at 10m AOD.

At the time of survey the predominant agricultural use was grass with small areas of other crops.

11.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The site is mapped as being mainly underlain by Ladock Beds or Grampound Grit. There are small sections of Felsite and alluvium and submerged forest. The site is crossed in the north west by a boundary marking the outer most limit of the metamorphic aureole surrounding the granite. Dispersed throughout the site are *mineral lodes*.

The Bolingey area is mapped as the Denbigh 1 Association. This is bordered on the west side by Denbigh 2 Association soils with Manod Association soils north west of Perranporth. To the east a lobe of Downholland 2 soils extends from the coast past Bolingey to Cocks. South of this, covering the southern tips of the survey area are more Denbigh 2 soils. The seperate area to the north east of Perranporth has mostly Denbigh 2 soils with a small area as part of the Downholland 2 Association.

The soil associations are described as follows; Denbigh 1 and 2 soils are well drained fine loamy soils over slate; Manod soils are well drained fine loamy or fine slity soils over rock; Downholland 2 soils are deep stoneless clayey or calcareous silty soils mainly with humose surface horizon.

The recent survey found soils similar to the mapped soil associations.

11.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 16 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 16 Distribution of ALC grades: Perranporth

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	35.9	34.9	42.0
3a	8.0	7.8	9.4
3b	34.1	33.1	39.9
4	6.3	6.1	7.3
5	1.2	1.2	1.4
Urban	4.8	4.7	100%
Non Agric	12.6	12.2	(85.5ha)
TOTAL	102.9	100%	

Grade 2

The areas mapped as Grade 2 have well drained slightly stony soils. The soils are Wetness Class I and have medium clay loam topsoils. These areas have a slight exposure risk. The soils are slightly droughty. The stone content of the soils increases with depth.

Subgrade 3a

There is a small area of this grade mapped in the north east. Here the soils are well drained but have heavy clay loam topsoils. The larger area of this grade in the south has shallow soils over rock which reduces the available water capacity of the profile. These soils are limited by droughtines to Subgrade 3a.

Subgrade 3b

The area of this grade near to Droskyn Point has been downgraded beacuse of the severe risk from exposure. This area is very exposed to the winds from the sea and the versatility of the land is reduced as a result.

The remaining areas of Subgrade 3b have been downgraded because the gradient of the slopes is between 7 and 11 degrees. These steeper slopes slightly reduce the versatility of the land since not all types of agricultural machinery can be safely used on these slopes.

Grades 4 and 5

The areas mapped as grades 4 and 5 have slopes with gradients over 11 and over 18 degrees respectively. The versatility of these areas is greatly reduced because little agricultural machinery can be safely used on such slopes.

Other Land

There are areas of scrub on steep slopes and disturbed land which have been mapped as non agricultural. The areas marked as urban are associated with the village.

12. PORTHTOWEN

12.1 Twenty seven hectares of land at Porthtowan were surveyed in August 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 189 (MAFF 1970). The scale of this map is considered to be inadequate for local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. 26 auger sample points and one soil profile pit were examined.

12.2 Climate

Climate data for the site was interpolated as described in Section 3. The results are shown in Table 17 and indicate that there is no overall climatic limitation at the site.

Table 17 Climatic Interpolation: Porthtowan

Grid Reference	SW 701478	SW 694483	SW 692473
Altitude (m)	103	83	55
Accumulated Temperature (day deg)	1530	1553	1586
Average Annual Rainfall (mm)	1055	1021	1033
Overall Climatic Grade	1	1	1
Field Capacity Days	206	201	203
Moisture Deficit, Wheat (mm)	89	93	95
Moisture Deficit, Potatoes (mm)	77	82	85

12.3 Relief and Landcover

The survey areas tend to be on the higher land above Porthtowan. They are also on land which is less steep than that lower down, but the land does slope and has varying gradients. The highest part of the area surveyed is at 103m AOD in the east, and the lowest is at 55m AOD near Rose Hill.

At the time of survey the landcover was a mix of grass, brassicas and ploughed land.

12.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology maps, sheets 346 and 352 (Geological Survey of England and Wales 1981, 1974). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The northeast of the site is mapped as Grampound Grit, sandstone and slates. A small section of the south eastern area of the site is underlain with Portscatho series sandstone and slate. Falmouth series sandstone and slate underlays the south western side of the site.

The steep slopes of the area have Manod Association soils mapped, whilst the flatter areas have Denbigh 2 Association soils mapped. An area of Denbigh 1 Association soils occur in the west. Denbigh 1 and 2 Association soils are decribed as well drained fine loamy soils over slate. Manod Association soils are well drained fine loamy soils over rock.

The soils found in the recent survey were typical of the mapped Associations.

