

AGRICULTURAL LAND CLASSIFICATION

LAND AT RETFORD

SITE B

October 2013

Prepared for:

Planning Department

Bassetlaw District Council Queens Buildings Potter Street Worksop Nottinghamshire S80 2AH Prepared by:

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Executive Summary

Bassetlaw District Council is undertaking an appraisal of potential development sites in the Retford area which are to be allocated for future housing and employment.

A consideration in the site appraisal methodology is, in the case of green field sites, the quality of agricultural land that will be affected.

LDCL has been commissioned by Bassetlaw District Council to undertake an Agricultural Land Classification assessment on an area of land to the south of Retford, Nottinghamshire.

A 14.80 hectare area of agricultural land, reference Site B, was surveyed to assess its Agricultural Land Classification (ALC) Grade.

The majority of the site area (12.40 ha) had been surveyed at a detailed level by MAFF's Resource Planning Team, Cambridge in 1998. A further 2.40 ha in the northeast corner of the site has been surveyed by LDCL to provide an update to the original survey.

Soils were found to be slightly variable across the site ranging from light textured and free draining sandy profiles through to medium textured and imperfectly profiles overlying clay within 50-60cm depth.

The site area was occupied by 1.70 ha of very good quality land (ALC grade 2), 12.50 ha of good quality land (ALC subgrade 3a) and 0.60 ha of moderate quality land (ALC subgrade 3b).

Lighter textured and freely draining soils to the south of the site were limited, in terms of agricultural land classification, by seasonal drought issues, in particular for root crops (e.g. potatoes and sugar beet) to ALC Grade 2 and in stony soil variants to ALC subgrade 3b.

Medium textured and imperfectly drained soils occupied the north, east and west of the site and were limited to ALC subgrade 3a by slight to moderate seasonal wetness and workability issues.

The best and most versatile land (ALC grade 2 and subgrade 3a) is capable of producing consistently high yields of a wide range of agricultural crops including cereals, oilseed rape, root crops and/or grass (ALC grade 2). The stonier and droughty moderate quality (ALC subgrade 3b) land is slightly more limited in its potential and tends to produce variable yields of a more limited range of crops, particularly in drier years.

1.0 BACKGROUND

LDCL was commissioned by Bassetlaw District Council to undertake an Agricultural Land Classification (ALC) assessment on an area of land to the south of Retford, Nottinghamshire.

The area surveyed is shown on the plan at Appendix 1 and extends to approximately 14.80 hectares (ha) of agricultural land. The site (Retford B) consists of two arable enclosures centred over OS National Grid Reference SK 70500 79000. The site is bordered to the north by residential gardens and to the west by housing, a footpath and Ollerton Road. The eastern boundary comprises a field ditch and to the south is a track/ward boundary.

2.0 **REPORT OBJECTIVES**

The objective of this report is to assess the Agricultural Land Classification of the site.

The findings are based on information provided by Natural England archive at Bristol (under HMSO copyright) and field survey work completed by LDCL during October 2013.

3.0 AGRICULTURAL LAND CLASSIFICATION (ALC)

All land quality assessments have been made using the method described in "Revised Guidelines and Criteria for Grading the Quality of Agricultural Land" (ALC, MAFF 1988). This system grades agricultural land according to the degree to which its physical characteristics impose long term limitations on agricultural use and cropping flexibility.

The principal physical factors influencing land quality and agricultural production are climate particularly temperature and rainfall, site including gradient, micro-relief and flood risk and soil characteristics such as texture, structure, depth, stoniness and erosion potential. These factors, together with interaction between them, form the basis of classifying land into 1 of 5 ALC grades with Grade 3 being subdivided into Subgrades 3a and 3b. ALC grades 1, 2 and 3a are defined as the best and most versatile (BMV), Subgrade 3b as being of moderate quality with Grade 4 land being poor and Grade 5 being of very poor quality.

3.1 <u>Methodology</u>

Prior to the field survey a desk study was undertaken. This included an examination of published soil and ALC maps, geology maps (British Geological Survey website map viewers) and aerial photographs (Google Earth imagery). A review of DEFRA's MAGIC website indicated that the majority (12.30ha) of this site had been surveyed by MAFF's Resource Planning Team at Cambridge in 1998. A copy of this ALC report and maps has been provided by Natural England and is shown at Appendix 5.

