

**SHROPSHIRE STRUCTURE PLAN  
ELLESMERE  
LAND NORTH OF ELSON ROAD**

**Agricultural Land Classification  
ALC Map and Report**

**June 1999**

Resource Planning Team  
Northern Region  
FRCA Wolverhampton

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# AGRICULTURAL LAND CLASSIFICATION REPORT

## SHROPSHIRE STRUCTURE PLAN ELLESMERE, LAND NORTH OF ELSON ROAD

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 20.3 ha of land at Ellesmere. The site is situated to the north-west of Ellesmere, between Grange Road and Elson Road. The survey was carried out during May 1999.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)<sup>1</sup> on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). This survey was carried out in connection with MAFF's statutory input to the Shropshire Structure Plan. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Northern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the site was under grass and cereals. Areas mapped as 'Other Land', include a track in the west of the site, several small ponds, and a small area of woodland at the north-eastern boundary of the site.

### SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000. It is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

**Table 1: Area of grades and other land**

Grade/Other land	Area (hectares)	% Total agricultural land area	% Total survey area
1	-	-	-
2	-	-	-
3a	8.1	41	40
3b	9.4	47	46
4	2.4	12	12
5	-	-	-
Agricultural land not surveyed	-	-	-
Other land	0.4	-	2
Total agricultural land area	19.9	100	-
Total survey area	20.3	-	100

<sup>1</sup> FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total one soil pit and 25 borings were described.
8. The agricultural land on this site has been classified as Subgrade 3a (good quality), Subgrade 3b (moderate quality) and Grade 4 (poor quality). The principal limitations to the agricultural use of this land are soil wetness, gradient and microrelief.
9. Land of good quality (Subgrade 3a) is found in the west and south-east of the survey area. The soils have a medium clay loam topsoil, over medium clay loam, heavy clay loam and sandy clay loam upper subsoils. The lower subsoils include a wide range of clayey and sandy textures. Soil wetness is the principal limitation to the agricultural use of this land.
10. Land of moderate quality (Subgrade 3b) is found on higher land in the north of the site, and extends across the centre of the site to its southern boundary. Soils have a medium clay loam topsoil overlying heavy clay loam, clay and peaty subsoils. Soil wetness and gradient are the principal limitations to the agricultural use of this land.
11. Land of poor quality (Grade 4) is found in a topographic depression near the centre of the site, a small hollow in the west of the site, and in another small area on the site's western boundary. Soil wetness, gradient and microrelief are the principal limitations to the agricultural use of this land.

## FACTORS INFLUENCING ALC GRADE

### Climate

12. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.
13. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

**Table 2: Climatic and altitude data**

Factor	Units	Values	Values
Grid reference	N/A	SJ395356	SJ394353
Altitude	m, AOD	106	93
Accumulated Temperature	day°C (Jan-June)	1361	1376
Average Annual Rainfall	mm	762	741
Field Capacity Days	days	176	173
Moisture Deficit, Wheat	mm	90	93
Moisture Deficit, Potatoes	mm	78	81
Overall climatic grade	N/A	Grade 1	Grade 1

14. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.
15. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.
16. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. The site is climatically Grade 1.

#### **Site**

17. The site lies at an altitude of 93-106m AOD, with land sloping towards a depression at the centre of the site.
18. Towards the centre of the site, there are strong to moderately steep slopes of between 8° and 16°. Here gradient limits the agricultural use of the land to Subgrade 3b and Grade 4.

#### **Geology and soils**

19. The solid geology of the area is comprised of Triassic Bunter Upper Mottled Sandstone. This is overlain with deposits of alluvium and boulder clay (BGS 1967).
20. The soils that have developed on this geology comprise soils of the Salop series. These soils generally comprise clay loam topsoils over sandy clay loam or clay. A small area of peat is mapped near the centre of the site (SSEW 1954, 1984).
21. Upon detailed field examination, soil profiles broadly consistent with the above description were found across the site.

#### **AGRICULTURAL LAND CLASSIFICATION**

22. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

#### **Subgrade 3a**

23. Land of good quality occupies 8.1 ha (40%) of the total survey area, and is found to the west and south-east of the survey area. The principal limitation to the agricultural use of this land is soil wetness.
24. Within the Subgrade 3a mapping unit, soils comprise a stoneless or very slightly stony medium clay loam topsoil overlying stoneless medium clay loam, heavy clay loam and sandy clay loam upper subsoils. Lower subsoils are comprised of a wide range of clayey and sandy textures. All profiles were found to extend to at least 120cm. Observed depths of gleying and the slowly permeable layer in relation to the local climatic regime,

place these soils into Wetness Class III and Subgrade 3a. Within this mapping unit, isolated borings of Grade 2 were found, where gleying was either absent, or at a sufficient depth to place the soil into Wetness Class II.

