

Springwell Solar Farm

Environmental Statement

Appendix 11.1c: Springwell Central
Agricultural Land Classification Report

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November 2024
Springwell Energyfarm Ltd

APFP Regulation 5(2)(a)
Planning Act 2008
Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations 2009

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1. Introduction

1.1. Background

1.1.1. Springwell Solar Farm ('the Proposed Development') is a proposed new solar energy farm, co-located with battery storage. The proposals include grid infrastructure to connect the Solar Farm to the national electricity transmission system and any necessary environmental mitigation. The Proposed Development has secured a grid connection agreement allowing export or import of up to 2 phases of 400MW each of electricity to and from the national electricity transmission system. This qualifies the project as a Nationally Significant Infrastructure Project (NSIP) and requires a Development Consent Order to provide consent to build.

1.1.2. ADAS have been instructed by EDF Renewables to undertake an agricultural land classification survey. The total area surveyed covers over 1,700 hectares of land and is split into three sections (West, Central and East). This report provides information on the soils and agricultural quality of the land in the Central section which covers 257 hectares. The report is based on a survey of the land undertaken in Winter 2022, Spring 2023 and early 2024.

1.2. Site Environment

1.2.1. The survey spans 31 agricultural fields between the villages of Scopwick and Ashby be la Launde in Lincolnshire. The land is level to gently undulating across the section with an elevation of approximately 20-30 m AOD. The land is bordered mostly by adjoining agricultural land, with some farm tracks. Minor roads border the outer boundaries of fields to the east, west and north of the section.

1.3. Agricultural Use

1.3.1. At the time of survey, the land was growing winter cereals, legumes, and grass for chlorophyll production.

1.4. Published Information

Geology

- 1.4.1. 1:50,000 scale BGS information¹ records no superficial geology within this section.
- 1.4.2. The bedrock geology of the majority of this section is recorded as Great Oolite Formation. A small fraction of the land within Central Section is recorded as Inferior Oolite Formation. The Inferior Oolite Formation is named as such due to it lying underneath the Great Oolite, as it is older. The Great Oolite limestones in this area are often only 2m thick with slowly permeable clay and clay shale underneath.
- 1.4.3. The Inferior Oolite Formation is capable of holding and conducting greater volumes of water than the younger, Great Oolite Formation.

Soils

- 1.4.4. The national soils map, published at 1:250,000 scale, records the fields in Central Section as mainly belonging to the Aswarby soil association, with six fields located in the northern end of the site mapped as Marcham association².
- 1.4.5. Aswarby soil association is described as an association of calcareous, well drained, occasionally waterlogged soils which are comprised of Jurassic limestone and clay. Characterised by fine loamy soils over limestone often at shallow depth (less than 60cm). The association occurs on the Great Oolite limestones. Some soils are affected by groundwater. There may also be temporary waterlogging from the presence of slowly permeable clayey beds under the thin limestone. These areas are known as the 'wetter brashy' soils. It should also be noted that some Aswarby soils have hard, only weakly fissured, limestone rock at shallow depth which is a barrier to root penetration. This is a local problem where many fields have patches of shallow soil where partial crop failures/reduction are to be expected due to the restricted rooting volume and associated moisture reserves, particularly in years with a dry May/June period³.
- 1.4.6. The Marcham soil association is described as soils with well-drained and permeable calcareous fine and coarse loamy soils that are shallow over

¹ British Geological Survey, 2023. *Geology of Britain viewer*. Online resource:
[REDACTED]

² Hodge C.A.H. et al.; 1984. *Soils and their use in Eastern England*. Soil Survey of England and Wales; Harpenden.

³ George H. and Robson J.D.; 1978. *Soils in Lincolnshire II (Sheet TF05 – Sleaford)*. Soil Survey Record No.51; Harpenden

limestone. On this site Marcham soils occur at the northern boundary of where the bedrock geology changes from Inferior Oolite to Great Oolite Formation limestone.

Previous Agricultural Land Classification

1.4.7. No detailed post-1988 agricultural land classification is publicly available for this site. The provisional ALC map, published at 1:250,000 scale, records the land as mostly Grade 2 quality, with some areas of Grade 3 quality to the south and west of the section⁴.

Flood risk

1.4.8. A small area in the north-east of the site (see Figure 2) is in a Flood Risk 3 area, which means there is a high probability of flooding from the river. In addition, there is a risk of surface water flooding in the areas to the north-west edge of the site as show in Figure 3 below.

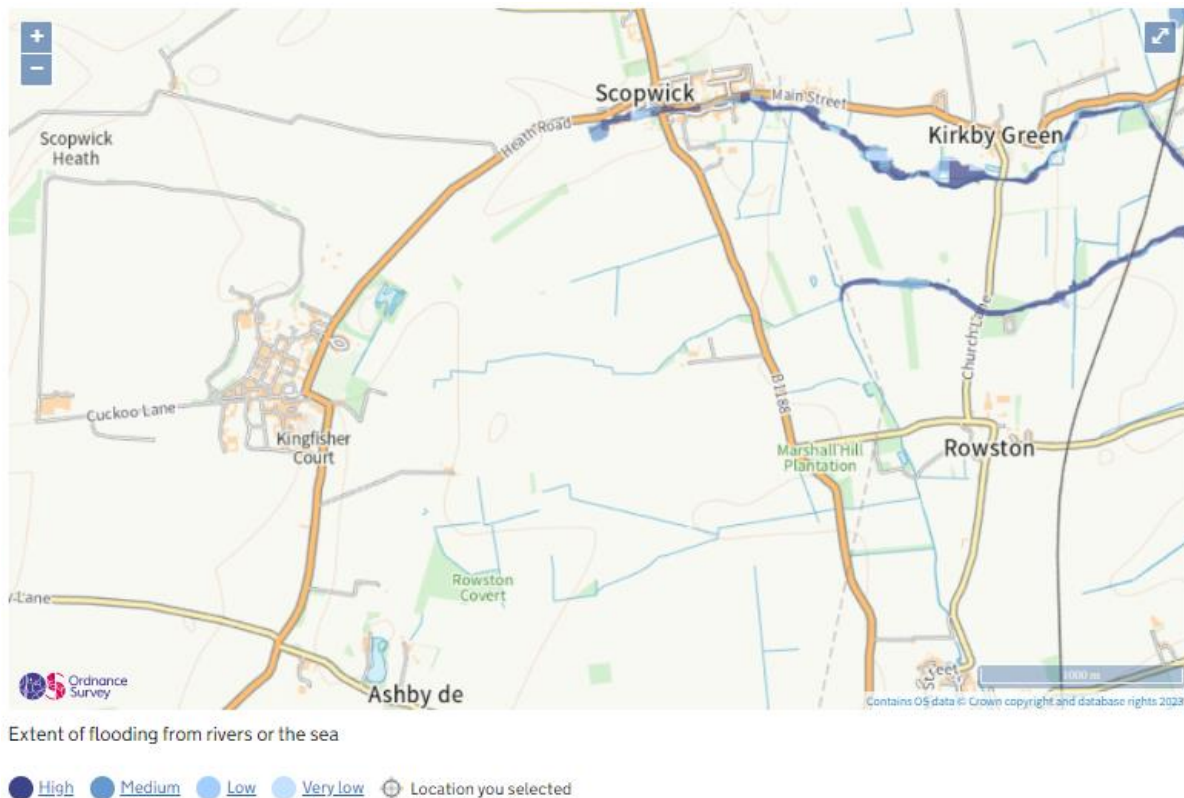


Figure 1 Flood risk map from rivers

⁴ Defra, 2023. *Interactive map of Great Britain*. Online resource: <https://magic.defra.gov.uk/MagicMap.aspx>

