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Devon Structure Plan: East Devon
Land at Clyst St Mary and Farringdon
Agricultural Land Classification

Prepared for MAFF by
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DEVON STRUCTURE PLAN: EAST DEVON

LAND AT CLYST ST MARY AND FARRINGDON

AGRICULTURAL LAND CLASSIFICATION

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DEVON STRUCTURE PLAN: EAST DEVON

LAND AT CLYST ST MARY AND FARRINGDON

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The reconnaissance scale survey was carried out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the Devon Structure Plan. The fieldwork between the M5 and Farringdon was completed in October 1994 at a scale of 1:25,000. Data on climate, soils, geology and previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report. The distribution of grades is detailed below and illustrated on the accompanying ALC map. Information is correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: Clyst St Mary and Farringdon

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	206.6	18.3	26.5	
3a	301.7	26.7	38.7	
3b	272.1	24.1	34.8	
Urban	103.8	9.3	0.0	
Non Agricultural	45.9	4.1	0.0	
Agricultural Buildings	9.1	0.8	0.0	
Not surveyed	188.9	16.7	0.0	
Open water	1.3	0.1	0.0	
TOTAL	1129.4	100.0	100.0	(780.4 ha)

The central area of the site and in the Clyst Valley have soils which have wetness limitations. The most poorly drained of these soils are restricted to Subgrade 3b. The 3a soils in the central area and to the west are better drained than the 3b soils. In the west the 3a soils are droughty being stony sandy loams. Less droughty, less stony soils are mapped as Grade 2. A large block of land was not surveyed because access was not granted. However, part of this is expected to be best and most versatile quality which would significantly increase the overall proportion of best and most versatile land indicated above.

1. INTRODUCTION

A reconnaissance scale Agricultural Land Classification (ALC) Survey was carried out in October 1994 east of the M5 towards Farringdon on behalf of MAFF as part of its statutory role in the preparation of the Devon Structure Plan. The fieldwork covering 1129.4 ha of land was conducted by ADAS at a scale of 1:25,000 (approximately one boring per four hectares of agricultural land). A total area of 940.5 ha was surveyed and 230 auger borings were examined and 15 soil profile pits used to assess subsoil conditions.

The published provisional one inch to the mile ALC map of this area (MAFF 1972) shows the grades of the site at a reconnaissance scale. Most of the site has been mapped as Grade 3. A small amount of Grade 4 land is mapped in the south west and in the small stream valleys between Spain and Denbow Farms and Dymonds Bridge. The higher agricultural land in the west is mapped as Grade 1 with small pockets of Grade 2.

The recent survey supersedes this map having been carried out using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120 cm of the soil profile. A description of the grades used in the ALC system can be found in Appendix 2.

2. CLIMATE

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

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

Table 1: Climatic Interpolations: Clyst St Mary and Farringdon

Grid Reference		SY 019 924	SY 002 916
Altitude (m)		45	30
Accumulated Temperature (day °)		1547	1564
Average Annual Rainfall (mm)		791	780
Overall Climatic Grade		1	1
Field Capacity Days		168	166
Moisture deficit (mm):	Wheat	111	113
	Potatoes	105	107

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

3. RELIEF AND LANDCOVER

The survey area is undulating with an altitude range of 5 m - 95 m AOD. There are limited areas of steep slopes. At the time of survey there was a mixture of arable crops and grazing land.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale solid and drift geology map, sheet 325. Institute of Geological Sciences 1971.

The majority of the site is underlain by Marls and Sandstones of the Permo-Triassic Era. There are small areas of alluvium along streams and the River Clyst. In the west Lower sandstone is found with patches of valley gravels.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000 and in 1971 at a scale of 1:63,360. The majority of the area is mapped as the Whimple 3 Association corresponding to the Marls. These soils are described as reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Clyst Series/Compton Association Soils are found in the Clyst Valley which are also reddish clayey soils affected by groundwater. Also in the West Bridgnorth soils are mapped. These are described as well drained sandy and coarse loamy soils over soft sandstone.

