SHROPSHIRE STRUCTURE PLAN
WHITCHURCH - EDGELEY HOUSE

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 - EDGELEY HOUSE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 8.1 ha of land at Whitchurch. The site is situated to south east of Whitchurch town centre, between the railway and the bypass. 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 the bypass in the east 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	-	-	-
3a	1.7	24	21
3b	5.3	76	65
4	-	-	-
5	-	-	-
Agricultural land not surveyed	-	N/A	-
Other land	1.1	N/A	14
Total surveyed area	7.0	100	-
Total site area	8.1	-	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 one soil pit and eight auger borings were described on the site.

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

9. The good quality land is located in the north west of the site. The soils have a sandy loam topsoil texture over loamy sand and sand to depth.

10. The moderate quality land is mapped over a large proportion of the site. The soils have either a sandy clay loam topsoil texture over sandy clay loam, sandy clay and peaty textures to depth or a loamy sand texture over very stony sand. The field on the eastern edge of the site has been disturbed to extract material for the construction of the bypass and a culvert.

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 552 408
Altitude	m, AOD	100
Accumulated Temperature	day°C (Jan-June)	1362
Average Annual Rainfall	mm	749
Field Capacity Days	days	171
Moisture Deficit, Wheat	mm	90
Moisture Deficit, Potatoes	mm	76
Overall climatic grade	N/A	Grade 1

13. 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.

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. The site is climatically Grade 1.

Site

15. The site is at an altitude of approximately 100 metres AOD. There are a number of small rises which surround a lower area in the centre of the site.

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

17. These factors do not impose any limitations on the agricultural use of this land.

Geology and soils

18. The solid geology of the area is comprised of Upper Keuper Saliferous Beds and Middle Keuper Marl. This is overlain with deposits of glacial sand and gravel - British Geological Survey (1967).

19. The soils that have developed on this geology are generally either of a sandy loam texture over sand or a sandy clay loam texture over sandy clay and peat (SSEW 1984).

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.

Subgrade 3a

21. Land of good quality occupies 1.7 hectares (21%) of the site area and is found in the north west of the site.

22. The main limitation to the agricultural use of this land is soil droughtiness.

23. The soils have a sandy loam topsoil texture over loamy sand and sand to depth, with few to many stones within the soil profile. In places the subsoils may contain isolated lenses of sandy loam. The moisture balance places these soils in Subgrade 3a.

Subgrade 3b

24. Land of moderate quality occupies 5.3 hectares (65%) of the site area.

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

26. On the land which forms the slight rises the soils have either a loamy sand or a sandy loam topsoil texture over loamy sand and sand to depth, with common to abundant stones within the soil profile. The moisture balance places these soils in Subgrade 3b. The field on the eastern edge of the site has been disturbed in order to extract material for the construction of the bypass and a culvert.

27. In the low lying area in the centre of the site the soils have a sandy clay loam topsoil texture over sandy clay loam, sandy clay and peaty textures to depth. The depths to gleying and the slowly permeable layer places these soils in Wetness Class IV.

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SOURCES OF REFERENCE

British Geological Survey (1967) *Sheet No. 122* Nantwich *Solid and Drift Editions, Scale 1:63 360.* 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 (1984) *Sheet 3, Map of Midland and Western England.* 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.

WICK 05.41 w2
coarse loamy drift with siliceous stones

Old series included ARVON: ACLE: COLYN: CROXTON: DEGANWY: FATPASTURES(rare): PACEBY: GARRWEN: GRONANT: HURLEY: MABLOG: RADYR: WIKE:
* denotes data not available

Available water (AP) - cereals 140 mm : grass 130 mm
sugar beet 165 mm : potatoes 100 mm

Depth to - gleying > 100 cm : rock > 100 cm
slowly-permeable layer > 100 cm :

Integrated air capacity - 206 mm/100cm

PC zones (days)	100	125	150	175	200	225	250
wetness class	I	I	I	I	I	I	I
workability class	a	a	a	a	a	a	a

Brief Profile Description to follow
Enter any character (and press <RETURN>) to continue:

Wick series

0-30 cm Ap
Dark brown, slightly stony sandy loam or sandy silt loam.

30-60 cm Bw
Brown, slightly stony sandy loam or sandy silt loam; moderate medium subangular blocky structure.

60-80 cm Bw
Yellowish brown, slightly or moderately stony loamy sand or sandy loam; weak medium angular blocky or single grain structure.