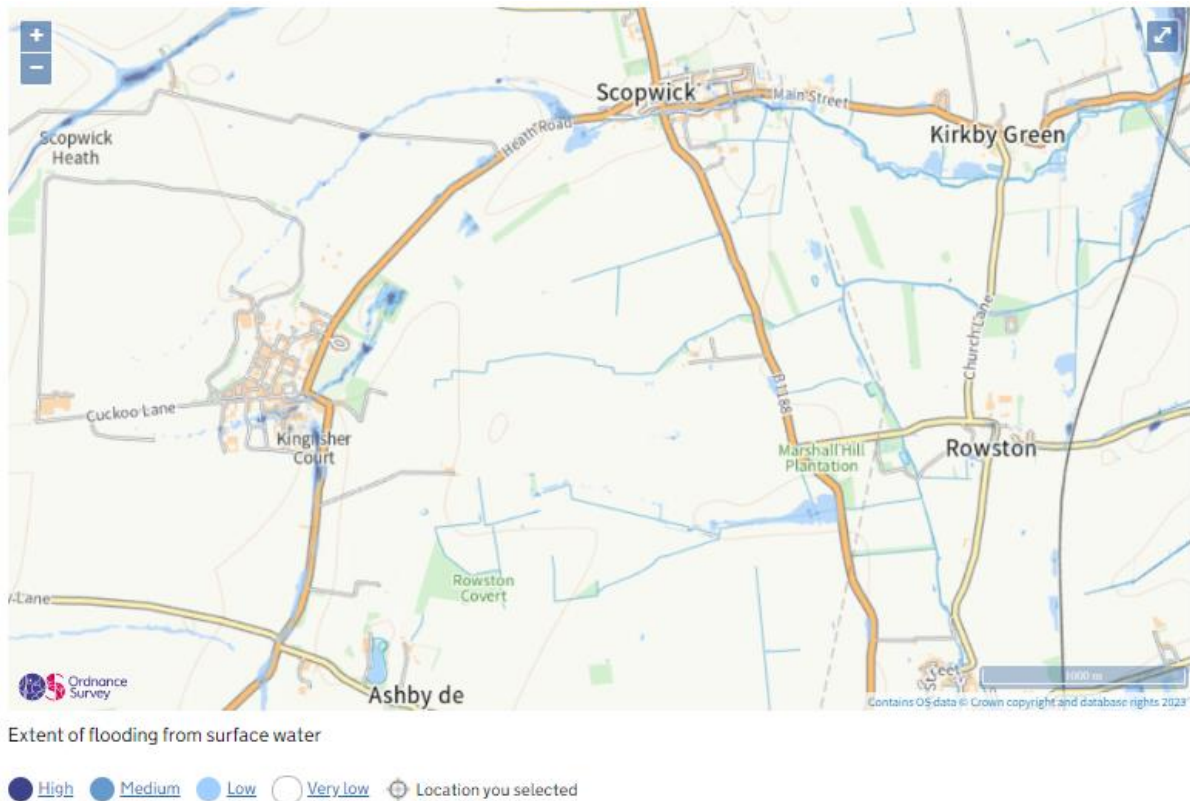


Figure 2 Flood risk map from surface water

2. Methodology

- 2.1.1. A soil survey was carried out in November 2022. The survey was based on observations at intersects of a 200 m grid, giving a sampling density of one observation per four hectares. Later during Spring 2023, further observations were conducted at 100m spacing, giving a final sample density of one per hectare. Additional areas were surveyed at the beginning of 2024. During the survey, soils were examined via a combination of auger borings and soil description pits to a maximum depth of 1.2 m. A number of mini pits were also dug *ad hoc* to confirm soils and stone content. A log of the details of each observation point is attached to this report as Appendix A. A map showing the location of each observation point is attached to this report as Appendix B.
- 2.1.2. Samples were taken from the soil description pits and submitted to NRM Laboratories for particle size distribution analysis to confirm soil textures. The results of the analyses are given in Appendix D.
- 2.1.3. In the droughtiness calculations, the differences in the hydraulic properties of the Great and Inferior Oolite limestones are allowed for within the profile

extensions to represent the increased water available for crop uptake. Profile extensions are used when auger borings are stopped by stones and are based on representative soil pits. Where auger profiles have been extended for the drought calculations, the pit which has been used to model the extension on, is referenced in the auger table at Appendix A. A table containing the moisture deficit values for each field are attached to this report at Appendix E.

3. Soils

3.1. Soil Types

3.1.1. There are five principal soil types at this site and they are all calcareous; loamy over hard limestone, loamy over hard shattered limestone, loamy over soft shattered limestone, imperfectly draining clayey soils and moderately freely draining loamy soils.

The moisture balance (MB) for wheat (MBW) and for potatoes (MBP) is given for each pit and is calculated using the moisture deficit (MD) values for wheat (MDW) and for potatoes (MDP).

Calcareous loamy soils over hard limestone

3.1.2. These soils were found in the central area of the section in Bk05 and Bk10 where soils were shallow, the limestone found at the bottom of the pit was hard and impermeable to roots, which were found growing horizontally across the rock in the base of the pit. The soils were free draining and belong to wetness class I. These soils have calcareous medium (medium clay loam and medium silty clay loam) and heavy (heavy clay loam and heavy silty clay loam topsoil). In the droughtiness calculations no profile extension was added. An example is shown in the pit description below:

Table 1 Location: Springwell Central - Field BK10, Profile Pit (506609, 357137)

Depth (cm)	Details
0 – 30	Brown (10YR 4/3) heavy clay loam; very calcareous; moist; friable; common medium, small and very small fossiliferous limestone fragments; moderate to strongly developed medium granular structure; abundant fine and very fine pores; common fine fissures; many fine and very fine fibrous root; sharp irregular boundary to:
30 – 50	Yellowish brown (10YR 5/4) heavy silty clay loam; calcareous; moist; friable; moderately developed coarse subangular blocky; common very fine faint ochreous mottles; common large, medium and small stones; 2% biopores >0.5mm; common fissures; common very fine roots; sharp smooth boundary to:

Depth (cm)	Details
50 – 56	Fragmented limestone; few fine fibrous roots bending to horizontal
56+	Stopped by hard limestone with horizontal rooting above

*Wetness Class I, Wetness Grade 2
 MDW 116, MB = -31mm, Grade 3b; MDP 109, MB = -21.4mm, Grade 3a.
 ALC Grade = 3b, limited by droughtiness*

Calcareous loamy soils over hard shattered limestone

3.1.3. This is the most commonly found soil type in the Central Section and occurs in most areas. The soils have variable stone content from very slightly stony to moderately stony and have calcareous medium (medium clay loam and medium silty clay loam) and heavy (clay, heavy clay loam and heavy silty clay loam topsoil). The soils are freely to moderately freely draining and belong to wetness classes I and II. In the droughtiness calculations a profile extension of 20cm with 70% stone content was used, representative of what was observed in the pit compared to where the soil becomes impenetrable to the auger. An example is shown in the pit description below:

Table 2 Location: Springwell Central - Field Bk04, Profile Pit (505648, 356841)

Depth (cm)	Details
0 – 35	Brown (10YR4/3) medium clay loam; slightly stony (10%) small - medium angular limestones; calcareous; weakly developed subangular blocky structure; friable; abundant fine fibrous roots; moist; porosity >0.5% greater than 0.5mm diameter; diffuse, smooth boundary.
35 – 55	Dark yellowish brown (10YR4/4) medium clay loam; calcareous; extremely stony (70%) – medium/large rounded: shattered limestone; weakly developed fine granular structure; friable; Few fine fibrous roots; moist; porosity greater than 0.5% greater than 0.5mm diameter.
55+	Stopped by rock

