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Elburton, Plymouth
Agricultural Land Classification

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Resource Planning Team
Bristol
FRCA Western Region

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ELBURTON
AGRICULTURAL LAND CLASSIFICATION SURVEY

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ELBURTON, PLYMOUTH

AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey of 213 ha of land at Elburton, Plymouth. Field survey was based on 77 auger borings and 3 soil profile pits, and was completed in November 1998. During the survey 8 samples were analysed for particle size distribution (PSD).

2. The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in the preparation of the South Hams Local Plan.

3. Information on climate, geology and soils, and from previous ALC surveys was considered and is presented in the relevant section. The published regional ALC map (MAFF 1977) shows the site at a reconnaissance scale as mainly Grade 3 with substantial areas of Grade 4 running through the centre and a small area of Grade 2 by the nursery to the east of the site. The site had previously been surveyed as part of the 1975 Plymouth survey (ADAS 1975) which shows mainly Subgrade 3b and Grade 4, but to criteria for classification which have been superseded, whereas the current survey area uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF, 1988) and supersedes any previous ALC survey. Grade descriptions are summarised in Appendix I.

4. A small area within the current survey area by Sterts Farm was surveyed to the revised guidelines as part of the Plymouth Local Plan Objector Sites (ADAS 1993). This found Subgrade 3b limited by restricted workability.

5. At the time of survey land cover was mainly permanent pasture, with smaller areas of ley pasture, ploughed land, maize, fodder and fallow. An area of 4 ha of agricultural land within the survey area was not surveyed because access to the land could not be arranged.

6. Other land which was not surveyed included playing fields, residential areas, public open space, woodland and a garden centre.

SUMMARY

7. The distribution of ALC grades is shown on the accompanying 1:15 000 scale ALC map. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas. Areas are summarised in Table 1.

Table 1: Distribution of ALC grades: Elburton

| Grade | Area (ha) | % Surveyed Area (135 ha) |
|--------------------------------|------------------|----------------------------------|
| 3a | 65 | 48 |
| 3b | 45 | 33 |
| 4 | 22 | 17 |
| 5 | 3 | 2 |
| Agricultural land not surveyed | 4 | |
| Other land | 74 | |
| Total site area | 213 | |

8. This shows that 48 % of the area was found to be best and most versatile, Subgrade 3a limited mainly by restricted workability. The rest of the area was mainly Subgrade 3b limited by restricted workability and gradient, with smaller areas of Grades 4 and 5 limited mainly by gradient.

CLIMATE

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

10. Since the ALC grade of land is determined by the most limiting factor present, overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions. Parameters used for assessing overall climate are accumulated temperature, a measure of relative warmth and average annual rainfall, a measure of overall wetness. The results shown in Table 2 indicate that there is an overall climatic limitation which limits the higher ground in the west of the site to Grade 2, but this proved not to be a primary limitation.

11. Climatic variables also affect ALC grade through interactions with soil conditions. The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes, which are compared with the moisture available in each profile in assessing soil droughtiness limitations. These are described in later sections. A critical boundary of 225 FCDays was found around small areas on the higher ground on each side of the valley at the centre of the site.

Table 2: Climatic Interpolations: Elburton

| Grid Reference | SX 538 526 | SX 526 518 |
|----------------------------------|------------|------------|
| Altitude (m) | 35 | 85 |
| Accumulated Temperature (day °C) | 1586 | 1530 |
| Average Annual Rainfall (mm) | 1093 | 1147 |
| Overall Climatic Grade | 1 | 2 |
| Field Capacity Days | 216 | 223 |
| Moisture deficit (mm): | | |
| Wheat | 95 | 86 |
| Potatoes | 86 | 75 |

RELIEF

13. Altitude ranges from 9 metres at Fordbrook Farm to 105 metres east of Staddiscombe with gentle and moderate slopes along the ridges, which are not limiting to ALC, but with extensive strong to steep slopes on the sides of the several valleys running through the site, which limit the land to Grade 4 and even Grade 5.