12.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 18 and shown on the Accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 18 Distribution of ALC grades: Porthtowan

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	17.8	65.7	69.8
3a	5.9	21.8	23.2
3b	0.8	2.9	3.1
4	1.0	3.7	3.9
Urban	0.5	1.8	100%
Non Agric	1.1	4.1	(25.5ha)
TOTAL	27.1	100%	

Grade 2

The majority of the site has been mapped as Grade 2. These soils are well drained and are Wetness Class I. The topsoil texture of these soils is medium clay loam. This texture in combination with the number of days that the site is at field capacity limits the site to Grade 2. The area is slightly exposed. The soils become stonier with depth, but the slight droughtiness limitation does not exceed the other limitations.

Subgrade 3a

The area of land mapped as Subgrade 3a is much stonier than the soils described above. Here the topsoil stones are over 10% which means that the wear and tear on machinery is greater. This area is therefore downgraded. The droughtiness limitation is also greater than in the soils described above.

Subgrade 3b and Grade 4

The small areas of land marked as these grades have been downgraded because of steeper slopes which reduces the versatility of the land. The range of machinery that can be safely used is reduced. Gradients over 7 degrees have been mapped as Subgrade 3b and those over 11 degrees have been mapped as Grade 4.

Other Land

There are small areas of scrub marked as non agricultural and roads and houses marked as urban.

13. ST AGNES

13.1 Seventy one hectares of land around St Agnes were surveyed in August 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 190 (MAFF 1970). The scale of this map is considered inadequate for

local plan purposes and the site has been resurveyed. The recent survey now supersedes any previous ALC information. 69 auger sample points and three soil profile pits were examined.

13.2 Climate

Climate data for the sites were interpolated as described in Section 3. The results are shown in Table 19 and indicate that there is no overall climatic limitation.

Table 19 Climatic Interpolation: St Agnes

Grid Reference	SW 714503	SW 726492	SW 725506
Altitude (m)	137	136	80
Accumulated Temperature (day deg)	1490	1491	1554
Average Annual Rainfall (mm)	1026	1074	1030
Overall Climatic Grade	1	1	1
Field Capacity Days	201	209	202
Moisture Deficit, Wheat (mm)	87	84	93
Moisture Deficit, Potatoes (mm)	75	71	82

13.3 Relief and Landcover

The land surveyed around St Agnes is generally gently sloping, although there are some small areas where the gradient of the slopes exceeds 7 degrees. The highest land is found in the west and south. Here the height is around 135m AOD. The lowest land is in the village itself, at around 80m AOD.

At the time of survey the landcover was predominantly grass with a few vegetables and root crops.

13.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

The map shows the very north west of the site is underlain with a combination of St Agnes Beds, (sand and candle clay) and Ladock Beds or Grampound Grit. The rest of the site is entirely composed of Ladock Beds. Running through the west of the site is the outer limit of the metamorphic aureole surrounding granite. Mineral lodes are dispersed throughout the site.

The area west of St Agnes is covered by the Moretonhampstead Association, whilst to the south and south east Denbigh 2 Association soils are mapped. The north

eastern part of the area is mapped as the Manod Association. Manod soils are well drained fine loamy soils over rock, whilst the Denbigh Association soils are similar but over slate.

The soils found in the recent survey are typical of the mapped soil asociations, being well drained and slightly stony.

13.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 20 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 20 Distribution of ALC grades: St Agnes

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	60.8	84.6	90.9
3a	3.4	4.7	5.1
3b	2.7	3.8	4.0
Urban	3.6	5.0	100%
Non Agric	1.4	1.9	(66.9ha)
TOTAL	71.9	100%	

Grade 2

The majority of the agricultural land surveyed has been mapped as Grade 2. These soils are well drained and are Wetness Class I. The soils become stonier in the subsoil but the droughtiness limitation does not exceed the limitation imposed by the combination of topsoil texture, medium clay loam and the number of days that the soil is at field capacity. This combination limits the soil to Grade 2. Three soil pits were dug in this mapping unit.

Subgrade 3a

A small area of land near Wheal Kitty has a slight drainage problem and is Wetness Class II. This soil is limited to Subgrade 3a because of its reduced workability. The other small areas of Subgrade 3a have been downgraded because of a greater risk from exposure than in other parts of the site. Here the winds are likely to restrict the versatility of the land by limiting the types of crops that could be grown without higher risks.

Subgrade 3b

The small areas mapped as Subgrade 3b have gradients over 7 degrees. The greater slopes mean that the versatility of the land is reduced because the full range of agricultural machinery cannot be safely used.

Other Land

There are small areas of land not in agricultural use associated with houses and roads which have been mapped as urban and non agricultural.