*Wetness Class I, Wetness Grade 1
 MDW 115, MB = -41.1mm, Grade 3b; MDP 109, MB = -32.7mm, Grade 3b.
 ALC Grade = 3b, limited by droughtiness*

Calcareous loamy soils over soft shattered limestone

3.1.4. These soils are found in the areas that are mapped as, or close to the border of Marcham association soils, and occur over the Inferior Oolite limestone. The limestone found in these soils, particularly at the base of the pits and bottom of the auger borings, was softer limestone that often readily

fragments of the limestone. The topsoils are calcareous medium (medium clay loam, medium silty clay loam and sandy clay loam) and heavy (clay, heavy clay loam and heavy silty clay loam textured with a varied stone content from very slightly stony to moderately stony). The soils are freely to moderately freely draining and belong to wetness classes I and II. In the droughtiness calculations a profile extension of 25cm with 30% stone content was used, representative of what was observed in the pit compared to where the soil becomes impenetrable to the auger. An example is shown in the pit description below:

Table 3 Location: Springwell Central - Field Bk03, Profile Pit (505579, 357439)

Depth (cm)	Details
0 – 34	Dark greyish brown (10YR 4/2) sandy clay loam; calcareous; 5% total, (3%>2cm. 2%> 6cm) medium angular limestones; moderately developed fine subangular blocky structure; no mottles; common very fine fibrous roots; friable; clear smooth boundary to:
34 – 50	Light olive brown (10YR 5/3) clay with many fine yellowish brown (10YR 5/8) mottles; calcareous; slightly stony (10%) medium angular limestone; friable; moderately developed medium subangular blocky; few fine fibrous roots; clear fissures and greater than 1% biopores greater than 0.5mm clear wavy boundary to:
50 – 65	Light olive brown (2.5Y 5/4) clay with many fine yellowish brown (10YR 5/8) mottles; calcareous; very stony with 30% medium angular limestone and 10% limestone gravel; friable; moderately developed medium subangular blocky; few fine fibrous roots; clear fissures and greater than 1% biopores greater than 0.5mm.
65+	Stopped by rock

Wetness Class I, Wetness Grade 1

MDW 114, MB = -11.8mm, Grade 3a; MDP 107, MB = -0.5mm, Grade 2.

ALC Grade = 3a, limited by droughtiness

Imperfectly draining calcareous deep clayey soils

3.1.5. These soils occur most frequently to the south of the Central Section. The soils generally have heavy (clay, silty clay, heavy clay loam and heavy silty clay loam) textured calcareous topsoil. These soils are imperfectly draining and have a slowly permeable layer and belong to wetness class II where gleying and a slowly permeable layer occurs between 40 cm and 70 cm, and wetness class III where gleying occurs within 40cm. The calcareous nature of the topsoil improves the permeability of clayey soils which raises the wetness grade relating to the wetness class. An example is shown in the pit description below:

Table 4 Location: Springwell Central - Field Rw11, Profile Pit (505159, 356139)

Depth (cm)	Details
0 – 34	Dark greyish brown (10YR 4/2) sandy clay loam; calcareous; 5% total, (3%>2cm. 2%> 6cm) medium angular limestones; moderately developed fine subangular blocky structure; no mottles; common very fine fibrous roots; friable; clear smooth boundary to:
34 – 50	Light olive brown (10YR 5/3) clay with many fine yellowish brown (10YR 5/8) mottles; calcareous; slightly stony (10%) medium angular limestone; friable; moderately developed medium subangular blocky; few fine fibrous roots; clear fissures and greater than 1% biopores greater than 0.5mm clear wavy boundary to:
50 - 65	Light olive brown (2.5Y 5/4) clay with many fine yellowish brown (10YR 5/8) mottles; calcareous; very stony with 30% medium angular limestone and 10% limestone gravel; friable; moderately developed medium subangular blocky; few fine fibrous roots; clear fissures and greater than 1% biopores greater than 0.5mm.
65+	Stopped by rock

*Wetness Class III, Wetness Grade 3a
 MDW 114, MB = 9.8mm, Grade 2; MDP 107, MB = -5.9mm, Grade 2.
 ALC Grade = 3a, limited by wetness*

Moderately freely draining calcareous loamy soils

3.1.6. These soils are found most frequently in the north east of the Central Section. These soils are moderately freely draining with no slowly permeable layer and therefore belong to wetness class I. There is evidence of waterlogging in these soils, and waterlogging observed at the time of survey in some augers in this area. It is possible there is clay lying underneath the limestone and creating a slowly permeable layer below the rock, however this area is mapped as vulnerable to flooding from the nearby river, and the mottling observed is most likely to be caused by groundwater. The topsoils are very slightly to slightly stony, calcareous and heavy (clay, heavy clay loam and heavy silty clay loam) and some medium (medium clay loam and medium silty clay loam) textured. An example is shown in the pit description below:

Table 5 Location: Springwell Central - Field Bk12, Profile Pit (506902, 357619)

Depth (cm)	Details
0 – 34	Dark greyish brown (10YR 4/2) sandy clay loam; calcareous; 5% total, (3%>2cm. 2%> 6cm) medium angular limestones; moderately developed fine subangular blocky structure; no mottles; common very fine fibrous roots; friable; clear smooth boundary to:
34 – 50	Light olive brown (10YR 5/3) clay with many fine yellowish brown (10YR 5/8) mottles; calcareous; slightly stony (10%) medium angular limestone; friable; moderately developed medium subangular blocky; few fine fibrous roots; clear fissures and greater than 1% biopores greater than 0.5mm clear wavy boundary to:
50 – 65	Light olive brown (2.5Y 5/4) clay with many fine yellowish brown (10YR 5/8) mottles; calcareous; very stony with 30% medium angular limestone and 10% limestone gravel; friable; moderately developed medium subangular blocky; few fine fibrous roots; clear fissures and greater than 1% biopores greater than 0.5mm.
65+	Stopped by rock

Wetness Class 1, Wetness Grade 2

MDW 115, MB = 8.3mm, Grade 2; MDP 109, MB = 18.1mm, Grade 1.

ALC Grade = 2, limited by droughtiness and wetness.

4. Agricultural Land Classification

4.1. Introduction

- 4.1.1. The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use for food production. The limitations can operate in one or more of four principal ways; they may affect the range of crops which can be grown, the level of crop yield, the consistency of crop yield, and the cost of obtaining a crop.
- 4.1.2. The classification system gives considerable weight to flexibility of cropping, whether actual or potential, however the ability of some land to produce consistently high yields of a narrower range of crops is also considered.
- 4.1.3. The Agricultural Land Classification (ALC) system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced by the then Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s and revised in 1988.

4.2. Climate

- 4.2.1. The agricultural climate is an important factor in assessing the agricultural quality of land, and the agricultural climate of this site has been calculated using the Climatological Data for Agricultural Land Classification⁵. The relevant site data for an average elevation of 25 m AOD is given below.

Table 6 Agroclimatic variables

Grid Reference Location (Bk04)	TF056568
Average Annual Rainfall (AAR)	594 mm
January-June Accumulated Temperature (AT0)	1406 days °C
Field Capacity Days (FCD)	119
Field Capacity Period	early Dec - late Mar
Moisture Deficit Wheat (MDW)	114
Moisture Deficit Potatoes (MWP)	109
Climate (upper grade limit)	1

The site is located in Eastern England and there is no agro-climatic limitation to agriculture. A table containing the field capacity days and the moisture deficit values for each field are attached to this report at Appendix E

4.3. Results

- 4.3.1. The results of the soil survey described in section 3 were used in conjunction with the agro-climatic data above to classify the land according to the revised guidelines for Agricultural Land Classification issued in 1988 by the Ministry of Agriculture, Fisheries and Food (now Defra)⁶.
- 4.3.2. This report has identified agricultural land of grade 2, subgrade 3a, subgrade 3b quality and grade 4 quality. The principal limitation to agricultural use of the land is soil droughtiness.