The soils found during the recent survey are of several types. In the west sandy loam soils are stony. The sandy loams become less stony on the eastern side of the Clyst Valley. The central area of the site has poorly drained clay loams and clays developed over Marl. The slightly higher land tends to be better drained with slowly permeable layers deeper and lighter topsoils (heavy clay loams). Towards the east the soils become better drained with medium clay loam topsoils. Here small areas of sandier soils were also found.

5. AGRICULTURAL LAND CLASSIFICATION

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

Table 2: Distribution of ALC grades: Clyst St Mary and Farringdon

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	206.6	18.3	26.5	
3a	301.7	26.7	38.7	
3b	272.1	24.1	34.8	
Urban	103.8	9.3	0.0	
Non Agricultural	45.9	4.1	0.0	
Agricultural Buildings	9.1	0.8	0.0	
Not surveyed	188.9	16.7	0.0	
Open water	1.3	0.1	0.0	
TOTAL	1129.4	100.0	100.0	(780.4 ha)

Grade 2

Several areas of Grade 2 land have been mapped. The eastern blocks are generally well drained (Wetness Class I or II) (see Appendix 3) and have clay loam topsoils. To the west the soils are lighter textured and have a slight droughtiness limitation. These soils have variable stone contents, measured in soil profile pits to range from 1%-23%. The predominant size is <2cm. These stone contents contribute to the slight droughtiness limitation since they reduce the available water in the profile.

Subgrade 3a

The areas of 3a in the west (except in the valley bottom) are similar to the droughty soils described above but have higher stone contents which reduces the available water. To the east the Subgrade 3a soils have a moderate wetness limitation imposed by slowly permeable layers in the lower subsoils. The soils are Wetness Class III and IV The topsoils are clay loams and the profiles become heavier with depth.

Subgrade 3b

These areas are poorly drained because of slowly permeable subsoils. These soils are Wetness Classes III and IV. The topsoil textures are either heavy (silty) clay loams or clays which imposes a moderate wetness limitation. The soils are generally reddish and are not gleyed.

Other Land

Areas of housing, roads, industrial areas and the Westpoint Showground are shown as urban. Small areas of non-agricultural land are found across the survey area and a tip being restored to agriculture are shown as non-agricultural. Agricultural buildings are so marked. A large area around Farringdon was not surveyed because access was not granted. A proportion of this will be of best and most versatile quality.

Resource Planning Team
Taunton Statutory Unit
October 1994

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APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1986) Solid and Drift Edition, Sheet 325, Exeter 1:50,000.

MAFF (1972) Agricultural Land Classification Map, Sheet 176, Provisional 1:63,360 scale.

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

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification.

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

SOIL SURVEY OF ENGLAND AND WALES (1972) Sheet 325/339, Exeter and Newton Abbott, 1:63,360 scale.

APPENDIX 2

DESCRIPTION OF GRADES AND SUBGRADES

Grade 1 - excellent quality agricultural land

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

Grade 2 - very good quality agricultural land

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

Grade 3 - good to moderate quality agricultural land

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

Subgrade 3a - good quality agricultural land

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

Subgrade 3b - moderate quality agricultural land

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

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (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
Farringdon	Pit 1	4° S	PGR	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	22/9/94	ASP 16 SY 003925	PB/GMS		PB 167

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	24	HZCL	2.5YR46	<1% HR	none	none	-	-	-	G	CVF		Clear smooth
2	55	C	2.5YR46 (2.5YR54)	none	none	none	MCAB	Firm	Mod	Poor	FVF		Gradual
3	115+	C	10R46 (1oR54)	none	none	C	WMAB	Friable	Mod	Poor	none		

