SHROPSHIRE STRUCTURE PLAN
WHITCHURCH
LAND NORTH OF BELTON 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
WHITCHURCH, LAND NORTH OF BELTON ROAD

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 13.5 ha of land on the western edge of Whitchurch, Shropshire. 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 use on the site was under permanent grassland and cereals. The areas mapped as 'Other land' include a drainage ditch in the centre of the site and a service station on the north west 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)	% surveyed area	% site area
1	-	-	-
2	10.6	81	79
3a	1.4	11	10
3b	1.1	8	8
4	-	-	-
5	-	-	-
Agricultural land not surveyed	-	N/A	-
Other land	0.4	N/A	3
Total agricultural land area	13.1	100	-
Total survey area	13.5	-	100

[1] FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of 1 borings per hectare of agricultural land. In total 20 borings and 3 soil pits were described.

8. Grade 2 (very good quality) land occurs over the majority of the site. Soil wetness and soil droughtiness are the main limitations to the agricultural use of this land.

9. Subgrade 3a (good quality) land occurs on the higher land in the south of the site. Soil droughtiness is the main limitation to the agricultural use of this land.

10. Subgrade 3b (moderate quality) land occurs in the north east and south west of the site. Gradient and soil wetness are the main limitations to the agricultural use of this land.

FACTORS INFLUENCING ALC GRADE

Climate

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

12. 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 529 409
Altitude	m, AOD	105
Accumulated Temperature	day°C (Jan-June)	1357
Average Annual Rainfall	mm	744
Field Capacity Days	days	170
Moisture Deficit, Wheat	mm	91
Moisture Deficit, Potatoes	mm	77
Overall climatic grade	N/A	Grade 1

13. The climatic criteria are considered first when classifying land. Climate can be overriding in the sense that severe limitations will restrict land to low grades, irrespective of favourable site or soil conditions.

14. 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.

15. The combination of rainfall and temperature at this site means that climate does not pose a limitation to the agricultural use of the land. The site is climatically Grade 1.

Site

16. The topography of the site is undulating in nature. Where slopes exceed 7° this results in a gradient limitation to the agricultural use of the land.

17. Microrelief and flooding do not pose any limitation to the agricultural use of the land.

Geology and soils

18. The solid geology of both sites is composed entirely of Upper Keuper Saliferous Beds - British Geological Survey (1967). The drift geology is composed of Glacial Sand and Gravel - British Geological Survey (1967).

19. The soils that have developed at the site are shown by the Soil Survey of England and Wales (1983) to be Wick Series. Soils of the Wick Series have either sandy loam or sandy silt loam topsoils, over loamy sand and sand subsoils. These soils are permeable and well drained (Wetness Class I).

AGRICULTURAL LAND CLASSIFICATION

20. 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

21. Land of very good quality occupies 10.6 ha (79 %) of the survey area and occurs in the north and centre. The topsoils typically have a medium sandy loam texture overlying a medium sandy loam upper subsoil. In the lower subsoil there are bands of sandier or more clay rich soil, occasionally passing to a slowly permeable heavy clay loam and clay at depth. There are few stones within the profile. The depths to gleying and the slowly permeable layer place these soils in Wetness Class I. The moisture balances place these soils in Grade 2. The main limitation to the agricultural use of this land is soil droughtiness.

22. Occasional heavier textured profiles occurred within this Grade, generally in the north west of the survey area. The topsoils typically have a sandy clay loam texture. In the subsoil there are bands of sandier or more clay rich soil, passing to a slowly permeable heavy clay loam and clay at depth. There are few stones within the profile. The depths to gleying and the slowly permeable layer place these soils in Wetness Class II. The main limitation to the agricultural use of this land is soil wetness.

Subgrade 3a

23. Land of good quality occupies 1.4 ha (10 %) of the survey area and occurs in the south eastern corner of the survey area. The topsoils are typically medium sandy loam. This overlies a loamy medium sand upper subsoil on to a medium sand lower subsoil. These sandy subsoils have a poor moisture holding capacity that limits the amount of water available to crop roots and the moisture balance places these soils in Subgrade 3a. The main limitation to the agricultural use of this land is soil droughtiness.