Grade 1

- 4.3.3. No land of this quality has been mapped.

⁵ Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

⁶ MAFF, (1988). *Agricultural Land Classification for England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*.

Grade 2

- 4.3.4. There are 44.2 ha of grade 2 quality land at this site, generally occurring in fields in the west (e.g; Rw12), north (e.g; Bk08) and north-east (e.g; Bk11 and Bk12) of the site. This land is formed on moderately freely-draining (wetness class II) soils with calcareous with medium (medium clay loam and medium silty clay loam) to heavy (clay, heavy silty clay loam and heavy clay loam) textured topsoil, imperfectly draining (wetness class III) clayey soils with calcareous topsoils, and some of the deeper profiles of freely draining (wetness class I) over limestone. These soils are generally equally limited by wetness or droughtiness.

Subgrade 3a

- 4.3.5. There are 138.1ha of subgrade 3a land at this site. This is the predominant grade of land across the site and all fields contain some of this grade quality land except Bcd067, Bk10, Bk11 and Bk12 in the north of the site. This land is principally formed on imperfectly-draining (wetness class III) soils with calcareous heavy textured (clay, heavy clay loam and heavy silty clay loam) topsoil in the south of the Central Section, and freely draining (wetness class I) calcareous soils over limestone in the north of the section. These soils are generally equally limited by wetness or droughtiness.

Subgrade 3b

- 4.3.6. There are 70.8 ha of subgrade 3a land at this site. This land is mostly formed on freely draining (wetness class I) soils with calcareous topsoil, over no or limited depth of subsoil over limestone into which limiting rooting was possible. This grade quality of land is most common in the centre and north-east of the section. The principal limitation to agriculture is soil droughtiness.

Grade 4

- 4.3.7. There are 4.2 ha of grade 4 quality land at this site. The land is formed is a discrete area in field Bk10 on freely draining (wetness class I) calcareous topsoil that is particularly shallow over hard limestone. The principal limitation to agriculture is soil droughtiness.

Grade 5

- 4.3.8. No land of this quality has been mapped

Non-agricultural

- 4.3.9. No land of this quality has been mapped

Urban

4.3.10. No land of this quality has been mapped

Summary of grade areas

4.3.11. The boundaries between the different grades of land are shown in Appendix C. The area occupied by each grade is shown below.

Table 7 Grade areas (area surveyed within Springwell Central)

Grade / Subgrade	Area (ha)	Area (%)
Grade 1	-	-
Grade 2	44.2	17.2
Subgrade 3a	138.1	53.7
Subgrade 3b	70.8	27.5
Grade 4	4.2	1.6
Grade 5	-	-
Non-agricultural	-	-
Urban	-	-
Total	257.3	100

Appendix 1- Auger Boring Log



Key to Auger Log

Colour	Texture	Texture suffixes	Mottle intensity	Limitations
Bk - black	C - clay	Calcareous:	o – unmottled.	CL - climate
Br - brown	ZC - silty clay	v sl ca - very slightly calcareous	x – a few to common rusty root channel mottles (topsoil) or a few ochreous mottles (subsoil).	DE - depth
Bu - blue	SC - sandy clay	sl ca - slightly calcareous	xx – common to many ochreous mottles and/or dull structure faces.	DR - droughtiness
Dk - dark	CL - clay loam (H-heavy, M-medium)	ca - calcareous	xxx – greyish or pale colours dominant in matrix or ped faces and common to many ochreous mottles (gleyed horizon).	ER - erosion
Du - dusky	ZCL - silty clay loam (H-heavy, M-medium)	v ca - calcareous	xxxx – dominantly grey, often with some ochreous mottles (gleyed horizon).	FL - flooding
Gn - green	SCL - sandy clay loam	Stoniness (by volume):	Other:	GR - gradient
Gr - grey	SZL - sandy silt loam (F-fine, M-medium, C-coarse)	v sl st - very slightly stony (1-5%)	fmcs – ferrimanganiferous concentrations	MR - microrelief
Li - light	ZL - silt loam	sl st - slightly stony (6-15%)	SOS or SBS – stopped on/by stones	ST - stoniness
Ol - olive	SL - sandy loam (F-fine, M-medium, C-coarse)	m st - moderately stony (16-35%)		TX - texture
Pi - pink	LS - loamy sand (F-fine, M-medium, C-coarse)	v st - very stony (36-70%)		WE - wetness/workability
Pl - pale	S - sand (F-fine, M-medium, C-coarse)	ex st - extremely stony (>70%)		
Rd - red	Org - organic (S-sand, L-loam, C-clay)			
St - strong	Pty - peaty (S-sand, L-loam)			
V - very	Pt - peat (S-sandy, L-loamy, H-humified, SF-semi-fibrous, F-fibrous)			
Wk - weak				
Yl - yellow	R - bedrock			

Lithology

- 1 - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)
- 2 - Soft, medium or coarse grained sandstones
- 3 - Soft 'weathered' igneous or metamorphic rocks or stones
- 4 - Soft oolitic or dolomitic limestones
- 5 - Soft fine grained sandstones
- 6 - Soft, argillaceous or silty rocks or stones
- 7 - Chalk or chalk stones
- 8 - Gravel- with non-porous (hard) stones
- 9 - Gravel- with porous stones (mainly soft stone types listed above)

Name	Depth	Colour	Munsel colour 1	Munsel colour 2	Texture	Calc	Total stones	St > 2cm	St > 6cm	Lith'gy	Mott' & gleying	SPL	Notes	Land use	Slope	WC	WE grade	DR grade	ALC grade	Pit used for DR*	Limit
Rw01-1	34	V Dk Gr Br	10yr32		HCL	sl ca	8		4					arable	0	III	3a	3b	3b	Bk03	DR
	50	Br	10yr53		HCL		10		4	xxx		yes	Spl at 35cm for 15cm								
Rw01-2	33	Ol Br	25y44		C	v ca	12		4				SBS at 33cm.	arable	0	(I)	2	3b	3b	Bk03	DR
Rw01-3	33	Yl Br	10yr54		HCL	v ca	1		4				SBS at 33cm	arable	1	(I)	2	3b	3b	Bk03	DR
Rw01-4	38	Ol Br	25y43		C	ca	1		4					arable	2	III	3a	2	3a		WE
	100	Li Ol Br + Gn Gr	25y53	5gy51	C	ca	5		4	xxx		yes									
Rw01-5	28	Ol Br	25y44		C	v ca	14		4					arable	1	III	3a	2	3a		WE
	100	Li Ol Br	25y53		SC	v ca	11		4	xxx		yes									
Rw01-6	30	Br	10yr53		HCL	ca	8		4					arable	2	(I)	2	3b	3b	Bk03	DR
	39	Br	10yr53		HCL	v ca	8		4	xxx		no	SBS at 39cm.								
Rw01-7	47	Ol Br	25y43		ZC	v ca	2		4					arable	0	(I)	2	3a	3a	Bk03	DR
	52	Li Ol Br	25y53		ZC	v ca	4		4	xxx		no	SBS at 52cm.								
Rw02-1	25	Ol Br	25y44		ZC	v ca	10		4					arable	0	I	2	3a	3a	Bk04	DR
	65	Li Ol Br + Gr	25y53	25y61	SCL	v ca	15		4	xxx		no	SBS ar 65cm.								
Rw02-2	39	Br	10yr53		MCL	ca	2		4					arable	1	I	1	3b	3b		DR
	80	Li Yl Br	10yr64		HCL		5		4	xx		no									
	95	Pl Br	25y74		MSL		0			xxxx		no	SBS at 95cm.								
Rw02-3	30	Ol Br	25y43		ZC	v ca	10		4					arable	0	III	3a	3b	3b	Bk04	DR
	42	Li Ol Br	25y53		ZC	ca	15		4	xxx		yes	SBS at 42cm.								
Rw02-4	35	Pl Br	10yr63		HCL	v ca	2		4					arable	0	(I)	2	3b	3b	Bk04	DR
	50	Pl Br	10yr63		HCL		25		4	o		no	Sos at 50cm								
Rw02-5	25	Ol Br	25y43		ZC	v ca	10		4					arable	0	III	3a	3a	3a	Bk04	WE,DR
	52	Li Ol Br + Gr	25y53	25y61	ZC	v ca	15		4	xxx		yes	SBS at 52cm.								
Rw02-6	24	Ol Br	25y44		ZC	v ca	5		4					arable	0	I	2	2	2	Bk04	WE,DR
	70	Li Yl Br	25y64		SCL	v ca	5		4	xxx		no	SBS at 70cm.								
Rw02-7	31	Ol Br	25y44		ZC	v ca	10		4					arable	0	III	3a	3a	3a	Bk04	WE,DR
	44	Li Ol Br	25y53		HZCL	v ca	6		4	xxx		yes									
	65	Pl Br	25y73		MZCL	v ca	12		4	xxx		no	SBS at 65cm.								
Rw02-8	28	Ol Br	25y44		ZC	v ca	10		4					arable	0	III	3a	3b	3b	Bk04	DR