Profile Gleyed From: not gleyed

Depth to Slowly Permeable Horizon: 25 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water	Wheat:	137 mm
	Potatoes:	117 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	105 mm
Moisture Balance	Wheat:	+26 mm
	Potatoes:	+12 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 2	4° S	Ley	Av Rainfall: 791 mm ATO: 1547 day °C	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 168 Climatic Grade: 1	SOIL SAMPLE REFERENCES
110/94	28/9/94	ASP 11 SY 008 918	PB/HLJ	Exposure Grade: 1	PB 168

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	28	MCL	5YR44	5% HR (vis)	0	0	-	-	-	Good	MV, VF	-	Clear smooth
2	54	HCL	5YR54	5% HR (vis)	CFMOM (75YR58)	C	WCAB	Firm	Poor	Good	FVF		Gradual smooth
3	95+	C	5YR54	2% HR (vis)	CFMOM	F	MCAB	Firm	Poor	Poor	FVF		

Profile Gleyed From: 28 cm

Depth to Slowly Permeable Horizon: 54 cm

Wetness Class: III

Wetness Grade: 3a

Available Water Wheat: 121 mm

Potatoes: 98 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 105 mm

Moisture Balance Wheat: +9 mm

Potatoes: -8 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks:

NL336k

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 3	3° NW	Oil Seed Rape	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/93	28/9/94	(ASP 158) SY 006914	HLJ/PB		HLJ 70

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	29	HCL	7.5YR44	0% >6cm 1% HR>2cm(S) 4% HR <2cm (S+D) 5% HR Total	none	none	-	-	-	Good	Many very fine	-	Clear smooth
2	46	C	0.5YR46 (05YR54)	8% HR Total (vis)	CDFO (7.5YR68)	Common	MCSAB (breaking to angular)	Firm	M	Good	Common very fine	-	Gradual smooth
3	70+	C	2.5YR46 (2.5YR54)	2% HR Total (Vis)	CFFO (05YR58)	Common	MCAB	Very firm	M	Poor	Few very fine	-	-

Profile Gleyed From: N/A

Depth to Slowly Permeable Horizon: 46 (very borderline WC IV +> Wetness Class 3b)

Wetness Class: III

Wetness Grade: 3b

Available Water Wheat: 136 mm

Potatoes: 113 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 105 mm

Moisture Balance Wheat: 25 mm

Potatoes: 8 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 4	3° W	PLO	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Sandstone
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	5.10.94	ASP 78 SX 988 920	GMS/PB		PB 175

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	35	MSL	5YR43	1% >2cm (s) 13% <2cm (S+D) 14% HR	none	none	-	-	-	Good	CVF	0	Clear smooth
2	55	MSL	5YR44	5% >2cm (S) 18% <2cm (S+D) 23% HR	none	none	WCSAB	Friable	Good	Good	FVF	0	Clear smooth
3	65	MSL	5YR46	2% >2cm (S) 8% <2cm (S+D) 10% HR	none	none	MCAB	Friable	Mod	Good	FVF	0	Cleary wavy
4	80+	C	2.5YR44	0 (vis)	none	none	MCAB	Very firm	Mod	Poor	FVF		

Profile Gleyed From: -

Depth to Slowly Permeable Horizon: 65 cm

Wetness Class: II

Wetness Grade: 1

Available Water	Wheat:	131 mm
	Potatoes:	100 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	105 mm
Moisture Balance	Wheat:	+20 mm
	Potatoes:	-5 mm
Droughtiness Grade:		2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Droughtiness

Remarks:

Topsoil texture PSD result 1% into SCL.

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 5	0°	PGR	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	5/10/94	ASP 108 SY 002 918	GMS/PB		GMS 440

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	23	MCL	7.5YR44	5% Total HR visual	none	none	-	-	-	-	MF+VF		Gradual smooth
2	44	MSL	5YR54	2% >2cm 7% >2 cm 9% HR Total S+D	CFFO 7.5YR56	C	WCSAB	Friable	Mod	Good	MVF		Gradual wavy
3	68	C	5YR56 (2.5YR54)	18% >2cm 18% > 2cm 36% HR Total S+D	CDMO	M	WCSAB	Firm	Mod	Low	CVF		
4	120	C	2.5YR46 (2.5YR54)	8% HR visual	none	C	MCAB	Very firm	Mod	Low	FVF		

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 44 cm

Wetness Class: III/IV

Wetness Grade: 3a/3b

Available Water Wheat: 123 mm

Potatoes: 97 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 105 mm

Moisture Balance Wheat: 12 mm

Potatoes: -8 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a/3b

Main Limiting Factor(s): Wetness

Remarks:

Pit dug to 85 cm.