GEOLOGY AND SOILS

14. The underlying geology of the site is shown on the published geology map (IGS, 1974) as mainly Middle Devonian Slate. Slates with grit of the Meadfoot Group and a small area of Staddon Grits (grits and slates) of the Lower Devonian period are found on the south western edge of the site. Near Coombe Farm there is a small area of river gravel, with alluvium drift running down the valley bottom. A small wedge of limestone of the Middle Devonian period is mapped to the south of Coombe Farm and on the south eastern fringe of the site.

15. The current ALC survey found the minor elements of the geology to have little impact as the parent materials examined were found to be derived from slate although this was found to be variable in stone content and depth to bedrock.

16. Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1:250 000 (SSEW 1983) as the Denbigh 1 association across the whole of the site. This is described as comprising well drained fine loamy and fine silty soils over rock with some similar soils having slowly permeable subsoils and slight seasonal waterlogging. This description was entirely borne out by the current survey although there was significant variation in the topsoil texture, stone content and depth.

AGRICULTURAL LAND CLASSIFICATION

18. The distribution of ALC grades found by the current survey is shown on the accompanying 1: 15 000 scale map and areas are summarised in Table 1. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas.

Subgrade 3a

19. The area shown as Subgrade 3a lies below the 225 FCDay boundary and was found to be limited mainly by restricted workability with heavy clay loam topsoil at Wetness Class I (see Appendix II). Typical profiles are illustrated by Pits 1 and 2, described with other survey data in Appendix III.

Subgrade 3b

20. The area shown as Subgrade 3b includes the two areas with over 225 FCDays where soil profiles were found to be similar to those described for Subgrade 3a with heavy clay loam topsoil at Wetness Class I, although a patch of stony topsoil was observed at the top of the hill around ASP 87. Pit 2 has been included in the Subgrade 3b as it was considered to lie just above the boundary between the two.

21. The area of Subgrade 3b around Sterts Farm was found to include several borings limited by restricted workability even though below the 225 FCDay boundary, having clay topsoil at Wetness Class I. This was confirmed by PSD analysis of topsoil taken from Pit 3 and is compatible with the findings of the previous small survey opposite Sterts Farm (ADAS 1993). However this area also includes several Subgrade 3a borings with heavy clay loam topsoil.

22. Other areas shown as Subgrade 3b were found to be primarily limited by gradient even though soil profiles may be similar to those described for Subgrade 3a and lying below the 225 FCDay boundary.

Grade 4

23. The area shown as Grade 4 was found to be limited mainly by gradient with slopes of 12 to 18 degrees, with a small area of severe wetness in the valley bottom north of Fordbrook Farm.

Grade 5

24. All the land shown as Grade 5 was found to be limited by gradient, with slopes greater than 18 degrees.

Land not surveyed

25. Access was not available to an area of agricultural land south of the garage at ASP 53 so this was not surveyed. It is expected that this land would be mainly Subgrade 3a.

Geoffrey Newman
Resource Planning Team
FRCA Bristol
1 February 1999

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APPENDIX I

DESCRIPTION OF GRADES AND SUBGRADES

Grade 1 - excellent quality agricultural land

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

Grade 2 - very good quality agricultural land

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

Grade 3 - good to moderate quality agricultural land

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

Subgrade 3a - good quality agricultural land

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

Subgrade 3b - moderate quality agricultural land

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

Grade 4 - poor quality agricultural land

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

Grade 5 - very poor quality agricultural land

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

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

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

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

Wetness Class I

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

Wetness Class II

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

Wetness Class III

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

Wetness Class IV

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

Wetness Class V

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

Wetness Class VI

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

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

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

Source: Hodgson, J M (Ed) (1997) Soil Survey Field Handbook. Soil Survey Technical Monograph No 5, Silsoe.

APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report. Terms used and abbreviations are set out below. These conform to definitions contained in the Soil Survey Field Handbook (Hodgson, 1997).

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

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

LAND USE: At the time of survey

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

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

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

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

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

DRT: Best grade according to soil droughtiness.

