SHROPSHIRE STRUCTURE PLAN
ELLESMERE, OSWESTRY 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
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INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 21.92 ha of land at Ellesmere. The site is situated to south west of Ellesmere town centre, between the Oswestry Road and the Shropshire Union Canal (Llangollen Branch). The survey was carried out during May 1999.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The 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 land on the site was under grass. Land mapped as 'Other Land' includes an old marl pit.

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)	% surveyed area	% site area
1	-	-	-
2	5.8	27	26
3a	7.7	35	35
3b	5.9	27	27
4	2.5	11	11
5	-	-	-
Agricultural land not surveyed	-	N/A	-
Other land	0.02	N/A	<1
Total surveyed area	21.9	100	-
Total site area	21.92	-	100

[1] 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 two soil pits and 25 borings were described.

8. The agricultural land on this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality), Subgrade 3b (moderate quality) and Grade 4 (poor quality). The key limitations to the agricultural use of this land are gradient, soil wetness and soil droughtiness.

9. The very good quality land is located in two parcels in the north of the site. The soils have a clay loam topsoil texture over clay loam and sandy clay loam to depth. Towards the south of these units the topsoils often have a sandy loam topsoil texture and the subsoils contain lenses of sandy loam, loamy sand and sand.

10. The good quality land is mapped in the south and east of the site. The soils have a clay loam topsoil texture over clay loam and either clay or silty clay to depth. Subsoils may contain lenses of sandy loam, loamy sand and sand. In the low lying basin in the east, an organic clay loam texture is often encountered above the silty clay lower subsoil.

11. The moderate quality land is located in the centre, south and west of the site. The soils have a clay loam topsoil texture over heavy clay loam and clay to depth. The majority of these soils are found on strongly sloping land (8° to 11°).

12. The area of poor quality land is mapped to the south west of the centre of the site. The soils have a sandy loam topsoil texture sandy loam and sand to depth, with lenses of sandy clay loam and clay loam in the lower subsoil. These soils are found on moderately steeply sloping land of between 12° and 15°.

FACTORS INFLUENCING ALC GRADE

Climate

13. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

14. 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	
Grid reference	N/A	SJ 392 341	SJ 394 340
Altitude	m, AOD	90	90
Accumulated Temperature	day°C (Jan-June)	1380	1380
Average Annual Rainfall	mm	741	740
Field Capacity Days	days	174	173
Moisture Deficit, Wheat	mm	94	94
Moisture Deficit, Potatoes	mm	82	82
Overall climatic grade	N/A	Grade 1	Grade 1

15. 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.

16. 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. The site is climatically Grade 1.

Site

17. The site ranges in altitude from 90 to 100 metres AOD. The site is bisected west to east by a dry channel feature which opens out into a low lying basin in the east.

18. The three site factors of gradient, microrelief and flooding are considered when classifying the land.

19. In the centre and the south west of the site there are strong to moderately steep slopes of between 8° and 15°. Here gradient limits the agricultural use of the land to Subgrade 3b and Grade 4.

20. The remaining factors do not impose any limitations on the agricultural use of this land.

Geology and soils

21. The solid geology of the area is comprised of Triassic Bunter Upper Mottled Sandstone. This is overlain with deposits of alluvium and boulder clay - British Geological Survey (1967).

22. The soils that have developed on this geology are generally of a clay loam texture over sandy clay loam or clay (SSEW 1954, 1984).

AGRICULTURAL LAND CLASSIFICATION

23. 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.

Grade 2

24. Land of very good quality occupies 5.8 hectares (26%) of the site area and is found in two parcels in the north of the site.

25. The main limitations to the agricultural use of this land are soil wetness and soil droughtiness.

26. The soils have a clay loam topsoil texture over clay loam and sandy clay loam to depth, with few to common stones within the soil profile. Towards the south of these units the topsoils

often have a sandy loam topsoil texture and the subsoils contain lenses of sandy loam, loamy sand and sand. The depths to gleying place these soils in Wetness Class II. Where the lighter textures are found in the lower subsoil the moisture balance limits these soils to Grade 2.

