Tel: 01377 236010
Fax: 01377 236584
mail@ldcl.co.uk
www.ldcl.co.uk

LDC
Land Drainage Consultancy Ltd

Cowslip Offices
Fimber
Driffield
East Yorkshire
YO25 9LY

AGRICULTURAL LAND CLASSIFICATION

LAND AT RETFORD

SITE A

October 2013

Prepared for:

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

Prepared by:

David Royle BSc (Hons), FACTS
Land Drainage Consultancy Ltd
Cowslip Offices
Fimber
Driffield
East Yorkshire
YO25 9LY

Table of Contents

Executive Summary

Bassetlaw District Council is undertaking an appraisal of potential development sites in the Retford Area 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 north of Retford, Nottinghamshire.

A 12.06 hectare area of agricultural land, reference Site A, was surveyed to assess its Agricultural Land Classification (ALC) Grade.

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 at depth.

The entire site was occupied by land of very good (ALC grade 2) best and most versatile land.

Lighter textured and freely draining soils to the north and in the centre of the site are slightly limited, in terms of agricultural land classification, by seasonal droughtiness issues, in particular for root crops (e.g. potatoes and sugar beet).

Medium textured and imperfectly drained soils in the south and west of the site are limited to ALC Grade 2 by slight seasonal wetness and workability issues.

This land is capable of producing consistently high yields of a wide range of agricultural crops including cereals, oilseed rape, root crops and/or grass. With irrigation it could support moderate to high yielding fruit and vegetable crops.

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 north of Retford, Nottinghamshire.

The area surveyed is shown on the plan at Appendix 1 and extends to approximately 12.06 hectares. The site (Retford A) consists of two arable enclosures centred over OS National Grid Reference SK 70700 82500. The site is bordered to the north and west by Bolham Lane and to the east by Tiln Lane. The southern boundary is formed by gardens to the rear of residential properties on Badger's Chase.

2.0 REPORT OBJECTIVES

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

The findings are based on field survey work completed 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" (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 Methodology

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 there have been no detailed ALC survey's undertaken by statutory agencies on this land in recent years.

Following the desk study, soils across 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 Climatic limitations

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 1,406 day°C and a long-term average annual rainfall of approximately 575 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 Site limitations

The British Geological Survey (BGS) web site shows this area to be underlain by bedrock of the Retford Member consisting of mudstones formed approximately 246 to 250 million years ago in the Triassic Period. There is a superficial covering of both 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) on gentle and undulated slopes in the south to 22m AOD in the north of the site B. The slopes on site do not exceed 7° and therefore impose no limitation on ALC grade.

Interrogation of the Environment Agency flood risk maps, shown at Appendix 6, demonstrate that this land is not affected by flooding and this has no influence on ALC grade.

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 Dunnington Heath, Whimple and Newport Soil Associations. These Associations include a range of component soil series ranging from free draining Newport and Wick soil series through to clayey and imperfectly drained Dunnington Heath and Whimple series.

Limitations on ALC grade on this site therefore relate to soil droughtiness where sandier profiles predominate to the centre and north of the site and soil wetness and workability on the medium to heavier textured soils in the south.

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 5% with hardstones and gravels larger than 2cm in size. This will limit the ALC grade to 2 in more stony areas of the site.

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 112 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 west and south of the site where clay is present below the lighter textured topsoil and upper subsoil. Wetness and workability problems caused by the heavy subsoil textures, low gradients and imperfect drainage provide an over-riding limitation to ALC grade 2 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 113mm for wheat and 107mm for potatoes. The low to moderate rainfall and light textured nature of the some of the soils at this site indicate that drought, in particular for potatoes, will be a slight to moderate limitation and restrict the land to ALC grade 2.

The slightly undulated topography and sandy loam topsoil textures mean that soil erosion through water/wind activity is not considered a major limitation on land quality at this site.

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. Field 1 to the northeast of the site was fallow at the time of survey whilst field 2 had been ploughed in preparation for a winter crop. The site has been mapped (1:250,000 Provisional ALC maps) as land of principally grade 2 and 3a quality.