If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

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

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

| | | | | | |
|------------|-----------------|------------|-----------------|------------|-------------|
| OC: | Overall Climate | AE: | Aspect | EX: | Exposure |
| FR: | Frost Risk | GR: | Gradient | MR: | Microrelief |
| FL: | Flood Risk | TX: | Topsoil Texture | DP: | Soil Depth |

| | | |
|------------------------------|-------------------------|--------------------------------------|
| CH: Chemical | WE: Wetness | WK: Workability |
| DR: Drought | ER: Erosion Risk | WD: Soil Wetness/Droughtiness |
| ST: Topsoil Stoniness | | |

TEXTURE: Soil texture classes are denoted by the following abbreviations:-

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

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

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

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

MOTTLE COL: Mottle colour using Munsell notation.

MOTTLE ABUN: Mottle abundance, expressed as a percentage of the matrix or surface described.

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

MOTTLE CONT: Mottle contrast

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

PED. COL: Ped face colour using Munsell notation.

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

STONE LITH: Stone Lithology - One of the following is used.

| | |
|---|--|
| HR: All hard rocks and stones | SLST: Soft oolitic or dolimitic limestone |
| CH: Chalk | FSST: Soft, fine grained sandstone |
| ZR: Soft, argillaceous, or silty rocks | GH: Gravel with non-porous (hard) stones |
| MSST: Soft, medium grained sandstone | GS: Gravel with porous (soft) stones |

SI: Soft weathered igneous or metamorphic rock

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

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

| | | |
|-------------------------------------|---|-------------------------------|
| <u>Degree of development</u> | WA: Weakly developed Adherent | WK: Weakly developed |
| | MD: Moderately developed | ST: Strongly developed |
| <u>Ped size</u> | F: Fine | M: Medium |
| | C: Coarse | VC: Very coarse |
| <u>Ped Shape</u> | S: Single grain | M: Massive |
| | GR: Granular | AB: Angular blocky |
| | SAB: Sub-angular blocky | PR: Prismatic |
| | PL: Platy | |

CONSIST: Soil consistence is described using the following notation:

| | | | |
|----------------------|---------------------------|---------------------------|-----------------|
| L: Loose | VF: Very Friable | FR: Friable | FM: Firm |
| VM: Very firm | EM: Extremely firm | EH: Extremely Hard | |

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

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

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

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

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

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

STONE ASSESSMENT:

| | | |
|--------------------|-----------------|------------------------|
| VIS: Visual | S: Sieve | D: Displacement |
|--------------------|-----------------|------------------------|

MOTTLE SIZE:

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

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

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

MANGANESE CONCRETIONS: Assessed by volume

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

POROSITY:

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

ROOT ABUNDANCE:

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

ROOT SIZE

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

HORIZON BOUNDARY DISTINCTNESS:

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

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

* See Soil Survey Field Handbook (Hodgson, 1997) for details.

| | | | | | | |
|---------------------------------|--|-------------------------------|-------------------------------|-------------------------------------|--|---------------------------|
| SITE NAME Elburton, Plymouth | | PROFILE NO. Pit 1 (Asp 82) | SLOPE AND ASPECT 6° NW | LAND USE Permanent Grass Re-seed | Av Rainfall: 1147 mm ATO: 1524 day °C | PARENT MATERIAL Slate |
| JOB NO. 55/98 | | DATE 25/11/98 | GRID REFERENCE SX 52395180 | DESCRIBED BY PRW/GMN | FC Days: 223 Climatic Grade: 2 Exposure Grade: 1 | PSD SAMPLES TAKEN 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 | 22 | HCL | 5YR42 | 10% ZR (vis) | None | None | - | - | M | G | MF,F | - | Clear Smooth |
| 2 | 56 | HCL | 7.5YR54 | 10% > 2 cm (s) 27% < 2 cm (s+d) 37% ZR | None | None | MDMGR | Friable | G | G | CF, VF | - | Clear Smooth |
| 3 | 75+ | C | 7.5YR54 | 40% > 2 cm (s) 15% < 2 cm (s+d) 55% ZR | None | None | Too stony | - | M | G | FF,VF | - | - |

Profile Gleyed From: Not gleyed

Slowly Permeable Horizon From: No

Wetness Class: I

Wetness Grade: 3a

Available Water Wheat: 101mm

Potatoes: 109 mm

Moisture Deficit Wheat: 86 mm

Potatoes: 74 mm

Moisture Balance Wheat: +15mm

Potatoes: +34 mm

Droughtiness Grade: 1 (Calculated to 75 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wk