Subgrade 3a

27. Land of good quality occupies 7.7 hectares (35%) of the site area and is found in the south and east of the site.

28. The main limitation to the agricultural use of this land is soil wetness.

29. The soils have a clay loam topsoil texture over clay loam and either clay or silty clay to depth, with few stones within the soil profile. Subsoils may contain lenses of sandy loam, loamy sand and sand. In the low lying basin in the east, an organic clay loam texture is often encountered above the silty clay lower subsoil. The depths to gleying and the slowly permeable layer place these soils in Wetness Class III.

30. In this unit there are occasional borings of Grade 2 and Subgrade 3b quality. At this scale of mapping these borings cannot be shown separately.

Subgrade 3b

31. Land of moderate quality occupies 5.9 hectares (27%) of the site area and is found in the centre, south and west of the site.

32. The main limitations to the agricultural use of this land are gradient and soil wetness.

33. The soils have a clay loam topsoil texture over heavy clay loam and clay to depth, with few stones within the soil profile. The depths to gleying and the slowly permeable layer place these soils in Wetness Class IV. The majority of these soils are found on strongly sloping land (8° to 11°) which also limit the agricultural use of the land to Subgrade 3b.

Grade 4

34. Land of poor quality occupies 2.5 hectares (11%) of the site area and is found to the south west of the centre of the site.

35. The main limitation to the agricultural use of this land is gradient.

36. The soils have a sandy loam topsoil texture sandy loam and sand to depth, with lenses of sandy clay loam and clay loam in the lower subsoil. These soils are found on moderately steeply sloping land of between 12° and 15°.

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SOURCES OF REFERENCE

British Geological Survey (1967) *Sheet No. 138* Wem *Solid and drift Edition, Scale 1:63 360.* BGS: London.

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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	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	LIMIT	ALC	COMMENTS
1	SJ39103430	PGR	N	06	028		2	2	000	0	000	0					WE	2	
1P	SJ39153423	PGR		01	027		2	2	140	48	110	31	1				WE	2	
2	SJ39203430	PGR	N	01	000	035	4	3B	000	0	000	0					WE	3B	
2A	SJ39233420	PGR	N		030	030	4	3B	000	0	000	0					WE	3B	
2P	SJ39343415	PGR			056	056	3	3A	119	27	127	48	2				WE	3A	WET
3	SJ39303430	PGR	S	04	095		1	1	141	49	114	35	1					1	
4	SJ39403430	PGR	S	05	000		1	1	131	39	112	33	1					1	
5	SJ39003420	PGR	W		000		1	1	062	-30	062	-17	3B				DR	3B	DTA GVL
6	SJ39103420	PGR	W	07	050		1	1	120	28	103	24	2				DR	2	
7	SJ39203420	PGR	E	08	038	038	4	3B	100	8	105	26	2				GR	3B	
8	SJ39303420	PGR	S	04	035		2	2	125	33	114	35	1				WE	2	
9	SJ39403420	PGR	S		068	068	2	2	117	25	118	39	2				WE	2	
10	SJ39003410	PGR	W	06	000		1	1	096	4	088	9	3A				DR	3A	VARIED
10A	SJ38933405	PGR	W		025	025	4	3B	088	-4	098	19	3A				WE	3B	OLDCHANN
11	SJ39103410	PGR	W	05	065	065	2	1	118	26	106	27	2				DR	2	
12	SJ39203410	PGR	SE	02	000	043	4	3B	098	6	110	31	2				WE	3B	
13	SJ39303410	PGR	E		074	074	2	2	000	0	000	0					WE	2	WET 50
14	SJ39403410	PGR	E		060	060	3	3A	000	0	000	0					WE	3A	
15	SJ39003400	PGR	S	15	050		1	1	114	22	105	26	2				GR	4	
16	SJ39103400	PGR	S	15	000		1	1	097	5	089	10	2				GR	4	
17	SJ39203400	PGR	SE	14	048	048	3	2	113	21	102	23	2				GR	4	
18	SJ39303400	PGR			033	076	2	2	129	37	114	35	1				WE	2	
19	SJ39403400	PGR	E	01	000	042	4	3B	090	-2	096	17	3A				WE	3B	WET
20	SJ39003390	PGR	NW	07	038	038	4	3B	109	17	107	28	2				WE	3B	
21	SJ39103390	PGR	N	02	028	038	4	3B	115	23	106	27	2				WE	3B	
22	SJ39203390	PGR	S	06	055	055	3	3A	120	28	109	30	2				WE	3A	
23	SJ39103380	PGR	N	01	065	065	2	1	075	-17	073	-6	3A				DR	3A	DTA STN