### **Subgrade 3b**

25. Land of moderate quality occupies 9.4 ha (46%) of the total survey area, and is found on higher land in the north of the site, and across the centre of the site to its southern boundary. The principal limitations to the agricultural use of this land are soil wetness and gradient.
26. Within the Subgrade 3b mapping unit, soils comprise a stoneless or very slightly stony medium clay loam topsoil. Subsoil clay content increases with depth, with heavy clay loam upper subsoils overlying clay lower subsoils. Occasionally loamy peat and peat were found towards the base of the profiles, all of which extend to at least 120cm. Observed depths of gleying and the slowly permeable layer in relation to the local climatic regime, place these soils into Wetness Class IV and Subgrade 3b.
27. Moderately steep slopes ( $8^{\circ}$ - $11^{\circ}$ ) are found on land fringing the topographic depression near the centre of the site. These slopes impose a gradient limitation. Immediately west of the track mapped as 'Other Land', complex changes in slope angle and direction over short distances impose a microrelief limitation. These limitations are consistent with land of Subgrade 3b quality.

### **Grade 4**

28. Land of poor quality occupies 2.4 ha (12%) of the total survey area, and is found in three distinct area across the centre of the survey area. The principal limitations to the agricultural use of this land are soil wetness, gradient and microrelief.
29. An area of low lying land forms a topographic depression the centre of the site. Soils found here comprise a stoneless medium clay loam topsoil and heavy clay loam and clay upper subsoils overlying peat. All profiles extended to at least 120 cm. At the time of surveying, these profiles were waterlogged within 40 cm of the surface. Soil wetness resulting from restricted natural drainage, imposes a limitation on the agricultural use of this land consistent with Grade 4.
30. Immediately south of the topographic depression at the centre of the site, strongly sloping land ( $12^{\circ}$ - $16^{\circ}$ ) imposes a gradient limitation on the agricultural use of the land consistent with land of Grade 4. Two further areas of Grade 4 land occur in the west of the site. Here complex changes in slope angle and direction over short distances impose a microrelief limitation consistent with Grade 4.

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## SOURCES OF REFERENCE

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BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*.

MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*.

Met. Office: Bracknell.

Soil Survey of England and Wales (1954) *Sheet 138, The soils of the Wem District (1:63 630)*.  
HMSO: London, SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their use in Midland and Western England*.

SSEW: Harpenden.