3.7 Agricultural Land Classification Grades

3.7.1 Grade 2: Very good quality agricultural land (12.06 ha or 100% of the site area)

This grade of land occupies the whole of the site area. Soil profiles were typical of the Dunnington Heath, Whimple and Newport/Wick Soil Associations and are described below.

In the north and centre of the site, and mainly on the upslope, profiles consisted of a relatively uniform medium sandy loam topsoil with a mean depth of 34 cm (range 31-37cm). The topsoil contained few or common (2-5%) sub rounded hard sandstones and gravels, quartzite pebbles, siltstones and mudstones. Localised and rare inclusions of pottery and glass indicate possible historical application of sewage sludges (or nightsoil). Subsoils were comprised of a medium sandy loam usually grading into loamy medium sand within 50-60cm. Subsoils were stoneless or very slightly stony containing rare or occasionally few (2-5%) small and medium gravels and quartzite pebbles. Soil profile drainage was good (Wetness Class I) and the reddish brown subsoils showed little evidence of mottling and gleying with no slowly permeable subsoil horizons. These soils are limited to this grade of land by slight soil droughtiness, in particular for root crops, and locally by a slightly elevated (>5%) topsoil stone content.
In the centre, south and west of the site profiles became slightly heavier textured. They consisted of a medium sandy loam or sandy clay loam topsoil to 32cm. (range 28-37cm). The topsoil contained few or common (2-7%) sub rounded hard sandstones and gravels, quartzite pebbles, siltstones and mudstones. This overlay a medium sandy loam or sandy clay loam subsoil grading into heavy clay loam or clay usually within 50-70cm depth rare or few (1-5%) small, medium and large gravels. Soil profile drainage was generally imperfect (Wetness

Classes II and III) and reddish brown subsoils were usually mottled and gleyed within 40cm depth. The subsoil was usually slowly permeable within 50-70cm of the surface.

Soil structure was generally good to moderate in these profiles with fine and medium sub angular blocky peds in the topsoil over fine sub angular to single grain structure in the upper subsoil where sandy and coarse angular or prismatic structures where clayey.

This land is of 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.

Table 1: Summary of ALC Grades across survey area

ALC Grade	Area (Ha)	% Total Area
Grade 2	12.06	100
Total	**12.06**	**100**

3.8 Soil analysis results

Whilst soil pH and nutrient status are not used as a basis for determining ALC grade they provide useful data on current agronomic issues.

The pH of the topsoil I both fields was satisfactory (6.8) and there are currently no requirements for lime.

Concentrations of available soil phosphorus were slightly low (index 1).

Soil potassium concentrations were slightly deficient (index 1 and 2$^-$).

Magnesium levels were satisfactory (index 2-3).

Particle size distribution within the topsoil and upper subsoil confirmed field observations.

3.9 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.

3.9.1 Grade 2

Development proposals have the potential to impact on up to 12.06 ha of ALC grade 2 BMV land. The proportion of land in this category at the site (100%) is higher than that in the

geographical area (20-21%) and also greater than that occurring at a National scale (16%). In the overall local and regional context the proportion of Grade 2 land impacted is greater than might be expected on a development of this size.

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	100	20	21	16.20
Subgrade 3a/3b	0	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.

Appendix 1

Agricultural Land Classification

Location of Soil Auger Borings and Soil Profile Pit

Retford - Site A

Client

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

Key

Location of Soil Auger Boring

SPP — Location of Soil Profile Pit

Scale 1:2,500 @ A3

OS Grid Reference: SK 70700 82500

Revision: B
Date Drawn: 28 / 10 / 2013

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N

SCALE 1: 2500
0M 20M 40M 60M 80M

Sports Ground

Clover Ley Farm

Bolham Villas

Bolham

Bolham Manor

Ppg sta

Moorgate Farm

Track

Badgers Chase

Bolham Lane

Track

Appendix 2

Agricultural Land Classification

Distribution of ALC Grades

Retford - Site A

Client

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

Key

Grade 2 (12.06 ha)