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
1	0-28	mcl	10YR32 00						0	0	HR	5						
	28-60	scl	75YR53 00	75YR58 00	M			Y	0	0	HR	5		M				
	60-80	scl	05YR44 00	75YR58 00	C			Y	0	0	HR	5		M				
1P	0-27	mcl	75YR43 32						3	0	HR	5						
	27-40	mcl	75YR53 54	75YR51 58	M			Y	0	0	HR	10	MDMSB	FR G				
	40-65	scl	05YR53 54	75YR51 58	M			Y	0	0		0	WKCPR	FM P				
	65-120	scl	05YR53 54	75YR51 58	M		00MN00 00	Y	0	0		0	WKMPR	FM P				
2	0-28	mcl	10YR32 42	10YR46 00	C			Y	0	0	HR	2						
	28-35	mcl	10YR53 00	10YR58 00	C			Y	0	0	HR	2		M				
	35-60	c	05YR44 00	75YR58 00	M			Y	0	0		0		P			Y	
2A	0-30	mcl	10YR32 00						0	0	HR	3						
	30-60	c	05YR44 00	75YR58 00	M			Y	0	0		0		P			Y	
2P	0-28	mcl	75YR32 00						0	0	HR	1						
	28-43	mcl	75YR31 00						0	0	HR	1	MDMAB	FR M				
	43-56	omcl	75YR31 00						0	0	HR	1	MDMAB	FR M				
	56-76	zc	10 Y41 00	10YR56 00	C			Y	0	0		0	WKCPL	FM P	Y		Y	
3	0-40	mcl	10YR43 00						0	0	HR	3						
	40-75	scl	75YR44 00						0	0	HR	2		M				
	75-85	msl	75YR44 00						0	0		0		M				
	85-95	ms	75YR44 00						0	0		0		M				
	95-110	msl	05YR44 00	75YR58 00	C			Y	0	0		0		M				
4	0-35	mcl	10YR43 00						0	0	HR	3						
	35-60	scl	10YR43 00						0	0	HR	3		M				
	60-80	msl	75YR43 00						0	0	HR	2		M				
	80-85	lms	05YR44 00						0	0		0		M				
	85-120	ms	05YR46 00						0	0		0		M				
5	0-30	msl	75YR43 33						3	0	HR	5						
	30-50	lms	75YR44 00						0	0	HR	10		M				