Subgrade 3b

24. Land of moderate quality occupies 1.1 ha (8 %) of the survey area and occurs in two separate locations.

25. In the south west of the site gradients of between 9° and 11° occur over a thin strip of land that falls sharply away to the north. The main limitation to the agricultural use of this land is gradient. Gradient has a significant effect on mechanical farm operations and the safe and efficient use of machinery.

26. In the north east of the site poorly drained soils have formed in a series of natural depressions on either side of a large drain. The soils typically comprise an organic rich medium clay loam topsoil overlying medium clay loam and semi humified peat. At the time of the survey the land was poached and contained rushes and other plants associated with damp ground. Standing water was common on the surface. These factors are likely to adversely affect plant growth or impose restrictions on cultivations or grazing by livestock. This land is placed in Wetness Class IV. The main limitation to the agricultural use of this land is soil wetness.

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SOURCES OF REFERENCE

British Geological Survey (1967)1:63 360 scale. *Sheet No.* 122, Nantwich, Solid Edition . BGS: London.

British Geological Survey (1967)1:63 360 scale. *Sheet No.* 122, Nantwich, Drift Edition . 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 (1983) *Soils and their Use in Midland and Western England* SSEW: Harpenden

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
							3	2 borderline											
1	SJ52904130	PGR	SW	03	040	065	2	1	119	28	108	31	2				DR	2	
1P	SJ52834122	MZE	E		035	075	2	2	120	29	101	24	2				WE	2	
1W	SJ52834122	MZE	N	01	067	067	2	2	126	35	092	15	1				WE	2	SEE PIT
2	SJ53004130	PGR	S	03	000		1	1	140	49	111	34	1					1	
2A	SJ53054131	PGR	N		020		2	1	000	0	000	0					WE	3B	WET HOLO
2P	SJ53004100	MZE	E	02	000		1	1	095	4	079	2	3A				DR	3A	
2W	SJ52864125	PGR	W	02	018		2	2	120	29	094	17	2				WD	2	WET SPOT
3	SJ53104130	PGR	N	01	000		1	1	109	18	096	19	2				DR	2	
3P	SJ52994122	PGR			000		2	2	214	123	131	53	1				GW	3B	WET, POACHED
3W	SJ53194127	PGR	N	02	000		1	2	075	-16	059	-18	3A				DR	3A	
4	SJ52804120	MZE	N	01	035		2	2	133	42	091	14	1				WE	2	
5	SJ52904120	PGR	Z		000	082	2	2	131	40	110	33	1				WE	2	
5A	SJ52854116	MZE	S	01	037		2	2	143	52	110	33	1				WE	2	
6	SJ53004120	MZE	N	02	037	057	3	2	115	24	083	6	2				WD	2	
6A	SJ53004125	PGR	N		000		4	3B	000	0	000	0					WE	3B	WET HOLO
7	SJ53104120	PGR	E	03	046		1	1	111	20	096	19	2				DR	2	WET SPOT
8	SJ52804110	MZE	N	01	000		1	1	124	33	109	32	1					1	
9	SJ52904110	MZE	N	02	000		1	1	107	16	091	14	2				DR	2	
10	SJ53004110	MZE	N	03	038	060	3	2	107	16	086	9	2				WD	2	
11	SJ53104110	MSL	N		038		1	1	106	15	082	5	2				DR	2	
12	SJ52904100	MZE	N	03	029		1	1	124	33	110	33	1					1	
12A	SJ52914091	MZE	N		000		1	1	088	-3	071	-6	3A				DR	3A	
13	SJ53004100	MZF	E	03	000		1	1	096	5	080	3	3A				DR	3A	