Following the desk study, soils across the remaining 2.50 ha of the site were examined using a hand held Dutch auger and spade to a maximum depth of 1.2 m. Auger borings were made at 100 m intervals at points predetermined by the Ordnance Survey National Grid. Information on topsoil and subsoil depth, soil texture, stone content and drainage characteristics were collected at each point. Small-scale hand dug profile pits were excavated in each of the soil types identified to record more detailed information on soil profile characteristics. A plan showing the

location of soil auger borings and profile pits is shown at Appendix 1. The distribution of ALC grades is shown at Appendix 2. Individual soil auger borings are described at Appendix 3 and soil profile pit descriptions are shown at Appendix 4.

3.2 <u>Climatic limitations</u>

Climate has an overriding influence on crop production and hence land flexibility and quality. It is assessed in the ALC system by considering rainfall and the sum of daily air temperatures above 0°C between January and June (Accumulated Temperature). This area has an Accumulated Temperature (January to June) of 1,410 day°C and a long-term average annual rainfall of approximately 578 mm. This combination of rainfall and temperature is a mild, albeit slightly dry, climatic regime and places no significant limitations on cropping flexibility and does not limit the ALC grade in this area.

3.3 <u>Site limitations</u>

The British Geological Survey (BGS) web site shows this area to be underlain by bedrock of the Tarporley Siltstone Formation formed approximately 237 to 250 million years ago in the Triassic Period. There is a superficial covering of coarse (sandy) and fine (clayey) Mid Pleistocene fluvioglacial drift, formed in the Quaternary Period up to 2 million years ago.

Gradients across the site are generally slight (0-2°) rising from around 18m Above Ordnance Datum (AOD) in the northeast on gentle and undulated slopes to 30m AOD in the southwest. The slopes do not exceed 7° and therefore impose no limitation on ALC grade.

Interrogation of the Environment Agency flood risk maps, shown at Appendix 5, demonstrate that the area is unlikely to be affected by flooding in all but the most extreme events, is localised and adjacent to the ditch in the northeast corner of the site.

3.4 Soil limitations

The 1:250,000 map 'Soils of England and Wales, Sheet 4, Eastern England' shows the area to be covered by soils of the Brockhurst 2 and Enborne Soil Associations. They consist of imperfectly drained and seasonally waterlogged soils developed in moderately stony reddish clay drift locally affected by groundwater.

Limitations on ALC grade on this site therefore relate primarily to soil wetness and workability and less frequently to moderate soil droughtiness where sandy and stony profiles occupy elevated areas in the southwest.

Topsoil and subsoil depths across the site are good and more than adequate for continuous arable production. Soil profile stone contents are locally elevated and may exceed 10% with hardstones and gravels larger than 2cm in size. This will limit the grade to at least ALC 2 in these areas.

3.5 Interactive limitations

The physical limitations which result from the interactions between climate, site and soil are soil wetness, droughtiness and erosion. This area has a low to moderate annual rainfall and the soils will typically be at field capacity (as wet as they can be after drainage has occurred), for 114 days per year.

Soil wetness expresses the extent to which excess water imposes restrictions on crop growth, workability and cultivations. Soil wetness is a limiting factor across the north, east and west of the site where clay is present in the upper 40-60cm of the soil profile. Wetness and workability problems caused by the heavy subsoil textures, low gradients and imperfect drainage provide an over-riding limitation to ALC grade 2 and subgrade 3a in these areas.

Soil droughtiness indicates the degree to which a shortage of soil water influences the range of crops which may be grown and the level of yield which may be achieved. Summer moisture deficits at this site are 114mm for wheat and 108mm for potatoes. The low to moderate rainfall and light textured stony nature of some of the soils at this site indicate that drought, in particular for potatoes, will be a moderate limitation and will restrict the land to ALC subgrade 3b.

The slightly undulated topography and medium topsoil texture mean that soil erosion through water/wind activity is not considered a major limitation on agricultural land quality.

3.6 Land use and published land quality

All of the agricultural land at this site was in arable cultivation in a mixed rotation of winter combinable crops of oilseed rape, wheat and barley. The northern field was sown to winter cereals at the time of survey whilst to the south the land was in stubble.