14. ST NEWLYN EAST

14.1 Fifty one hectares of land around St Newlyn East were surveyed in November 1993. The only existing ALC information is from the one inch to the mile national ALC map series, sheet 185 (MAFF 1961). The scale of this map is considered to be inadequate for local plan purposes and the site has been resurveyed. The recent survey supersedes all previous ALC information. Fifty-nine auger sample points and 2 soil profile pits were examined.

14.2 Climate

Climate data for the site was interpolated as described in Section 3. The results are shown in Table 21 and indicate that there is no overall climatic limitation.

Table 21 Climatic Interpolations : St Newlyn East

Grid Reference	SW 833562	SW 830567	SW 825560
Altitude (m)	95	65	82
Accumulated Temperature (day deg)	1533	1567	1548
Average Annual Rainfall (mm)	1083	1038	1056
Overall Climatic Grade	1	1	1
Field Capacity Days	212	205	207
Moisture Deficit, Wheat (mm)	88	94	91
Moisture Deficit, Potatoes (mm)	77	84	81

14.3 Relief and Landcover

St Newlyn East lies on a hill top and the areas surveyed drop away gently from the village. The highest point is at 95m AOD and the lowest at 65m AOD. At the time of survey the landcover was predominantly grass, with some cereals.

14.4 Geology and Soils

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 346 (Geological Survey of England and Wales 1981). The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000.

In the east of the site there is a very narrow band of Felsite. The rest of the site is entirely underlain by Ladock Beds or Grampound Grit.

The soils are also mapped as uniform across the site. The Denbigh 2 Association is mapped. This association is described as well drained fine loamy soils over slate or slate rubble. Some of the fine loamy soils are variably affected by groundwater.

The soils found in the recent survey were of the Denbigh 2 Association. The soils were slightly stony medium clay loam topsoils (between 5-10% silty rock) over medium clay loam upper subsoils. The lower subsoils comprise heavy clay loams with between 35 and 42% silty rock (sieved in a soil profile pit). A small area in the north of the site has heavy clay loam topsoils.

14.5 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 22 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Table 22 Distribution of ALC grades: St Newlyn East

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	46.3	90.3	93.0
3a	3.5	6.8	7.0
Urban	1.1	2.3	100%
Non Agric	0.3	0.6	(49.8ha)
TOTAL	51.2	100%	

Grade 2

Nearly all the agricultural land has been mapped as Grade 2. These soils are well drained, and are Wetness Class I. The soils experience a slight workability limitation imposed by medium clay loam topsoils and high FCD value.

Subgrade 3a

The small area of 3a land has similar soils to the Grade 2 land, however there are heavy clay loam topsoils which impose a greater workability limitation.

Other land

The roads have been mapped as urban and Newlyn Pit as non agricultural.

APPENDIX 1

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974, 1981) Drift edition. Sheet 352, 346, 1:50,000 scale

MAFF (1970, 1961, 1970) Agricultural Land Classification Map sheet 190, 185, 189 Provisional 1:63,000 scale

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

APPENDIX 2

DESCRIPTION OF THE GRADES AND SUBGRADES

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly 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 Gradeá1.

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 land cover types, eg buildings in large grounds, and where map scale permits, the cover types 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 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for between 31 and 90 days in most years.

Wetness Class IV

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

Wetness Class V

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

Wetness Class VI

The soil profile is wet within 40cm 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
Blackwater	Pit 1	2° South	Ley	Av Rainfall: 1120 ATO: 1525 FC Days: 220 Climatic Grade: 1	Sandstone and Slate
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		
50/93	26/11/93	ASP 14	N A Done		

Horizon Number	Lowest Av Depth (cm)	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots: Abundance, Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and form
1	40 cm	10YR32	MCL	5% HR + ZR	-	-	V porous	-	-	Many	None	None	Gradual/ smooth
2	60 cm	05YR54 + 75YR54	MCL	15% Total mainly ZR	Large lenses 10YR68 between stones	Mod dev CSAB tending to angular	>0.5% pores	M	Friable	Common fine	None	None	Gradual/ smooth
3	85+	75YR54	HCL	13% HR+ZR >2cm 27% ZR<2cm 40% Total (30% ZR, 10% HR)	-	WDC + MSAB	>0.5% pores + fissures	M	Friable	Few fine	None	None	

Profile Gleyed From: 40cm-60cm

Depth to Slowly Permeable Horizon: -

Wetness Class: II

Wetness Grade: 3a

Available Water	Wheat:	142
	Potatoes:	112
Moisture Deficit	Wheat:	84
	Potatoes:	70
Moisture Balance	Wheat:	58
	Potatoes:	42
Droughtiness Grade:		1

Final ALC Grade: 3a

Main Limiting Factor(s): Wet/workability

Remarks:

VP336