Scale 1:2,500 @ A3

OS Grid Reference: SK 70700 82500

Revision: B
Date Drawn: 28 / 10 / 2013

LDC
Land Drainage Consultancy Ltd

N

SCALE 1: 2500
0M 20M 40M 60M 80M

Appendix 3

Details of Individual Soil Auger Borings

BORE No.	LAND USE	DEPTH (cm)	TEXTURE	MOTTLES		STONES		WETNESS CLASS	ALC Limitation
				Col	Ab.	Ab.	Type		
1	Fallow	0-31	msl			0-2	grvl + sst	I	2
	SAS	31-45	lms/msl	o	f			No SPL	Drought
		45-70	msl	o	c				
		70-120	msl	o+g	c	1-2	grvl + sst		
2	Plough	0-36	msl (o)			1-2	grvl + sst	I	2
		36-65	msl	o	c	2-5	grvl + sst	No SPL	Drought
		65-120	lms	o	c	2-5	grvl + sst		
3	Fallow	0-32	msl/scl			0-2	grvl + sst	I	2
	SAS	32-60	msl					SPL>90	Drought
		60-90	lms	o	c				
		90-120	hcl	o+g	m				
4	Fallow	0-32	msl/lms			0-2	grvl + sst	II	2
	SAS	32-48	msl	o	m	0-2	grvl + sst	SPL>60	Wetness
		48-60	lms	o + g	m				
		60-120	hcl	o+g	m				
5	Plough	0-37	msl			1-2	grvl + sst	I	2/3a
		36-60	msl	o	f/c	2-5	grvl + sst	No SPL	Drought
		60-120	lms	o	f/c	2-5	grvl + sst		
6	Plough	0-34	msl/scl			1-2	grvl + sst	I	2
		34-68	lms	o	c	2-5	grvl + sst	SPL>68	Wetness
		68-120	hcl	o+g	ab	2-5	grvl + sst		
7	Plough	0-37	msl			1-2	grvl + sst	I	2
		37-60	msl	o	c			No SPL	Drought
		60-120	lms	o	c	2-5	grvl + sst		
8	Plough	0-28	msl			1-2	grvl + sst	II	2
		28-50	msl	o	c			SPL > 50	Wetness
		50-120	hcl	o+g	ab	1-2	grvl + sst		
9	Plough	0-36	scl			1-2	grvl + sst	II	2
		36-65	msl	o	c/m	2-5	grvl + sst	SPL>65	Wetness
		65-120	hcl	o+g	ab	2-5	grvl + sst		
10	Plough	0-38	msl/scl			1-2	grvl + sst	II	2
		38-65	msl	o	m	1-2	grvl + sst	SPL>65	Wetness
		65-120	c	o+g	ab	1-2	grvl + sst		
11	Plough	0-36	scl			1-2	grvl + sst	II	2/3a
		36-50	mcl	o	f/c	2-5	grvl + sst	SPL>50	Drought
		50-120	hcl	o+g	m	2-5	grvl + sst		
12	Plough	0-31	scl			1-2	grvl + sst	I	2
		31-70	msl	o	f	2-5	grvl + sst	No SPL	Drought
		70-120	lms	o	f	2-5	grvl + sst		
13	Plough	0-31	msl			1-2	grvl + sst	II/III	2
		31-60	msl	o	f/c	2-5	grvl + sst	SPL>60?	Wetness
		Impenetrable > 60cm due to hard rounded gravels in lower subsoil but likely clay to depth				5-10			

Details of Individual Soil Auger Borings

Key to Abbreviations

Soil Textures			**Mottle Colour**		
zc	-	silty clay	o	-	ochrous
c	-	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	**Abundance (Mottles and Stones)**		
scl	-	sandy clay loam	r	-	rare
msl	-	medium sandy loam	f	-	few
mszl	-	medium sandy silt loam	c	-	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	p	-	pottery
lms	-	loamy medium sand	**Land Use**		
lfs	-	loamy fine sand	Fallow	-	Fallow/set aside
cs	-	coarse sand	Plough	-	Ploughed/cultivated pending drilling
ms	-	medium sand			
fs	-	fine sand			
o	-	prefix 'o' = organic			
pl	-	peaty loam			
p	-	peat			
OB	-	Overburden			