	35	Li Ol Br	25y53	ZC		10	4	xxx	yes								
Rw02-9	33	Ol Br	25y43	ZC	v ca	5	4			arable	0	(I)	2	3b	3b	Bk04	DR
	43	Li Ol Br	25y53	ZC	v ca	2	4	xxx	no	SBS at 43cm.							
Rw02-10	20	Ol Br	25y43	ZC		10	4			arable	0	III	3a	3a	3a	Bk04	WE,DR
	42	Li Ol Br	25y53	ZC	v ca	5	4	xxx	yes								
	50	Li Ol Br	25y53	ZC	v ca	9	4	xxx	yes	SBS at 50cm.							
Rw02-11	28	Gr Br	25y52	C		0				arable	3	III	3a	3a	3a		WE,DR
	68	Li Br Gr	25y62	C		1	4	xxx	yes								
	100	Li Yl Br	25y63	C	ca	8	4	xxx	yes								
Rw02-12	31	Dk Gr Br	25y42	C	sl ca	0				arable	4	III	3a	3a	3a		WE,DR
	100	Li Yl Br	25y64	C		0		xxx	yes								
Rw02-13	35	Br	10yr43	HCL	v ca	3	9			arable	1	(I)	2	3a	3a	Bk04	DR
	55	Br	10yr53	HCL		15	8	xx	no	Sos at 55cm							
Rw02-14	35	Ol Br	25y43	ZC	v ca	8	4			arable	0	(I)	2	3b	3b	Bk04	DR
	44	Li Ol Br	25y53	HZCL	v ca	10	4	xxx	no	SBS at 45cm.							
Rw02-15	30	Li Ol Br	25y53	ZC	v ca	8	4			arable	2	III	3a	2	3a	Bk04	WE
	57	Li Ol Br	25y53	ZC	v ca	9	4	xxx	yes								
	89	Li Yl Br + Li Gr	25y63	25y71	MZCL	v ca	15	4	xxx	no	SBS at 89cm.						
Rw02-16	28	Dk Gr Br	25y42	C	sl ca	0				arable	3	III	3a	2	3a		WE
	100	Gr	25y61	C		0		xxx	yes								
Rw02-17	29	Ol Br	25y43	ZC	ca	10	4			arable	4	III	3a	3a	3a	Bk04	WE,DR
	62	Li Ol Br	25y53	ZC	v ca	4	4	xxx	yes	SBS at 62cm.							
Rw02-18	28	Ol Br	25y43	HCL	ca	5	4			arable	1	(I)	2	3b	3b	Bk04	DR
	35	Li Ol Br	25y53	C		8	4	xxx	no	SBS at 35cm.							
Rw02-19	33	Ol Br	25y43	ZC	v ca	12	4			arable	0	III	3a	3a	3a	Bk04	WE,DR
	43	Li Ol Br	25y53	ZC	v ca	4	4	xxx	yes								
	64	Li Yl Br	25y64	SCL	v ca	1	2	o	no	SBS at 64cm.							
Rw02-20	36	Br	10yr43	HCL	v ca	5	8			arable	2	I	2	2	2	Bk04	WE,DR
	60	Yl Br	10yr56	MCL		15	9	o	no								
	80	Yl Br + Gr	10yr58	10yr61	HCL		20	9	xxx	no	Sos at 80cm						
Rw02-21	30	Ol Br	25y44	ZC	ca	12	4			arable	2	III	3a	3a	3a	Bk04	WE,DR
	45	Li Ol Br	25y53	ZC	v ca	3	4	xxx	yes								
	68	Li Gr	25y72	HZCL	v ca	8	4	xxx	no	SBS at 68cm.							

Bcd148-2	36	Dk Br	10yr33	SCL		5	3	0	4				arable	1	(I)	1	3b	3b	Bk04	DR
	42	Br + Gr Br	10yr53	10yr52	SCL	ca	50		4	o	no	Stopped on ls								
Bcd148-4	39	Dk Br	10yr33	SCL	ca	5	3	0	4				arable	2	(I)	1	3a	3a	Bk04	DR
	52	Dk Yl Br + Gr Br	10yr44	10yr52	SCL	ca	5		4	o	no	Stopped on firm ls								
Bcd148-5	38	Dk Br	10yr33	SCL	ca	10	5	0	4				arable	2	(I)	1	3b	3b	Bk04	DR
	53	Br	10yr53	SCL	ca	50			4	o	no	Stopped on ls								
Bcd148-6	34	Dk Br	10yr33	SCL	ca	10	6	1	4				arable	1	(I)	1	3b	3b	Bk04	DR
	39	Br	10yr53	SCL	ca	50			4	o	no	Stopped on ls								
Bcd148-3	39	Br	10yr43	MCL	ca	10			4				arable	2	(I)	1	3b	3b	Bk04	DR
	50	Yl Br	10yr58	SCL		15			9	o	no	Sos gravel and shat lmst								
Bcd148-7	33	Dk Yl Br	10yr44	SCL		3			9				arable	1	(I)	1	3a	3a	Bk04	DR
	70	Li Yl Br	10yr64	MSL		15			4	o	no	Crushed lmst. Sos								
Bk01-1	24	Ol Br	25y44	C		0							grass	1	III	3a	3a	3a	Bk04	WE,DR
	41	Gr Br + Gr	25y52	25y61	C	0				xxxx	yes									
	75	Li Ol Br + Gr	25y53	25y61	C	0				xxxx	yes									
Bk01-2	22	Dk Gr Br	10yr42	C	ca	1			1				grass	5	III	3a	2	3a		WE
	48	Li Gr	10yr71	SC	ca	2			4	xxx	no									
	100	Li Gr	10yr71	C	ca	1			4	xxx	yes									
Bk01-3	39	Ol Br	25y44	C	ca	0							grass	0	(I)	3a	3b	3b	Bk04	DR
	46	Li Yl Br	25y64	C	ca	5			4	xxx	no	Stopped on bedrock, not 15cm thick								
Bk01-4	38	V Dk Gr Br	25y32	C	v sl ca	2			4				grass	5	III	3b	3a	3b	Bk04	WE
	55	Rd Gr	5yr52	C	v sl ca	2			4	xxxx	yes									
	75	Pi Gr	5yr62	C		1			4	xxxx	yes									
Bk01-5	22	Ol Br	25y43	MCL		2			4				grass	3	II	2	2	2		WE,DR
	45	Br	10yr53	MCL		3			4	xxx	no									
	100	Br	10yr53	C		5			4	xxx	yes									
Bk02-1	29	Br	10yr43	C	ca	5	2	0	4				arable	1	(I)	2	3a	3a	Bk04	DR
	49	Gr Br	10yr52	C	ca	15			4	xxx	no	V gritty,not spl. Crushed ls below								
Bk02-2	27	Br	10yr43	C	ca	5	1	0	4				arable	1	III	3a	2	3a	Bk04	WE
	53	Gr Br	10yr52	C	ca	5			4	xxx	yes	Mny motts, fmc								
	75	Gr + Yl Br	10yr51	10yr54	C	5			4	xxx	yes	Mny motts								
Bk02-3	39	Br	10yr43	MCL	ca	3			4				arable	3	(I)	1	3a	3a	Bk04	DR