				MOTTLES			PED		STONES				STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
6	0-30	msl	75YR43 00						3	0	HR	5						
	30-50	msl	75YR43 44						0	0	HR	5		M				
	50-100	scl	75YR53 44	75YR56	00	C		Y	0	0	HR	15		M				
7	0-28	mcl	75YR43 33						2	0	HR	4						
	28-38	mcl	75YR44 53	75YR56	00	F			0	0	HR	2		M				
	38-80	c	05YR53 44	75YR51	58	M		Y	0	0	HR	1		P			Y	
8	0-35	mcl	10YR43 53	10YR46	00	F			0	0	HR	2						
	35-75	scl	10YR53 00	10YR58	00	M		Y	0	0	HR	1		M				
	75-90	msl	10YR52 00	10YR56	58	C		Y	0	0	HR	1		M				
9	0-35	mcl	10YR43 33						0	0	HR	2						
	35-53	mcl	75YR32 00						0	0		0		M				
	53-68	mzcl	75YR31 00						0	0		0		M				
	68-90	hzcl	10YR52 00	10YR56	00	C		Y	0	0	HR	3		P			Y	
10	0-30	msl	75YR32 43						2	0	HR	5						
	30-45	msl	75YR44 00						0	0	HR	3		M				
	45-75	lms	75YR54 44	10YR56	00	F			0	0	HR	5		M				
	75-100	lms	05YR44 00						0	0	HR	10		M				
10A	0-25	mcl	10YR32 00	10YR56	00	C			2	0	HR	3						
	25-60	hcl	10YR51 52	10YR56	00	C		Y	0	0	HR	1		P			Y	
	60-70	scl	10YR42 41	10YR56	00	C		Y	0	0	HR	5		P			Y	
11	0-30	msl	75YR43 00						2	0	HR	3						
	30-65	msl	75YR44 00						0	0	HR	5		M				
	65-100	mcl	75YR62 53	75YR56	00	C		Y	0	0	HR	2		P			Y	
12	0-35	mcl	10YR42 43	10YR58	00	C		Y	0	0	HR	2						
	35-43	hcl	10YR42 00	10YR58	00	M		Y	0	0	HR	1		M				
	43-60	c	10YR52 00	10YR58	00	M		Y	0	0		0		P			Y	
	60-70	c	75YR42 00	75YR58	00	M		Y	0	0		0		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
13	0-35	mcl	10YR33 00						0	0	HR	1						
	35-74	ptl	75YR31 32						0	0		0		M				
	74-90	zc	10 Y41 00	10YR46 00	C			Y	0	0		0		P			Y	
14	0-50	msl	75YR32 00						0	0		0						
	50-60	omsl	75YR31 32						0	0		0		M				
	60-80	zc	10 Y41 00	10YR46 00	C			Y	0	0		0		P			Y	
15	0-35	msl	75YR43 00						2	0	HR	3						
	35-50	scl	75YR44 00						0	0	HR	10		M				
	50-90	scl	75YR53 44	10YR56 00	C			Y	0	0	HR	10		M				
16	0-30	msl	75YR43 00						2	0	HR	4						
	30-50	msl	75YR44 00						0	0	HR	5		M				
	50-100	ms	05YR46 00						0	0	HR	2		M				
17	0-30	msl	75YR43 00						2	0	HR	3						
	30-45	msl	75YR44 00						0	0	HR	2		M				
	45-48	mcl	75YR44 00						0	0	HR	3		M				
	48-100	hcl	75YR51 43	75YR56 00	C			Y	0	0	HR	1		P			Y	
18	0-33	mcl	10YR33 00						2	0	HR	3						
	33-50	mcl	10YR43 53	10YR56 00	C			Y	0	0	HR	3		M				
	50-76	scl	10YR53 63	10YR58 00	C			Y	0	0	HR	2		M				
	76-100	c	05YR43 00	75YR58 00	C		00MN00 00	Y	0	0	HR	1		M			Y	
19	0-33	mcl	10YR42 41	10YR46 00	C			Y	2	0	HR	2						
	33-42	mcl	10YR53 00	10YR58 00	C			Y	0	0	HR	1		M				
	42-60	c	25YR43 00	75YR58 00	M			Y	0	0	HR	1		P			Y	
20	0-30	mcl	75YR43 00						2	0	HR	3						
	30-38	hcl	75YR43 00	75YR56 00	F				0	0	HR	3		M				
	38-60	c	05YR53 44	75YR58 51	M		00MN00 00	Y	0	0		0		P			Y	
	60-90	c	05YR43 33	00MN00 00	C			Y	0	0		0		P			Y	

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
21	0-28	mcl	75YR43 00						2	0	HR	3						
	28-38	hcl	75YR53 54	10YR56 00	C			Y	0	0	HR	2		M				
	38-55	c	05YR53 54	75YR54 68	M		00MN00 00	Y	0	0	HR	2		P			Y	
	55-100	c	05YR43 33					Y	0	0		0		P			Y	
22	0-28	mcl	75YR43 33						2	0	HR	3						
	28-55	mcl	75YR54 44	00MN00 00	F				0	0	HR	2		M				
	55-100	hcl	75YR64 54	75YR56 58	M			Y	0	0	HR	1		P			Y	
23	0-25	msl	10YR43 00						2	0	HR	3						
	25-30	msl	10YR43 00						0	0	HR	10		M				
	30-38	lms	75YR44 00						0	0	HR	15		M				
	38-65	ms	05YR44 00						0	0	HR	5		M				
	65-80	hcl	10YR53 54	10YR56 00	C		00MN00 00	Y	0	0	HR	10		P			Y	