Profiles in unit tend to have slightly deeper SPL's and are 3a.

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 6	1°N	PGR	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	10/10/94	ASP 141 SY 019 916	HLJ/GMS		GMS 441

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	27	MSL	7.5YR44	>1% >2cm 4½% >2mm 5% HR Total S+D	none	Few				Good	CF+VF		Clear wavy
2	120	MSL	Variable 7.5YR64, 46 05YR54	5% >2cm 9% >2mm 13% HR Total S+D	CDFO 7.5YR56	Many	MCSAB	Friable	Mod	Good	FVF		

Profile Gleyed From: 27 cm (in patches)

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 1

Available Water	Wheat:	142 mm
	Potatoes:	100 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	105 mm
Moisture Balance	Wheat:	31 mm
	Potatoes:	-5 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Droughtiness

Remarks:

Pit dug to 80cm, augered to 120cm.

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 7	3° S	FLW	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	10.10.94	ASP 237-8 SY 019906	PB/GMS		PB 170

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	28	MCL	5YR43	2% >2cm (S) 5% <2cm (S+D) 7% HR	0	0	-	-	-	Good	CF		Clear smooth
2	53	HCL	5YR54 (5YR53)	8% HR (vis)	FDFOM 7.5YR46	C	WCSAB	Firm	Poor	Good	CF		Clear smooth
3	70	C	2.5YR46 (5YR54)	none	MFFOM 7.5YR46	F	MCAB	Firm	Poor	Good	FF		Gradual smooth
4	95+	C	2.5YR46 (2.5YR54)	none	MDFOM 5YR58	F	MMPr	Firm	Poor	Poor	FF		

Profile Gleyed From: 28 cm

Depth to Slowly Permeable Horizon: 70 cm

Wetness Class: III

Wetness Grade: 3a
(Border line WC II, Grade 2)

Available Water Wheat: 120 mm
Potatoes: 97 mm

Moisture Deficit Wheat: 111 mm
Potatoes: 105 mm

Moisture Balance Wheat: +9 mm
Potatoes: -8 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks:

NL336k

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 8	1° W	Ley	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Valley Gravels
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110.94	17.10.94	ASP 55 SX 988 922	PB/HLJ		PB 171

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	MSL	5YR44	1% >2cm (S) 2% <2cm (S+D) 3% HR	0	F	-	-	-	Good	MF, VF	-	Clear smooth
2	55	MSL	5YR46	8% >2cm (S) 12% <2cm (S+D) 20% HR	0	0	WCSAB	Friable	Good	Good	CVF	-	Gradual smooth
3	85+	MSL	25YR46	35% >2cm (S) 22% <2cm (S+D) 57% HR	0	0	Too stony Ass. Weak	Friable	Good	Good	FVF	-	

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: I

Available Water	Wheat:	119 mm
	Potatoes:	95 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	105 mm
Moisture Balance	Wheat:	+8 mm
	Potatoes:	-10 mm
Droughtiness Grade:		3a (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Droughtiness

Remarks:

Topsoil sand content 49%. MSL typical of area.