Bk05-9	45	Li Ol Br	25y54	HCL	ca	2	10	4		Sos	arable	1	(l)	2	4	4	Bk10	DR	
Bk05-10	40	Li Ol Br	25y54	HCL	ca	3	10	9		Sos	arable	1	(l)	2	3a	3a	Bk10	DR	
	61	Li Ol Br	25y56	SCL		2		4	x	no	Sos								
Bk05-11	32	Li Ol Br	25y54	HCL	ca	4	10	4		Sos	arable	1	(l)	2	3b	3b	Bk10	DR	
	53	Li Ol Br	25y56	SCL		5		9	x	no	Sos								
Bk05-12	37	Li Ol Br	25y54	HZCL	ca	8	10	4		Sos	arable	1	(l)	2	4	4	Bk10	DR	
Bk05-13	34	Ol Br	25y44	HCL	ca	15	4	4		Sos			(l)	2	3a	3a	Bk10	DR	
	58	Li Ol Br	25y56	SCL		2		4	x	no	Sos	arable	1						
Bk05-14	33	Yl Br	10yr54	HCL	v ca	1		4			arable	0	(l)	2	3b	3b	Bk10	DR	
	50	Li Yl Br	10yr64	HCL	v ca	8		9	xxx	no	SBS at 50cm								
Bk05-15	31	Li Ol Br	25y54	HCL	ca	3	10	9		Sos	arable	1	(l)	2	3a	3a	Bk10	DR	
	52	Li Ol Br	25y56	HCL		2		4	x	no	Silty. Sos								
Bk05-16	37	Br	10yr43	HCL	ca	2		4			arable	0	(l)	2	3a	3a	Bk10	DR	
	72	Br	10yr53	MCL		15		4	xxx	no									
Bk05-17	43	Li Ol Br	25y54	HCL	ca	3	10	4		Sos	arable	1	(l)	2	4	4	Bk10	DR	
Bk05-18	36	Br	10yr43	MCL	v ca	5		4			arable	0	(l)	1	4	4	Bk10	DR	
Bk05-19	37	Li Ol Br	25y54	HZCL	ca	12	5	2	4		Sos	arable	1	(l)	2	4	4	Bk10	DR
Bk05-20	39	Li Ol Br	25y54	HZCL	ca	4	10	4		Sos	arable	1	l	2	2	2	Bk10	WE,DR	
	80	Li Yl Br	25y64	HCL		2		4	x	no	Sandy sos								
Bk06-1	33	Gr Br	25y52	C	v ca	1		4			grass	6	III	3a	2	3a		WE	
	100	Gn Gr	10gy51	C	v ca	0			xxx	yes									
Bk06-2	29	Gr Br	25y52	ZC	v ca	3		4			grass	3	III	3a	2	3a	Bk04	WE	
	43	Li Yl Br	25y63	HZCL	v ca	0			xxx	no									
	84	Li Yl Br	25y63	ZC	v ca	1		4	xxx	yes	SBS at 84cm.								
Bk06-3	37	Br	10yr43	SCL	sl ca	1		4			grass	2	II	2	2	2		WE,DR	
	60	Pl Br	25y74	SC		5		4	o	no									
	100	Li Yl Br + Gr	10yr64	10yr61	C	3		4	xxx	yes									
Bk06-4	34	Li Ol Br	25y53	HZCL	ca	1		4			grass	0	(l)	2	3b	3b	Bk04	DR	
	38	Li Yl Br	25y63	HZCL	v ca	2		4	xxx	no	SBS at 38cm.								

Bk06-5	35	Br	10yr43	SCL	v ca	5	4			grass	0	(I)	1	3b	3b	Bk04	DR
Bk06-6	30	Ol Br	25y43	HZCL	ca	2	4			grass	0	(I)	2	3b	3b	Bk04	DR
Bk07-1	37	Dk Gr Br	10yr42	HCL	v ca	5	4			grass	2	(I)	2	3b	3b	Bk04	DR
Bk07-2	29	Gr Br	25y52	ZC	sl ca	1	1			grass	0	III	3a	2	3a	Bk04	WE
	60	Br	10yr53	C	sl ca	0		xxx	yes	SBS at 60. First attempt SBS at 34cm.							
Bk07-3	30	Br	10yr43	SCL		1	4			grass	1	(I)	1	3b	3b	Bk04	DR
	45	Br	10yr43	SCL		3	4	o	no	SBS at 45cm.							
Bk07-4	34	Gr Br	25y52	C	v sl ca	1	4			grass	5	III	3b	2	3b		WE
	100	Li Ol Br	25y53	C	v sl ca	1	4	xxx	yes								
Bk07-5	30	Br	10yr43	HCL	v ca	1	4			grass	2	III	3a	2	2	Bk04	WE
	45	Br	10yr53	C		5	2	xxx	no								
	85	Gr Br	10yr52	C		1	2	xxx	yes	SBS at 85cm.							
Bk07-6	30	Gr Br	25y52	C	v ca	1	4			grass	3	III	3a	3a	3a		WE,DR
	100	Li Yl Br	25y63	SC	v ca	3	4	xxx	yes								
Bk08-1	36	Gr Br	25y52	ZC	v ca	2	4			arable	6	III	3a	3a	3a		WE,DR
	100	Gr	n5	ZC	v ca	1	4	xxx	yes								
Bk08-2										arable	1						
Bk08-3	34	Gr Br	25y52	HZCL	v ca	2	4			arable	0	I	2	2	2	Bk04	WE,DR
	54	Li Yl Br	25y63	HZCL	v ca	2	4	xxx	no								
	75	Li Yl Br + Li Gr	25y63	25y71	ZC	v ca	5	4	xxx	no	SBS at 75cm. Watertable at 60cm.						
Bk08-4	34	Ol Br	25y43	MZCL	v ca	10	4			arable	2	I	1	2	2		DR
	90	Li Yl Br + Li Gr	25y64	25y71	MZCL	v ca	10	4	xxx	no							
	100	Li Gr	25y71	MZCL	v ca	5	4	xxx	no	Watertable at 80cm.							
Bk08-5	34	Ol Br	25y43	MZCL	v ca	5	4			arable	2	I	1	2	2		WE
	120	Li Gr	25y72	MZCL	v ca	0		xxx	no	SBS at 34cm on attempts 1 & 2.							
Bk08-6																Bk04	
Bk08-7	34	Ol Br	25y44	HZCL	v ca	12	4			arable	2	(I)	2	3a	3a	Bk04	DR
Bk09-1	33	Ol Br	25y44	HZCL	ca	2	4			arable	2	(I)	2	3a	3a	Bk04	DR
	47	Yl Br	10yr58	SCL		3	9	xx	no	Poss spl, spots of gley							
Bk09-2	32	Dk Yl Br	10yr44	HCL	ca	2	4			arable	3	(I)	2	3a	3a	Bk04	DR