Appendix 4

Soil Profile Pit Description
Land at Retford – Site A

Soil Profile Pit 1	
Location:	**SW of Auger boring 4**
OS Grid Reference:	SK 70766 82575
Land Use:	Fallow/Set aside
Aspect:	Flat to very slight southerly aspect
Soil type:	Deep light to medium textured soils. Wetness Class I – freely drained
Land Quality:	ALC Grade 2

Depth (m)	**Description**
0-0.37	Very dark greyish brown (10YR 3/2) slightly organic medium sandy loam; few (2-5%) small, medium and rare large sub rounded hard gravels, quartzite pebbles, coal fragments and rare small glass fragments; moist at surface becoming slightly moist below; moderately developed fine and medium sub angular blocky to crumb structure; low packing density; soft; non plastic; slightly sticky; common fine pores and many small and medium fissures; abundant fine fibrous roots; common medium and large earthworms; clear smooth boundary.
0.37-0.65	Brownish yellow (10YR 6/6) medium sandy loam; common to many coarse distinct ochrous and pale brown mottles; rare (1-2%) small and medium sub rounded gravels and quartzite pebbles; slightly moist; weakly developed fine and medium sub angular blocky structure; low to medium packing density; friable to firm; non plastic; slightly sticky; few fine and medium pores, micropores and common fine and medium fissures; few fine fibrous roots; very rare large earthworm channels filled with illuviated topsoil; clear smooth boundary.
0.65-1.00	Light grey (10YR 7/2) and brownish yellow (10YR 6/6 & 6/8) heavy clay loam; abundant coarse distinct ochrous, grey and strong brown mottles; rare (1-2%) small and medium soft weathering sandstones and mudstones; slightly moist; weak to moderately well developed prismatic structure; medium to high packing density; firm; rare fine micropores and common medium and large fissures along ped faces; very rare fine fibrous roots; no earthworms.

Soil analysis results
Retford Site A

Appendix 5

Contact : DAVID ROYLE
LDCL
COWSLIP OFFICES
FIMBER
DRIFFIELD
EAST YORKSHIRE
YO25 9LY
Tel. : 01977 555869

J143

Please quote the above code for all enquiries

Client : RETFORD SITE A

Sample Matrix : Agricultural Soil

Laboratory Reference
Card Number 24507/13

Date Received 11-Oct-13
Date Reported 22-Oct-13

SOIL ANALYSIS REPORT

Laboratory Sample Reference	Field Details			Index			mg/l (Available)		
	No.	Name or O.S. Reference with Cropping Details	Soil pH	P	K	Mg	P	K	Mg
104245/13	1	**FIELD 1** *No cropping details given*	**6.8**	**1**	**2-**	**3**	**13.0**	**137**	**136**
104246/13	2	**FIELD 2** *No cropping details given*	**6.8**	**1**	**1**	**2**	**11.0**	**70**	**98**

If general fertiliser and lime recommendations have been requested, these are given on the following sheets.
The analytical methods used are as described in DEFRA Reference Book 427
The index values are determined from the DEFRA Fertiliser Recommendations RB209 8th Edition (Appendix 4).

Released by *Katie Dunn* On behalf of NRM Ltd Date *22/10/13*

MICRO NUTRIENT REPORT

DATE **22nd October 2013**

SAMPLES FROM **RETFORD SITE A**

DAVID ROYLE
LDCL
COWSLIP OFFICES
FIMBER
DRIFFIELD
EAST YORKSHIRE YO25 9LY
Tel: 01977 555869

Reference: **24507/104245/13** Field Name: **FIELD 1**	**Result**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %	3.3	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %	75					
Silt (0.063 - 0.002mm) %	15					
Clay (< 0.002mm) %	10					
Textural Classification	Sandy Loam					

Reference: **24507/104246/13** Field Name: **FIELD 2**	**Result**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %	3.6	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %	60					
Silt (0.063 - 0.002mm) %	24					
Clay (< 0.002mm) %	16					
Textural Classification	Sandy Loam					