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	0-30	msl	75YR32 00						0	0	HR	1						
	30-40	msl	75YR43 32						0	0	HR	1		M				
	40-65	scl	05YR44 00	00MN00	00	C		Y	0	0	HR	1		M				
	65-100	hcl	25YR43 00	00MN00	00	C		Y	0	0	HR	1		P			Y	
1P	0-35	mcl	10YR31 32						0	0	HR	2						
	35-47	scl	75YR42 53	75YR58	00	C		Y	0	0	HR	2	WKCSB FR	M				
	47-75	lms	05YR44 00					Y	0	0	HR	2	MDCAB FR	G				
	75-104	hcl	05YR44 00	75YR58	61	M		Y	0	0	HR	2	WKMASS FM	P	Y		Y	
1W	0-35	scl	75YR32 00						0	0	HR	3						
	35-45	msl	75YR43 53						0	0	HR	2		M				
	45-67	lms	05YR43 00						0	0	HR	2		M				
	67-120	scl	05YR44 00	75YR46	00	C		Y	0	0	HR	2		P	Y		Y	
2	0-33	msl	75YR32 00						0	0	HR	1						
	33-53	scl	75YR43 00						0	0	HR	1		M				
	53-110	scl	05YR43 00	75YR58	00	F			0	0	HR	1		M				
2A	0-20	omsl	75YR31 32						0	0	HR	1						
	20-70	mcl	75YR52 00	75YR58	00	C		Y	0	0	HR	1		M				
	70-100	scl	75YR52 00	75YR58	00	C		Y	0	0		0		M				
2P	0-30	msl	75YR32 00						0	0	HR	1						
	30-45	lms	75YR44 00						0	0	HR	1	MDCSB FR	G				
	45-58	ms	75YR44 00						0	0	HR	1	WKMSB VF	M				
	58-120	ms	75YR64 00						0	0	HR	1	WKMSB VF	M				
2W	0-18	mcl	10YR41 00						0	0	HR	1						
	18-35	mcl	10YR52 00	10YR58	00	C		Y	0	0	HR	1		M				
	35-47	scl	10YR72 00	10YR66	00	C		Y	0	0	HR	1		M				
	47-65	ms	10YR71 00	10YR66	00	C		Y	0	0	HR	1		M				
	65-85	msl	10YR71 00	10YR66	00	C		Y	0	0	HR	1		M				
	85-120	ms	05YR54 00					Y	0	0	HR	1		M				