Remarks:

| | | | | | | | | | | | | |
|---------------------------------|--|-------------------------------|--------------------------------|-------------------------|--|--|--|--|--|--|--|--|
| SITE NAME Elburton, Plymouth | | PROFILE NO. Pit 2 (Asp 40) | SLOPE AND ASPECT 6° N | LAND USE PGR | | Av Rainfall: 1161 mm ATO: 1524 day °C | | PARENT MATERIAL Middle Devonian Slate | | | | |
| JOB NO. 55/98 | | DATE 25/11/98 | GRID REFERENCE SX 5256 5220 | DESCRIBED BY PRW/GMN | | FC Days: 225 Climatic Grade: 2 Exposure Grade: 1 | | PSD SAMPLES TAKEN TS 0-25 cm HCL (S38: Z29: C33%) | | | | |

| 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 | HCL | 7.5YR43 | 10% ZR (vis) | None | None | - | - | - | - | CF, VF | - | Clear Smooth |
| 2 | 70 | HCL | 7.5YR43 | 40% > 2 cm (s) 15% < 2 cm (s+d) 55% ZR | None | None | Too stony | Too stony | Assume Moderate | G | FF top of horizon | - | - |

Profile Gleyed From: Not gleyed

Slowly Permeable Horizon From: No spl

Wetness Class: I

Wetness Grade: 3b

Available Water Wheat: 86 mm

Potatoes: 95 mm

Moisture Deficit Wheat: 85 mm

Potatoes: 72 mm

Moisture Balance Wheat: +1 mm

Potatoes: +23 mm

Droughtiness Grade: 3a (Calculated to 70 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wk

Remarks: H2 Water observed at 44 cm.
Roots not observed below 50 cm therefore available water calculated to 70 cm.
Just above 225 FC Day boundary.

| | | | | | | | | | | | | | |
|---------------------------------|--|------------------------------|--------------------------------|--------------------|--|--|--|--|--|--|--|--|--|
| SITE NAME Elburton, Plymouth | | PROFILE NO. Pit 3 (Asp 7) | SLOPE AND ASPECT 5° S | LAND USE PGR | | | Av Rainfall: 114 mm ATO: 1575 day °C | | PARENT MATERIAL Slate | | | | |
| JOB NO. 55.98 | | DATE 25.11.95 | GRID REFERENCE SX 538 25273 | DESCRIBED BY PB | | | FC Days: 219 Climatic Grade: 1 Exposure Grade: 1 | | PSD SAMPLES TAKEN TS 0-25 cm : C (S34:Z28:C38%) | | | | |

| Horizon No. | Lowest Av. Depth (cm) | Texture | Matrix (Ped Face) Colours | Stoniness: Size, Type, and Field Method | Mottling Abundance, Contrast, Size and Colour | Mangan Concs | Structure: Ped Development Size and Shape | Consistence | Structural Condition | Pores (Fissures) | Roots: Abundance and Size | Calcium Carbonate Content | Horizon Boundary: Distinctness and form |
|-------------|-----------------------|---------|---------------------------|--|---|--------------|---|-------------|----------------------|------------------|---------------------------|---------------------------|---|
| 1 | 30 | C | 10YR43 | 0% > 2 cm (s) 16% < 2 cm (s+d) 16% HR | None | None | - | - | - | - | MF | - | Clear Smooth |
| 2 | 70 (65-75) | HCL | 10YR5,4,6 | 25% > 2 cm (s) 30% < 2 cm (s+d) 55% HR. ZR | None | None | WKF, MSAB Determined by stones | FR | G | G | FF, VF | - | Gradual Wavy |
| 3 | 80+ | ZR | 5Y61,62 | 90% ZR (vis) | None | None | Too stony | - | (M) | (G) | - | - | |

Profile Gleyed From: Not gleyed

Slowly Permeable Horizon From: No spl

Wetness Class: I

Wetness Grade: 3b

Available Water Wheat: 104 mm

Potatoes: 86 mm

Moisture Deficit Wheat: 93 mm

Potatoes: 83 mm

Moisture Balance Wheat: +11 mm

Potatoes: +3 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wk

Remarks: H3 stone content 99% for AP calculation.