## APPENDIX I

### DESCRIPTIONS 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 includes 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 or horticultural crops can usually be grown but on some land of this 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 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEY SPL	CLASS	GRADE	AP	MB	AP	MB					
1	SJ38903560	GRA N		030 055	3	3A	114	22 111	32	2			WE	3A	
1P	SJ39503560	GRA	01	025 025	4	3B	95	3 100	21	3A			WE	3B	
2	SJ39003560	MCL		037 037	4	3B	118	26 109	30	2			WE	3B	
3	SJ39203560	CER	02	028 028	4	3B	89	-3 101	22	3A			WE	3B	
4	SJ39503560	GRA	01	000 038	4	3B	99	7 104	25	2			WE	3B	
4A	SJ39503560	GRA	01	032 032	4	3B	101	9 106	27	2			WE	3B	
5	SJ38903550	GRA		036	2	3A	113	21 112	33	2			WE	3A	
6	SJ39003550	GRA		027 055	3	3A	125	33 109	30	1			WE	3A	
7	SJ39103550	PGR		025 047	4	3B	233	141 155	76	1			MR	4	Microrelief
8	SJ39203550	CER	03		1	2	110	18 110	31	2			WE	2	
9	SJ39303550	CER		027 027	4	3B	104	12 100	21	2			WE	3B	
10	SJ39503550	GRA	01	028 028	4	3B	99	7 104	25	2			WE	3B	
10A	SJ39503550	GRA	01	032 043	4	3B	107	15 105	26	2			WE	3B	
11	SJ39603550	FOR	01	038 038	4	3B	198	106 130	51	1			WE	3B	
12	SJ39103540	PGR		027 045	4	3B	118	26 107	28	2			WE	3B	
13	SJ39203540	PGR N	03	055	1	2	148	56 120	41	1			WE	2	
14	SJ39303540	CER	01	032 070	3	3A 3b	109	17 112	33	2			WE	3A	3b? map in with 3a. edit.
15	SJ39403540	GRA	08	030 045	4	3B	97	5 102	23	2			GR	3B	
15A	SJ39403540	GRA	01	000 040	4	3B	208	116 117	38	1			WE	4	Restricted drainage
16	SJ39503540	GRA	05	028 075	2	3A	84	-8 73	-6	3A			WD	3A	
17	SJ39603540	FOR	06	028 043	4	3B	104	12 102	23	2			WE	3B	
18	SJ39303530	PGR N	01	035 035	4	3B	119	27 101	22	2			WE	3B	
19	SJ39403530	PGR N		000 030	4	3B	231	139 153	74	1			WE	4	Restricted drainage
20	SJ39503530	GRA N	02	050	1	2	118	26 112	33	2			WD	2	
21	SJ39503520	GRA N		055	1	2	136	44 117	38	1			WE	2	
22	SJ39603520	PGR		060 060	3	3A	130	38 113	34	1			WE	3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES			PED COL.	STONES			STRUCT/ CONSIST	SUBS			CALC		
				COL	ABUN	CONT		GLEI	>2	>6		LITH	TOT	STR		POR	IMP
0	1 0-23	mc1	10YR43 00					0	0	0							
	23-30	mc1	10YR54 00					0	0	0		M					
	30-55	mc1	10YR53 00	10YR58 00	C			Y	0	0	0		M				
	55-75	hc1	10YR63 00	10YR68 00	C			Y	0	0	0		P	Y	Y		
	75-90	c	75YR53 00	75YR58 00	C			Y	0	0	0		P	Y	Y		
1P	0-25	mc1	10YR42 00					0	0	HR	2						
	25-50	hc1	75YR53 00	75YR56 00	C			Y	0	0	HR	1	WKCP	FM	P	Y	Y
	50-80	c	05YR43 61	10YR56 00	M			Y	0	0	0	WKCP	VF	P	Y	Y	
2	0-37	mc1	75YR54 00					0	0	0							
	37-45	hc1	75YR53 00	75YR58 00	C			Y	0	0	0			P	Y	Y	
	45-100	c	05YR54 00	05YR58 00	C			Y	0	0	0			P	Y	Y	
3	0-28	mc1	10YR33 00					0	0	HR	2						
	28-50	hc1	05YR56 00					Y	0	0	HR	2		P	Y	Y	
	50-70	c	05YR44 00					Y	0	0	HR	2		P	Y	Y	
4	0-30	mc1	10YR42 00	10YR56 00	C			Y	0	0	HR	2					
	30-38	hc1	10YR42 00	10YR56 00	C		10YR52 00	Y	0	0	0			P	Y	Y	
	38-80	c	05YR44 00	00MN00 00	M			Y	0	0	0			P	Y	Y	
4A	0-32	mc1	10YR42 00					0	0	HR	2						
	32-80	c	75YR53 00	10YR56 00	C			Y	0	0	0			P	Y	Y	
0	5 0-27	mc1	10YR42 00					0	0	0							
	27-36	mc1	10YR43 54					0	0	0			M				
	36-55	mc1	10YR53 00	10YR58 00	C			Y	0	0	0			M			
	55-65	ms1	75YR53 00	75YR58 00	C			Y	0	0	0			M			
	65-90	lms	75YR53 00	75YR58 00	C			Y	0	0	0			M			
0	6 0-27	mc1	10YR52 00					0	0	0							
	27-55	mc1	10YR62 00	10YR56 00	C			Y	0	0	HR	10		M			
	55-110	c	05YR54 00	05YR58 00	C			Y	0	0	0			P	Y	Y	

MCL 7S. stoniers or v slightly.  
 ↓ ↓  
 heavier. lighter  
 over dry loam upper units.