The site has been mapped (1:250,000 Provisional ALC maps) as land of principally grade 3 quality. This provisional grading pre-dates the 1988 ALC system and does not include a subdivision of ALC into subgrade 3a or 3b.

3.7 Agricultural Land Classification grades

3.7.1 Grade 2: Very good quality agricultural land (1.70 ha or 11% of the site area)

This grade occupied a small area to the south of the site.

Soil profiles assessed by MAFF consisted of a sandy loam or medium clay loam topsoil with a mean depth of 28cm (range 25-30cm). The topsoil contained few or common (2-5%) sub rounded hard sandstones and gravels, quartzite pebbles, siltstones and mudstones. Localised inclusions of pottery and glass could indicate historical application of sewage sludges (or nightsoil). Subsoils were comprised of a medium to heavy clay loam usually grading into clay within 70cm. Subsoils were slightly or moderately stony containing few to common (2-5%) small and medium gravels and quartzite pebbles. Soil profile drainage was good to imperfect (Wetness Classes and II and III) and the reddish brown subsoils showed evidence of mottling and gleying with slowly permeable subsoil horizons within 58-70cm of the surface. These soils

were limited to this ALC grade by slight soil wetness and workability issues and more locally by a slightly elevated (>5%) topsoil stone content.

This land is very good quality and capable of producing consistently high yields of a wide range of agricultural crops including cereals, oilseed rape, root crops and/or grass. With irrigation and stonepicking it may also support moderate to high yielding fruit and vegetable crops but the distribution and shape of this grade within the field system would not be practical for such intensive uses.

3.7.2 Subgrade 3a: Good quality agricultural land (12.50 ha or 85% of the survey area)

This subgrade occupied the majority of the site across the centre north, east and west.

Soil profiles assessed by MAFF and LDCL consisted of a sandy clay loam or medium clay loam topsoil with a mean depth of 30cm (range 25-35cm) The topsoil contained few or common (2-7%) sub rounded hard sandstones and gravels, quartzite pebbles, siltstones and mudstones. This overlay a medium clay loam, sandy clay loam or heavy clay loam subsoil to depth. Subsoil stone content was slightly variable with profiles to the west being moderately or locally very stony with small, medium and large gravels. Soil profile drainage was generally imperfect to poor (Wetness Class III) with reddish brown subsoils containing mottling and gleying within 40cm and slowly permeable subsoil horizons within 55cm of the surface. These soils were limited to this subgrade by slight to moderate soil wetness and workability issues.

This land is good quality and capable of producing consistently high yields of a wide range of agricultural crops including cereals, oilseed rape, root crops and/or grass. It is less likely to support consistently higher yielding fruit and vegetable crops.

3.7.3 Subgrade 3b: Moderate quality agricultural land (0.60 ha or 4% of survey area)

This subgrade occurred in a small area in the southwest corner of the site.

Soil profiles assessed by MAFF consisted of a medium sandy loam or sandy clay loam topsoil with a mean depth of 25cm. The topsoil contained common (2-5%) sub rounded hard sandstones, gravels and quartzite pebbles. This overlay an increasingly stony sandy clay loam or medium sandy loam subsoil to depth. Soil profile drainage was generally good (Wetness Class I) with no slowly permeable subsoil horizons identified. These soils were limited to this subgrade by moderate to severe drought issues caused by the lighter soil textures and elevated stone content.

This land is moderate quality and capable of producing consistently high yields of a narrower range of agricultural crops including combinable crops of cereals, oilseed rape and/or grass. It is unlikely to support consistently higher yielding roots without irrigation and is considered less suitable for fruit and/or vegetable crops.

Table 1: Summary of ALC Grades on Survey Area

ALC Grade	Area (Ha)	% Total Area
Grade 2	1.70	11
Subgrade 3a	12.50	85
Subgrade 3b	0.60	4
Total	14.80	100

3.8 National, regional and district spatial context of ALC grading

The ALC grade distribution for this site is compared in Table 2 with the grades occurring in Bassetlaw District, Nottinghamshire County and National distribution. The figures represent a comparison with DEFRA statistics for the areas compiled from the digital 1:250,000 scale Provisional ALC map, originally published as a regional series of paper maps in 1977, and Ordnance Survey Boundary Line 2003. These have been adjusted to take account of the areas only of agricultural land and do not include agricultural or urban use.