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 9	4° S	PGR	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Sandstone
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	17.10.94	ASP 194 SX 980910	PB/HLJ		PB 172

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	MSL	5YR43	5% >2cm (S) 10% <2cm (S+D) 15% HR	none	none	-	-	-	Good	MF, VF	-	Abrupt smooth
2	42	MSL	5YR46	20% >2cm (S) 28% <2cm (S+D) 48% HR Total	none	none	WCSAB	Friable	Good	Good	CVF		Clear wavy
3	90+	SC	2.5YR48	25% >2cm (S) 35% <2cm (S+D) 60% HR	none	Few	Too stony to assess	Firm	Mod	Poor	FVF		

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 42 cm

Wetness Class: IV

Wetness Grade: 3a

Available Water	Wheat:	86 mm
	Potatoes:	69 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	105 mm
Moisture Balance	Wheat:	-25 mm
	Potatoes:	-36 mm

Droughtiness Grade: 3b (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Droughtiness

Remarks:

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 10	2° South	Fallow	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	17.10.94	ASP 152 SX 994914	PB/HLJ		PB 173

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	05YR46/56	1% HR Total (vis)	none	Few	-	-	-	Good	MF+VF	-	Clear smooth
2	40	C	2.5YR46	1% HR Total (vis)	none	Few	MCSAB	Very firm	Mod	Good	CF+VF	-	Clear smooth
3	60	C	2.5YR46 (05YR54)	1% HR Total (vis)	CFFO (2.5YR48)	Common	MCPr (breaking to MCSAB)	Extremely firm	Poor	Good	CVF	-	Clear smooth
4	85+	C	0.5YR54 (05YR64)	1% HR Total (vis)	MDFO (05YR58)	Many	WCSAB	Extremely firm	Poor	Good	CVF	-	

Profile Gleyed From: 60 cm

Depth to Slowly Permeable Horizon: N/A

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 130 mm

Potatoes: 107 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 105 mm

Moisture Balance Wheat: 19 mm

Potatoes: 2 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability

Remarks:

NL336k

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 11	0°	PGR	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	17.10.94	ASP 210 SX 99359100	PB/HLJ		PB 174

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	C	05YR44	1% HR (vis)	CFFOM	0	-	-	-	Good	MF, VF	-	Clear smooth
2	32	C	5YR54 (5YR53)	0	MDFOM 05YR58	C	MCPr	V Firm	Poor	Poor	CVF	-	Ab smooth
3	50	C	7.5YR53	0	MDFOM 75YR56	C	MCPr	V Firm	Poor	Poor	FVF	-	Ab smooth
4	65	C	5YR54	0	CDFOM	M	WCSAB	Firm	Poor	Poor	FVF	-	Clear smooth
5	100+	SCL	2.5YR54	15% HR (vis)	CDMOM	M	W*	Firm	Poor	Poor	0	-	

Profile Gleyed From: 25

Depth to Slowly Permeable Horizon: 25

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 123 mm

Potatoes: 100 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 105 mm

Moisture Balance Wheat: 12 mm

Potatoes: 5 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

*Augered to 100+

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Farringdon	Pit 12	2° SW	Fallow	Av Rainfall: 791 mm ATO: 1547 day °C FC Days: 168 Climatic Grade: 1 Exposure Grade: 1	Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
110/94	10/10/94	ASP 241 SY 0165 9040	GMS/HLJ		HLJ 75

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	40	MCL	7.5YR44	1% >2cm HR (S) 8% >2mm HR (S+D) 9% HR Total S+D	none	Few	-	-	-	Good	CF+VF		Gradual smooth
2	70	HCL	7.5YR54 7.5YR64 (variable)	<1% >2cm HR (S) 6% >2mm HR (S+D) 7% HR Total S+D	7.5YR58 CDMO	Common	MCSAB	Friable	Mod	Good	FVF		Gradual smooth
3	120	C	2.5YR46 (5YR54)	1% HR (vis)	FDFO 2.5YR36 7.5YR56	Common -	WCSAB	Firm	Mod	Poor	FVF		

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 70 cm

Wetness Class: II

Wetness Grade: 2

Available Water	Wheat:	139 mm
	Potatoes:	111 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	105 mm
Moisture Balance	Wheat:	28 mm
	Potatoes:	6 mm
Droughtiness Grade:		2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Wetness/droughtiness

Remarks:

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