	50	YI Br	10yr54	MCL		1	4	o	no								
Bk09-3	38	Gr Br	25y52	HZCL	v ca	2	4				arable	2	III	3a	3a	3a	WE,DR
	54	Li YI Br	25y63	HZCL	v ca	3	4	xxx	no								
	100	Li YI Br	25y63	ZC	v ca	4	4	xxx	yes	Watertable at 70cm.							
Bk09-4	36	Ol Br	25y44	HCL	ca	3	4				arable	0	II	2	2	2	Bk04 WE,DR
	50	YI Br	10yr56	SCL		2	9	x	no								
	80	Li YI Br	25y64	HZCL		2	9	xxx	yes	Pit to confirm spl							
Bk09-5	34	Br	10yr43	HCL	ca	15	4			SBS at 34cm	arable	1	(I)	2	3b	3b	Bk04 DR
Bk09-6	33	Ol Br	25y44	HCL	ca	7	4			Sos.	arable	0	(I)	2	3b	3b	Bk04 DR
Bk09-7	30	Li Ol Br	25y53	MZCL	sl ca	12	4			SBS at 30cm.	arable	2	(I)	1	3b	3b	Bk04 DR
Bk10-1	45	Ol Br	25y44	HZCL	ca	2	4				arable	2	I	2	2	2	WE,DR
	65	YI	25y76	MSZL		10	9	xx	no								
	95	YI	25y76	ZL		1	4	xx	no								
	120	Br	10yr53	C		2	4	xxxx	yes								
Bk10-2	32	Dk YI Br	10yr44	MZCL	ca	3	4				arable	1	I	1	2	2	Bk10 DR
	62	YI Br	10yr56	HZCL		3	4	x	no								
	88	Li Ol Br	25y56	SCL-SC		8	4	x	no	Fmcs, sos							
Bk10-3	33	Dk YI Br	10yr44	MZCL	ca	2	4				arable	1	I	1	3a	3a	Bk10 DR
	70	YI Br	10yr56	SCL		10	9	x	no								
Bk10-4	37	Dk YI Br	10yr44	MCL	ca	2	4				arable	1	II	2	2	2	WE,DR
	50	Li Ol Br	25y56	SCL		2	4	xx	no								
	120	Li Ol Br	25y53	C		2	4	xxx	yes	Fine sand							
Bk10-5	33	Ol Br	25y44	HCL	ca	5	4				arable	1	(I)	2	3b	3b	Bk10 DR
	42	Dk YI Br	10yr44	HCL		2	4	x	no	Sos							
Bk10-6	45	Ol Br	25y44	HZCL		2	4			Sos	arable	1	(I)	2	3b	3b	Bk10 DR
Bk10-7	35	Dk YI Br	10yr44	MZCL	ca	16	10	3	4	Sos scl at base	arable	1	(I)	1	3b	3b	Bk10 DR
Bk10-8	38	Ol Br	25y43	HCL	v ca	10	4				arable	1	(I)	2	3b	3b	Bk10 DR
	58	Li Ol Br	25y54	HCL	v ca	20	4	xx	no								
Bk10-9	34	Dk YI Br	10yr44	MCL	ca	5	4				arable	1	I	1	3b	3b	Bk10 DR
	64	Br YI	10yr66	SCL		3	4	x	no	Sos							
Bk10-10	38	Br	10yr53	MCL	ca	2	4				arable	1	I	1	2	2	DR

	120	Br	10yr53	MSL	ca	1	4	xx	no									
Bk10-11	36	Ol Br	25y44	HZCL	ca	8	4			arable	4	(I)	2	3b	3b	Bk10	DR	
	50	Br Yl	10yr66	CSZL		35	4	o	no	Sos								
Bk10-12	34	Dk Yl Br	10yr44	HCL	ca	3	4			arable	1	II	2	3a	3a		DR	
	66	Li Br Gr	10yr62	SC	ca	0		xxx	no									
	100	Dk Bu Gr	5b41	C	sl ca	0		xxxx	yes									
Bk10-13	40	Ol Br	25y44	MZCL	ca	10	5	2	4									
										Sos	arable	1	(I)	1	3b	3b	Bk10	
Bk10-14	40	Ol Br	25y44	MCL	ca	17	5	4			arable	1	(I)	1	3b	3b	Bk10	DR
Bk10-15	38	Ol Br	25y44	MCL	ca	5	4				arable	1	(I)	1	3a	3a	Bk10	DR
	75	Li Ol Br	25y56	SCL		1	4	x	no	Sos								
Bk10-16	40	Ol Br	25y44	MZCL	ca	7	10	4			arable	1	(I)	1	3b	3b	Bk10	DR
Bk10-17	40	Ol Br	25y44	M-HZCL	ca	6	4				arable	1	I	2	2	2	Bk10	WE,DR
	90	Yl Br	10yr56	SCL		2	4	xx	no	Fmcs, sos								
Bk10-18	40	Ol Br	25y43	MZCL	ca	8	4				arable	1	I	1	3a	3a	Bk10	DR
	60	Yl Br	10yr56	SCL		3	4	xx	no									
	82	Br Yl	10yr66	CSZL		1	9	xx	no	Sos								
Bk10-19	38	Ol Br	25y44	MZCL	ca	2	4				arable	1	II	2	2	2		WE,DR
	52	Yl Br	10yr58	SCL	ca	5	9	xx	no									
	120	Gn Gr + Br	10y51	10yr53	ZC	3	9	xxxx	yes	Gravel increases with depth								
Bk10-20	33	Gr Br	25y52	HCL	v ca	6	4				arable	1	II	2	2	2		WE,DR
	78	Li Gr	25y71	MCL	v ca	3	4	xxx	no									
	100	Gr	10yr61	C	v ca	1	4	xxx	yes									
Bk10-21	32	Dk Yl Br	10yr44	MCL	ca	8	4				arable	3	I	1	3b	3b	Bk10	DR
	47	Yl	10yr76	SCL		2	4	x	no	Sos								
Bk10-22	34	Ol Br	25y43	HCL	v ca	3	4				arable	1	II	2	2	2		WE,DR
	64	Pl Br	10yr63	HCL	ca	2	4	xxx	no									
	100	Gr	10yr61	C	ca	1	4	xxx	yes									
Bk10-23	35	Dk Yl Br	10yr44	MZCL	ca	8	4				arable	4	(I)	1	3a	3a	Bk10	DR
	50	Li Yl Br	25y64	CSZL		2	9	o	no	Sos								
Bk10-24	34	Br	10yr53	C	v ca	2	4				arable	1	I	2	2	2		WE,DR
	58	Li Br Gr	10yr62	HCL	ca	2	4	xxx	no									
	92	Li Gr	25y71	HCL	ca	1	4	xxx	no									