Table 2 Comparison of ALC grade distribution with DEFRA statistics

ALC Grade	% of Agricultural Area					
	Site	Bassetlaw District	Nottinghamshire County	National		
Grade 1	0	1	0.30	3.10		
Grade 2	11	20	21	16.20		
Subgrade 3a/3b	89	76	73	55.10		
Grade 4	0	3	5.70	16.10		
Grade 5	0	0	0	9.50		
Total	100	100	100	100		
NB: The reference data were created prior to the sub-division of Grade 3 into Sub-grades 3a and 3b. Consequently, there may be limitations to the statistics which reflect the high level mapping from these statistics were derived.						

3.8.1 Grade 2

The development has the potential to impact on up to 1.70 ha of ALC grade 2 BMV land. The proportion of land in this category at the site (11%) is slightly lower than that in the geographical area (20-21%) and also at a National scale (16%). In the overall local and regional context the proportion of Grade 2 land impacted is less than might be expected on a development of this size.

3.8.2 Grade 3 (Subgrades 3a and 3b)

The development has the potential to impact on up to 13.10 ha of ALC subgrade 3a and 3b land of which 12.50 ha is subgrade 3a BMV. The proportion of land in grade 3 (89%) is slightly more than that in the geographical area (73-76%) and more than that at a National scale (55%). In the overall local and regional context the proportion of grade 3 impacted is slightly less than

might reasonably be expected on a development of this size but it should be noted that this is due primarily to the slightly lower proportion of grade 2 and absence of lower grades of land on this site. Overall, the proportion of BMV subgrade 3a land on this site is, in the author's opinion, slightly greater than might usually be expected for a 14.80 ha site in this geographical area.



Agricultural Land Classification

Location of Soil Auger Borings and Soil Profile Pit

Retford - Site B

Client

Bassetlaw District Council Queens Buildings Potter Street Worksop Nottinghamshire S80 2AH

Key



Location of Soil Auger Boring



Location of Soil Profile Pit

Scale 1:2500 @ A3

OS Grid Reference: SK 70500 79000

Revision: A Date Drawn: 23 / 10 / 2013







Agricultural Land Classification

Distribution of ALC Grades

Retford - Site B

Client

Bassetlaw District Council Queens Buildings Potter Street Worksop Nottinghamshire S80 2AH

Key



Grade 2 (1.70 ha)



Subgrade 3a (12.50 ha)

Subgrade 3b (0.60 ha)

Scale 1:2,500 @ A3

OS Grid Reference: SK 70500 79000

Revision: D Date Drawn: 29 / 10 / 2013





Map Surveyed by MAFF/FRCA

Details of Individual Soil Auger Borings

BORE	LAND	DEPTH	TEXTURE	MOT	TLES	STC	NES	WETNESS	ALC
No.	USE	(cm)		Col	Ab.	Ab.	Туре	CLASS	Limitation
1	Winter	0-27	mcl			0-2	grvl + sst	III	3a
	Cereals	27-50	scl	o+g	с	2-5	grvl + sst	SPL>50cm	Wetness
		50-60	mcl	o+g+Mn	m	5-120	grvl + sst		
		60-120	scl/hcl	o+g+Mn	m	5-10	grvl + sst		
2	Winter	0-30	mcl			5-10	grvl + sst	III	3a
	Cereals	30-70	hcl	o+g+Mn	m/ab	2-5	grvl + sst	SPL>35cm	Wetness
		Impenetrable	e to auger > 70cm	due to stony	and slightly	indurated/co	ompact subso	il	
3	Winter	0-28	mcl			5-10	grvl + sst	111	3a
	Cereals	28-45	mcl	o+Mn	c/m	2-5	grvl + sst	SPL>45cm	Wetness
		45-120	hcl	o+g	m	5-10	grvl + sst		
4	Winter	0-24	mcl			5-10	grvl + sst	111	3a
	Cereals	24-50	mcl	o+Mn	с	2-5	grvl + sst	SPL>50cm	Wetness
		50-120	hcl	o+g	m/ab	5-10	grvl + sst		