DATE 22nd October 2013
SAMPLES FROM RETFORD SITE A

SAMPLED BY

Report reference 24507/13

DAVID ROYLE
LDCL
COWSLIP OFFICES
FIMBER
DRIFFIELD
EAST YORKSHIRE
Tel: 01977 555869
Fax:

Fertiliser Recommendations

The recommendation should be increased or decreased where yields are substantially more or less than that specified. The amount to apply can be calculated using the expected yield and values for the offtake of phosphate and potash per tonne of yield given in Appendix 5 of RB209 8th edition.
All recommendations are given for the mid-point of each Index.
Where a soil analysis value (as given by the laboratory) is close to the range of an adjacent Index, the recommendation may be reduced or increased slightly taking account of the recommendation given for the adjacent Index. Small adjustments of less than 10 kg/ha are generally not justified.
Don't forget to deduct nutrients applied as organic manures.
For Nitrogen recommendations please refer to the RB209 8th edition or seek advice from an FACTS qualified adviser.
For established grassland or other situations where there is no, or only minimal, soil cultivation, no more than 7.5 t/ha should be applied in one application.

Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
FIELD 1		*Units/Acre*				*T/Ac* **0**	**0**
104245 / Medium		*Kg/Ha*				*Te/Ha* **0**	**0**

Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
FIELD 2		*Units/Acre*				*T/Ac* **0**	**0**
104246 / Medium		*Kg/Ha*				*Te/Ha* **0**	**0**

Fertiliser recommendations are based on **DEFRA RB209 (Eighth Edition - 2010).** If a nutrient is deficient and no recommendation is given, either no recommendation is given in RB209 or we have insufficient data to give a recommendation. Apply Lime to the nearest half Ton / Tonne.
NRM is a UKAS accredited laboratory to ISO/IEC 17025:2005

DAVID ROYLE
LDCL
COWSLIP OFFICES
FIMBER
DRIFFIELD
EAST YORKSHIRE YO25 9LY

J143

Please quote above code for all enquiries

RETFORD

SOILS

ANALYTICAL REPORT

Sample Reference :

SITE A FIELD 1 USS

Sample Matrix : SOIL

Laboratory References	
Report Number	14677
Sample Number	242545

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept as the dry ground sample for at least 1 month.

Date Received	11-OCT-2013
Date Reported	21-OCT-2013

ANALYTICAL RESULTS *on 'dry matter' basis, unless otherwise stated.*

Determinand	Value	Units
Sand 2.00-0.063mm	77	% w/w
Silt 0.063-0.002mm	12	% w/w
Soil Texture	Sandy Loam	
Clay <0.002mm	11	% w/w

Released by *Joe Cherrie* Date *21/10/13*

NRM Ltd. Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

DAVID ROYLE
LDCL
COWSLIP OFFICES
FIMBER
DRIFFIELD
EAST YORKSHIRE YO25 9LY

J143

Please quote above code for all enquiries

RETFORD

SOILS

ANALYTICAL REPORT

Sample Reference :

SITE A FIELD 2 USS

Sample Matrix : SOIL

Laboratory References	
Report Number	14677
Sample Number	242546

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept as the dry ground sample for at least 1 month.

Date Received	11-OCT-2013
Date Reported	21-OCT-2013

ANALYTICAL RESULTS *on 'dry matter' basis, unless otherwise stated.*

Determinand	Value	Units
Sand 2.00-0.063mm	61	% w/w
Silt 0.063-0.002mm	19	% w/w
Soil Texture	Sandy Clay Loam	
Clay <0.002mm	20	% w/w

Released by ..... *Joe Cherrie* .....

Date ..... *21/10/13* .....

Flood risk sensitivity - Retford Site A

Appendix 6

Click on the map to see what is the Risk of Flooding at a particular location.

Flood Maps

- Flooding from rivers or sea without defences
- Extent of extreme flood
- Flood defences (Not all may be shown*)
- Areas benefiting from flood defences (Not all may be shown*)
- Main rivers