80-120 cm 2BCu
Brownish yellow, slightly or moderately stony sand or loamy sand; weak coarse angular blocky or single grain structure.

Soil physical properties for all representative horizons to follow
Enter any character (and press <RETURN>) to continue:

SALOP 07.11 Sh
reddish fine loamy over clayey drift with siliceous stones

Old series included COTTAM:

* denotes data not available

Available water (AP)	- cereals	120 mm	: grass	120 mm
	sugar beet	150 mm	: potatoes	100 mm
Depth to	- gleying	25 cm	: rock	> 100 cm
	slowly-permeable layer		41 cm :	

Integrated air capacity - 51 mm/100cm

FC zones (days)	100	125	150	175	200	225	250
wetness class	III	III	III	IV	IV	IV	IV
workability class			c	cd	d	d	d

Brief Profile Description to follow
Enter any character (and press <RETURN>) to continue:

Salop series

0-25 cm Ap
Very dark greyish brown, slightly stony clay loam.

25-45 cm Eg
Brownish grey, mottled, slightly stony clay loam; moderate medium subangular blocky or prismatic structure.

45-100 cm Btg
Yellowish red, mottled, slightly stony clay; moderate coarse prismatic structure.

100-120 cm BCtg
Reddish brown, mottled, slightly stony clay; massive or coarse prismatic structure; sometimes with calcium carbonate concretions.

Soil physical properties for all representative horizons to follow
Enter any character (and press <RETURN>) to continue:

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
1	SJ55104090	LEY	SE	05	000		1	1	000	0	000	0					DR	2	
1P	SJ55104070	LEY	S	06	000		1	1	053	-37	044	-32	3B				DR	3B	
2	SJ55104080	LEY	S	05	000		1	1	075	-15	067	-9	3A				DR	3A	
3	SJ55204080	LEY			020	033	4	3B	253	163	163	87	1				WE	3B	
4	SJ55304080	LEY	S	05	000		1	1	072	-18	064	-12	3A				DR	3A	BORDER 3B
5	SJ55104070	LEY	S	06	000		1	1	053	-37	044	-32	3B				DR	3B	AS PIT ONE
6	SJ55204070	PGR		01	000		1	1	034	-56	034	-42	4				DR	4	DTA30 BYPASS DISTURB
7	SJ55304070	LEY		01	000		1	1	046	-44	047	-29	3B				DR	3B	DTA60 BYPASS DISTURB
8	SJ55204060	LEY	N	05	000		1	1	032	-58	032	-44	4				DR	4	DTA20 BYPASS DISTURB

				MOTTLES			PED		STONES				STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1	0-29	msl	75YR33 00						0	0	HR	3						
	29-55	msl	75YR44 00						0	0	HR	3		M				
	55-100	ms	75YR44 46						0	0	HR	5		M				
1P	0-22	lms	10YR32 00						2	0	HR	7						
	22-39	ms	10YR44 00						0	0	HR	42	WKMSB	VF	M			
	39-120	ms	10YR56 00						0	0	HR	45	WKMSB	VF	M			
2	0-22	msl	75YR33 00						0	0	HR	3						
	22-49	lms	75YR43 00						0	0	HR	2		M				
	49-100	ms	75YR56 00						0	0	HR	3		M				
3	0-20	scl	10YR32 00						0	0	HR	3						
	20-33	scl	10YR52 53	10YR56 00		C		Y	0	0	HR	1		M				
	33-50	sc	10YR52 53					Y	0	0	HR	1		M				Y
	50-55	ps	75YR25 01					Y	0	0		0		M				Y
	55-100	fp	05YR32 46					Y	0	0		0		M				Y
4	0-20	msl	10YR33 00						0	0	HR	3						
	20-43	lms	10YR33 00						0	0	HR	2		M				
	43-100	ms	75YR54 00						0	0	HR	5		M				
5	0-22	lms	10YR32 00						2	0	HR	7						
	22-39	ms	10YR44 00						0	0	HR	42		M				
	39-120	ms	10YR56 00						0	0	HR	45		M				
6	0-30	lms	10YR33 00						0	0	HR	15						
7	0-20	lms	10YR33 00						0	0	HR	3						
	20-45	lms	10YR33 00						0	0	HR	10		M				
	45-60	cs	10YR52 53						0	0	HR	15		M				
8	0-20	msl	10YR33 00						0	0	HR	5						