Key to Abbreviations

Soil Textures		Mottle Colour			
zc	-	silty clay	0	-	ochrous
с	-	clay	g	-	grey
hcl	-	heavy clay loam	Mn	-	manganese concretions
hzcl	-	heavy silty clay loam	Fe	-	Iron concretions
mcl	-	medium clay loam	br	-	brown/brownish yellow
mzcl	-	medium silty clay loam	Abunda	ance	(Mottles and Stones)
scl	-	sandy clay loam	r	-	rare
msl	-	medium sandy loam	f	-	few
mszl	-	medium sandy silt loam	с	-	common
scl	-	sandy clay loam	m	-	many
csl	-	coarse sandy loam	vm	-	very many
msl	-	medium sandy loam	ab	-	abundant
mszl	-	medium sandy silt loam	Stones		
fsl	-	fine sandy loam	grvl	-	gravel
fszl	-	fine sandy silt loam	slst	-	siltstone
zl	-	silt loam	sst	-	sandstones
lcs	-	loamy coarse sand	р	-	pottery
lms	-	loamy medium sand	Land U	se	
lfs	-	loamy fine sand	Fallow	-	Fallow/set aside
CS	-	coarse sand	Plough	-	Ploughed/cultivated pending drilling
ms	-	medium sand			
fs	-	fine sand			
0	-	prefix 'o' = organic			
рІ	-	peaty loam			
р	-	peat			



Soil Profile Pit Description Retford – Site B

Soil Profile Pit 1				
Location:	South of auger boring 1			
OS Grid Reference:	SK 70675 79150			
Land Use:	Winter cereals (recently drilled – likely wheat)			
Aspect:	Flat to very slight easterly			
Soil type:	Deep medium to heavy textured and imperfectly drained soils.			
Land Quality:	ALC Subgrade 3a			

Depth (m)	Description
0-0.27	Very dark greyish brown (10YR3/2) medium clay loam; slightly mottled and gleyed around previous crop residues from 20-25cm, moist; common to many (2-5%) small and medium and rare large rounded gravels, quartzite pebbles, hardstones and rare coal fragments; weak to moderately developed medium and coarse sub angular blocky structure; medium packing density; friable; slightly sticky and plastic when wet; common fine pores and common fine/medium fissures; few fine fibrous roots; few medium and large earthworms; clear wavy boundary.
0.27-0.48	Brown (7.5YR 6/4) medium to heavy clay loam; common to many coarse distinct reddish yellow, pale grey mottles and rare black manganese concretions; slightly moist; common to many (5-10%) small and medium and rare large gravels and quartzite pebbles/hard sandstones; weakly developed medium to coarse angular blocky structure; medium packing density; firm; moderately stocky and plastic when wet; rare fine and medium pores and micropores; few fine and medium fissures; rare fine fibrous roots; very rare large earthworm channels containing illuviated topsoil; merging boundary.
0.48-1.20	Strong brown 7.5YR 4/6 and yellowish red (5YR 5/8) heavy clay loam containing gritty sandy clay loam inclusions; abundant coarse distinct reddish brown, pale grey and reddish yellow mottles; slightly moist; common small and medium and rare large gravels and quartzite pebbles; weakly developed coarse angular to prismatic structure (slowly permeable layer); medium to high packing density; hard; very sticky and plastic when wet; rare fine and medium pores and fissures; no earthworms.



Flood risk sensitivity - Retford Site B

Appendix 5



Customers in Wales - From 1 April 2013 Natural Resources Wales (NRW) will take over the responsibilities of the Environment Agency in Wales. © Environment Agency copyright and database rights 2013. © Ordnance Survey Crown copyright. All rights reserved. Environment Agency, 100026380.

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BASSETLAW LOCAL PLAN (OBJECTORS SITES) SITE 1, RETFORD, NOTTS.

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Agricultural Land Classification ALC Map and Report

SEPTEMBER 1998

Resource Planning Team Eastern Region FRCA Cambridge RPT Job Number: 55/98 MAFF Reference: EL32/672A LURET Job Number:

AGRICULTURAL LAND CLASSIFICATION REPORT

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BASSETLAW LOCAL PLAN (OBJECTORS SITES) SITE 1, RETFORD, NOTTS.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 12.4ha of land to the south of Retford, Nottinghamshire. The survey was carried out during August 1998.