75

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL.	---STONES---			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL
7	0-25	mc1	10YR42 00					0	0	0							
	25-30	mc1	10YR53 00	10YR58 00	C			Y	0	0	HR	10		M			
	30-47	mc1	10YR52 00	10YR58 00	C			Y	0	0		0		M			
	47-110	hp	75YR25 02					Y	0	0		0		P	Y		Y
8	0-30	mc1	10YR33 00					0	0	HR	5						
	30-80	sc1	75YR44 00					0	0	HR	2		M				
9	0-27	mc1	10YR43 00					0	0		0						
	27-40	hc1	10YR44 00				00MN00	00	Y	0	0	0		P	Y		Y
	40-90	hc1	05YR44 00				00MN00	00	Y	0	0	0		P	Y		Y
10	0-28	mc1	10YR33 00					0	0	HR	2						
	28-80	c	75YR53 00	75YR56 00	M			Y	0	0		0		P	Y		Y
10A	0-32	mc1	10YR42 00					0	0	HR	2						
	32-43	hc1	10YR53 00	10YR56 00	C			Y	0	0		0		P	Y		Y
	43-90	c	05YR44 43	00MN00 00	C			Y	0	0		0		P	Y		Y
11	0-38	mc1	10YR33 00					0	0		0						
	38-60	c	05YR41 00	10YR56 00	C			Y	0	0		0		P	Y		Y
	60-90	hp	10YR21 00					Y	0	0		0		P	Y		Y
	90-100	fp	75YR46 00					Y	0	0		0		P	Y		Y
12	0-27	mc1	75YR43 00					0	0		0						
	27-45	mc1	75YR43 00	75YR58 00	C			Y	0	0		0		M			
	45-100	hc1	05YR54 00	10YR58 00	C			Y	0	0		0		P	Y		Y
13	0-25	mzc1	10YR42 00					0	0		0						
	25-55	mc1	75YR54 00					0	0		0		M				
	55-85	mc1	75YR53 00	75YR58 00	C			Y	0	0		0		M			Y
	85-110	sc1	75YR53 00	75YR58 00	C			Y	0	0		0		M			Y
14	0-32	hc1	75YR48 00					0	0	HR	5						
	32-70	sc1	75YR56 00	00MN00 00	F			0	0		0		M				
	70-80	c	75YR46 00	10YR56 00	C			Y	0	0		0		P	Y		Y

SAMPLE	DEPTH	TEXTURE	COLOUR	—MOTTLES—			PED	—STONES—			STRUCT/	SUBS						
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
15	0-30	mc1	75YR33 00						0	0	HR	5						
	30-45	hc1	05YR44 00	10YR56	00	M		Y	0	0		0		P	Y		Y	
	45-60	c	05YR46 00					Y	0	0		0		P	Y		Y	
	60-80	c	05YR53 00					Y	0	0		0		P	Y		Y	
15A	0-27	mc1	75YR41 00	10YR56	00	M		Y	0	0	HR	2						
	27-40	hc1	10YR53 00	10YR56	00	C		Y	0	0		0		P	Y		Y	
	40-55	c	10YR53 00	10YR56	00	M		Y	0	0		0		P	Y		Y	
	55-63	zc	10YR51 00					Y	0	0		0		P	Y		Y	
	63-110	lp	75YR25 01					Y	0	0		0		P	Y		Y	
16	0-28	mc1	75YR44 00						0	0	HR	2						
	28-48	hc1	05YR46 00					Y	0	0		0		P	Y		Y	
	48-75	lms	05YR44 00					Y	0	0		0		P	Y		Y	
	75-90	c	05YR44 00	00MN00	00	C		Y	0	0		0		P	Y		Y	
17	0-28	mc1	10YR42 00						0	0	HR	3						
	28-43	hc1	75YR53 00	10YR56	00	C		Y	0	0		0		P	Y		Y	
	43-90	c	05YR53 00	75YR56	00	C	05YR53	00	Y	0	0	0		P	Y		Y	
18	0-15	mc1	10YR43 00						0	0		0						
	15-35	mc1	75YR54 00						0	0		0		M				
	35-70	hc1	05YR54 00	05YR58	00	C		Y	0	0		0		P	Y		Y	
	70-110	hc1	05YR44 00					Y	0	0		0		P	Y		Y	
19	0-15	mc1	10YR41 00	10YR46	00	C		Y	0	0		0						
	15-30	mc1	10YR51 00	10YR46	00	C		Y	0	0		0		M				
	30-45	c	10YR51 00	10YR46	00	C		Y	0	0		0		P	Y		Y	
	45-110	hp	75YR25 02					Y	0	0		0		P	Y		Y	
20	0-27	mc1	10YR42 00						0	0		0						
	27-50	mc1	10YR43 00						0	0		0		M				
	50-65	mc1	10YR53 00	10YR58	00	C		Y	0	0		0		M				
	65-85	ms	10YR54 44					Y	0	0		0		M				
	85-110	ms	10YR63 00					Y	0	0		0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL.	---STONES---			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL
21	0-25	mc1	10YR42 00					0	0	0							
	25-55	mc1	75YR54 00					0	0	0			M				
	55-75	mc1	10YR53 00	10YR58 00	C			Y	0	0	0			M			
	75-85	mc1	10YR73 00	10YR58 00	C			Y	0	0	0			M			
	85-95	mc1	10YR73 00	10YR58 00	M			Y	0	0	0			M			
95-110	ms		10YR72 00	10YR68 00	C			Y	0	0	0		M				
22	0-27	mc1	10YR43 00					0	0	0							
	27-60	mc1	75YR54 00					0	0	0			M				
	60-110	hc1	75YR53 00	75YR58 00	C			Y	0	0	0		P	Y		Y	