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
3	0-35	msl	75YR33 00						0	0	HR	1						
	35-50	msl	75YR43 00						0	0	HR	1		M				
	50-85	lms	75YR54 00						0	0	HR	1		M				
	85-120	ms	75YR54 00						0	0	HR	20		M				
3P	0-16	mcl	75YR41 00	75YR46 00	C			Y	0	0	HR	1						
	16-28	mcl	75YR41 51	75YR56 00	C			Y	0	0	HR	1	MDCSAB	FR M				
	28-60	mcl	25YR52 00	75YR56 00	C			Y	0	0	HR	1	WKCPR	FR M				
	60-98	hp	05YR32 00					Y	0	0		0	MASSIV	FM P				
	98-120	zl	10YR71 00					Y	0	0		0		M				
3W	0-27	lms	10YR42 00						0	0	HR	1						
	27-60	ms	75YR46 00						0	0	HR	1		M				
	60-120	ms	75YR56 00						0	0	HR	1		M				
4	0-35	scl	75YR32 00						0	0	HR	3						
	35-45	scl	75YR43 53	75YR58 00	C			Y	0	0	HR	1		M				
	45-70	lms	10YR52 00					Y	0	0	HR	1		M				
	70-85	msl	10YR51 52					Y	0	0	HR	1		M				
	85-92	lms	10YR62 00					Y	0	0	HR	1		M				
	92-120	scl	75YR53 00	75YR58 00	M			Y	0	0	HR	1		M				
5	0-37	scl	10YR32 00						0	0	HR	2						
	37-60	scl	10YR53 00	10YR46 00	C			Y	0	0	HR	2		M				
	60-70	msl	10YR63 00					Y	0	0	HR	2		M				
	70-85	ms	10YR63 64					Y	0	0	HR	1		M				
	85-95	msl	10YR53 00	10YR46 00	C			Y	0	0	HR	1		M				
	95-120	scl	10YR53 00	10YR46 00	C			Y	0	0	HR	1		M				
5a	0-23	scl	10YR41 00	10YR58 00	M		00MN00 00	Y	0	0	HR	1						
	23-38	scl	10YR41 00	10YR46 58	M			Y	0	0	HR	1		M				
	38-56	msl	75YR41 00	75YR58 00	C			Y	0	0	HR	1		M				
	56-82	hcl	75YR41 52	75YR58 00	M			Y	0	0	HR	1		M				
	82-110	c	05YR44 00	75YR58 62	C			Y	0	0	HR	1		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	
6	0-30	msl	10YR42 00						0	0	HR	1							
	30-37	lms	10YR43 00						0	0	HR	1		M					
	37-57	ms	10YR53 00	10YR58 00	C			Y	0	0	HR	1		M					
	57-120	scl	05YR43 00	05YR58 00	C			Y	0	0	HR	1		P	Y		Y		
6A	0-30	mcl	75YR42 00	75YR58 00	C			Y	0	0		0							
	30-80	mcl	75YR52 00	75YR58 00	M			Y	0	0		0		M					V LIGHT, ORG?
	80-100	ptl	75YR31 00					Y	0	0		0		M					
7	0-30	msl	10YR42 00						0	0	HR	1							
	30-46	msl	10YR42 00						0	0	HR	1		M					
	46-55	scl	10YR51 00	10YR68 00	C			Y	0	0	HR	1		M					
	55-120	ms	10YR53 00					Y	0	0	HR	1		M					
8	0-25	msl	75YR32 00						0	0	HR	1							
	25-79	msl	75YR42 43	75YR46 00	F				0	0	HR	1		M					
	79-85	ms	10YR54 00						0	0	HR	1		M					
	85-120	cs	10YR62 63						0	0	HR	1		M					
9	0-45	msl	75YR31 32						1	0	HR	1							
	45-55	lms	75YR32 00						0	0	HR	1		M					
	55-79	ms	75YR43 42						0	0	HR	1		M					
	79-120	ms	75YR43 00						0	0	HR	1		M					
10	0-27	msl	10YR32 00						0	0	HR	1							
	27-38	msl	10YR42 32	10YR46 00	F				0	0	HR	1		M					
	38-60	ms	10YR52 00	10YR58 00	C			Y	0	0	HR	1		M					
	60-90	hcl	75YR72 00	75YR58 00	C			Y	0	0	HR	1		P	Y		Y		
	90-110	c	05YR44 00					Y	0	0	HR	1		P	Y		Y		
11	0-28	msl	10YR32 00						0	0	HR	1							
	28-38	msl	10YR32 42						0	0	HR	1		M					
	38-55	lms	75YR53 00	75YR58 00	C			Y	0	0	HR	1		M					
	55-73	ms	10YR51 00	10YR58 00	C			Y	0	0	HR	1		M					
	73-78	pl	10YR31 00					Y	0	0		0		M					
	78-120	ms	10YR41 31					Y	0	0	HR	1		M					

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
12	0-29	msl	75YR32 00						0	0	HR	1						
	29-55	msl	75YR52 53	75YR46 00	C			Y	0	0	HR	1		M				
	55-75	scl	75YR51 00	75YR58 00	C			Y	0	0	HR	1		M				
	75-90	lms	75YR51 00					Y	0	0	HR	1		M				
	90-120	ms	10YR62 00					Y	0	0	HR	1		M				
12A	0-25	msl	75YR32 00						0	0	HR	1						
	25-50	lms	75YR43 00						0	0	HR	1		M				
	50-85	ms	75YR43 00						0	0	HR	1		M				
	85-120	ms	75YR44 46						0	0	HR	1		M				
13	0-33	msl	75YR32 00						0	0	HR	1						
	33-55	lms	75YR44 00						0	0	HR	1		M				
	55-120	ms	75YR44 46						0	0	HR	1		M				