2. The survey was carried out by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Bassetlaw Local Plan. This survey supersedes previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Eastern 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 post harvest cereal stubble with barley having been grown in the south of the site and wheat in the northernmost field.

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.

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	1.7	14	14
3a	10.0	80	80
3b	0.7	6	6
Total surveyed area	12.4	100	-
Total site area	12.4	-	100

Table 1:	Area of	grades and	other	land
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7. The fieldwork was conducted at an average density of one boring per hectare. A total of 11 borings and 2 soil pits was described.

8. The majority of the agricultural land within the site has been assessed as Subgrade 3a (good quality land), with a small area of Grade 2 (very good quality land) in the south and a very small area of Subgrade 3b (moderate quality land) in the south west corner. Land of

Subgrade 3a quality was restricted by a moderate wetness/workability limitation, whilst the Grade 2 and Subgrade 3b land was restricted primarily by droughtiness imperfections.

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FACTORS INFLUENCING ALC GRADE

Climate

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

10. 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).

Factor	Units	Values
Grid reference	N/A	SK 704 790
Altitude Accumulated Temperature	m, AOD day°C (Jan-June)	20 1410
Average Annual Rainfall Field Capacity Days Moisture Deficit, Wheat Moisture Deficit, Potatoes	mm days mm mm	578 114 114 108
Overall climatic grade	N/A	Grade 1

Table 2: Climatic and altitude data

11. 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.

12. 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.

13. The combination of rainfall and temperature at this site impose no overall limitation to land quality and hence the site has a climatic grade of 1.

Site

14. The site lies at approximately 20m AOD and is predominantly level with gentle slopes to the east. Therefore, neither gradient nor altitude impose a limitation on the quality of the land.

Geology and soils

15. The published 1:63 360 scale geology map, sheet 101, East Retford (Geological Survey, 1967) shows the site to be mapped as Keuper Waterstones.

16. The 1:250 000 scale reconnaissance soil map of the area (Soil Survey, 1983) shows the site to comprise soils of the Brockhurst 2 Association with possibly a small area in the east being mapped as the Enborne Association. Soils of the Brockhurst Association are briefly described as slowly permeable seasonally waterlogged reddish fine loamy over clayey and clayey soils and the Enborne Association as deep stoneless fine loamy and clayey soils variably affected by groundwater.

17. The current more detailed survey of the site identified almost the whole site as consisting of slightly stony, medium clay loam or sandy clay loam topsoils over slightly to moderately stony, sandy clay loam upper subsoils. Lower subsoils often comprised slowly permeable clays and at a number of locations occurred directly below the topsoil. The soil profiles were typically assessed as Wetness Class II or III depending on the depth at which the subsoil became slowly permeable. To the south west droughty, relatively stony, coarse textured soils were found.

AGRICULTURAL LAND CLASSIFICATION

18. 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.

19. The location of the auger borings and pits is shown on the attached sample location map.

Grade 2

20. Land of this quality was found in a small area in the south of the site and consisted of fine loamy soil profiles which were either freely draining or had a slowly permeable clay subsoil at depth (i.e. wetness class II). For this land droughtiness and/or wetness/workability were slightly limiting and restricted the land to Grade 2 (very good quality agricultural land).

Subgrade 3a

21. The majority of the site has been assessed as Subgrade 3a with the main limiting factor being wetness/workability. The soil profiles were assessed as Wetness Class III due to the presence of a slowly permeable horizon in the subsoil. The fine textured topsoils and the prevailing climatic conditions combined with this and resulted in a moderate wetness/workability limitation which restricts the land to Subgrade 3a.

Subgrade 3b

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22. A very small area in the south west corner of the site has been assessed as Subgrade 3b. This land consists of relatively stony, coarse textured soils, which limit the moisture available for crop growth. Therefore, this land is restricted to Subgrade 3b by a significant droughtiness limitation.

> Resource Planning Team Eastern Region FRCA Cambridge

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SOURCES OF REFERENCE

British Geological Survey (1967) Sheet No. 101, East Retford. 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) Sheet 4, Eastern England. SSEW: Harpenden.

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