	100	Gr	n6	C	ca	1		4	xxx	yes									
Bk10-25	34	Dk Yl Br	10yr44	MZCL	ca	15	8	2	4		Sod	arable	1	(I)	1	3b	3b	Bk10	DR
Bk10-26	36	Dk Yl Br	10yr44	MZCL	ca	15	10	2	4		Sos	arable	1	(I)	1	3b	3b	Bk10	DR
Bk10-27	38	Dk Yl Br	10yr44	MZCL	ca	15	10		4		Sos	arable	1	(I)	1	3b	3b	Bk10	DR
Bk10-28	35	Dk Yl Br	10yr44	MZCL	ca	12	1		4		Sos. Clay at base	arable	1	(I)	1	3b	3b	Bk10	DR
Bk10-29	35	Dk Gr Br	10yr42	MCL	v ca	35			4		SBS at 35cm.	arable	1	(I)	1	3b	3b	Bk10	DR
			10yr58																
Bk11-1	34	Ol Br	25y43	HCL	ca	2			4			arable	0	(I)	2	2	2	Bk04	WE,DR
	75	Yl Br	25y44	SCL		1			4	x	no	Sos. Fmc							
Bk11-2	31	Br	10yr43	HCL	ca	5			4			arable	0	I	2	3a	3a	Bk04	DR
	67	Br + Gr	10yr53	10yr61	HCL	2			4	xxxx	no	SBS at 67cm.							
Bk11-3	42	Ol Br	25y43	HZCL	v ca	1			4			arable	1	II	2	2	2		WE,DR
	90	Li Ol Br + Gr	25y56	25y61	ZC	v ca	1		4	xxx	yes	Confirm with pit.							
	100	Li Yl Br	25y64	MZCL	v ca	0				xxx	yes								
Bk11-4	38	Ol Br	25y44	HCL	ca	7			4			arable	2	(I)	2	3a	3a	Bk04	DR
	53	Ol Yl	25y66	SCL		8			9	x	no	Sos							
Bk11-5	35	Br	10yr43	MCL	ca	8			4		SBS at 35cm.	arable	0	(I)	1	3b	3b	Bk04	DR
Bk11-6	34	Li Ol Br	25y53	MZCL	v ca	2			4			arable	2	II	2	2	2		WE,DR
	52	Li Yl Br	25y64	ZC	v ca	1			4	xxx	no								
	100	Li Yl Br + Li Gr	25y63	25y71	HZCL	v ca	10		4	xxx	yes	Watertable at 70cm.							
Bk12-1	32	Ol Br	25y44	HCL-C	ca	1	10		4		Sos	arable	1	I	2	2	2	Bk04	WE,DR
	60	Li Ol Br	25y56	SCL		1			9	o	no								
	82	Yl	25y76	ZL		5			9	o	no	Groundwater gley? Pale spots							
Bk12-2	26	Br	10yr43	MCL	v ca	4	4		4			arable	0	(I)	1	3b	3b	Bk04	DR
	44	Yl Br	10yr58	MCL	ca	7			4	o	no	SBS at 44cm.							
Bk12-3	42	Ol Br	25y44	HCL	ca	1	10		4			arable	1	I	2	1	2		WE
	62	Li Ol Br	25y56	HZCL		1			4	o	no								
	100	Yl Br	10yr56	HCL		2			9	x	no								
Bk12-4	32	Br	10yr43	HCL	v ca	3			4			arable	2	I	2	2	2		WE,DR
	75	Yl Br	10yr56	HCL		2			4	xx	no								
	120	Yl Br + Gr	10yr58	10yr61	MCL	2			4	xxxx	no								

Bk12-5	38	Ol Br	25y44	HCL	ca	1	4			arable	0	I	2	2	2		WE,DR
	54	Li Ol Br	25y56	HCL	ca	8	9	x	no								
	73	Li Ol Br	25y56	HCL		4	9	xx	no								
	120	Li Ol Br + Gr	25y56 25y61	C		3	9	xxx	yes								
Bk12-6	40	Ol Br	25y44	HCL	ca	0				arable	1	I	2	2	2	Bk04	WE,DR
	57	Ol Yl	25y66	SC		7	9	xx	no								
	82	Li Ol Br	25y53	SC		4	9	xxx	no	Suspect gleying, sos							
Bk13-1	32	Dk Yl Br	10yr44	HCL	ca	0				arable	2	III	3a	3a	3a	Bk04	WE,DR
	50	Li Ol Br	25y53	C		2	9	xxx	yes								
	62	Li Ol Br + Gr	25y56 25y61	C		10	9	xxxx	yes	Sos							
Bk13-2	30	Ol Br	25y44	HCL	ca	1	4			arable	1	II	2	3a	3a	Bk04	DR
	45	Li Yl Br	25y63	HCL-C		2	9	xx	no								
	78	Li Yl Br	25y64	ZC		8	9	xxx	yes	sos							
Bk13-3	33	Br	10yr43	MCL	v ca	1	4			arable	1	I	1	3a	3a	Bk04	DR
	75	Yl Br + Gr	10yr56 10yr51	MCL		8	4	xxx	no								
	82	Yl Br + Gr	10yr58 10yr51	C		5	1	xxx	no								
Bk15-1	38	Li Ol Br	25y53	ZC	ca	3	4			arable	6	III	3a	3a	3a	Bk04	WE,DR
	53	Li Yl Br	25y64	ZC	v ca	1	4	xxx	yes	SBS at 53cm.							
Bk15-2	30	Br	10yr43	MCL	v ca	2	4			arable	0	III	2	3a	3a	Bk04	DR
	60	Li Br Gr + Br Yl	10yr62 10yr66	C	ca	5	4	xxx	yes								
	75	Pl Br + Ol Yl	25y74 25y68	SCL		0		xxx	no	SBS at 75cm.							
Bk15-3	36	Li Ol Br	25y53	HZCL	ca	4	4			arable	1	II	2	3a	3a	Bk04	DR
	64	Li Yl Br	25y63	HZCL	ca	5	4	xxx	no								
	98	Li Yl Br	10yr64	ZC	v ca	2	4	xxx	yes	SBS at 98cm.							
Bk15-4	33	Br	10yr43	MCL	v ca	2	4			arable	0	I	1	3a	3a	Bk04	DR
	67	Br	75yr54	LMS		0		x	no								
	90	Pl Br	25y74	SCL		0		xxx	no	SBS at 90cm.							
Bk15-5	34	Li Ol Br	25y53	HZCL	ca	8	4			arable	1	(I)	2	3a	3a	Bk04	DR
	40	Li Yl Br	10yr64	HZCL	v ca	12	4	o	no								
Bk15-6	38	Gr Br	25y52	HZCL	ca	10	4			arable	1	(I)	2	3a	3a	Bk04	DR
	58	Li Yl Br	25y64	MZCL	v ca	15	4	o	no								
Bk15-7	28	Li Ol Br	25y53	MZCL	v ca	12	4			arable	0	(I)	1	3b	3b	Bk04	DR
	40	Li Yl Br	25y64	MZCL	v ca	25	4	o	no	SBS at 40cm. Overnight rain, watertable at 35cm.							
Bk15-8	39	Ol Br	25y44	MCL	v ca	2	4			arable	0	I	1	3a	3a	Bk04	DR

	60	Yl Br	10yr54	HCL		0				x	no									
	75	Li Yl Br	10yr64	SCL		0				xx	no	SBS at 75cm.								
Bk17-1	33	Br	10yr43	HZCL	ca	0							grass	0	II	2	2	2	Bk04	WE,DR
	62	Br	75yr43	ZC		0				xx	no									
	90	Yl Br + Gr	10yr58	10yr51	HZCL		5		4	xxx	yes	Sos shat lmst								
Bk17-2	20	Dk Gr Br	10yr42	HCL	ca	2	1	0	4				grass	1	III	3a	3a	3a	Bk04	WE,DR
	34	Br + Gr Br	75yr53	10yr52	HCL	ca			4	xxx	no									
	67	Br	10yr53	C	ca	5			4	xxx	yes	Stopped on stones?								
Bk17-3	17	Dk Gr Br	10yr42	HCL	ca	2	1	0	4				grass	1	III	3a	3a	3a	Bk04	WE,DR
	71	St Br + Gr Br	75yr58	10yr52	C	ca			4	xxx	yes									
	90	Li Br Gr	10yr62	C	v ca	50			4	xxx	no									
Bk18-1	32	Br	10yr43	HCL	(ca)	5			4				arable	0	I	2	2	2	Bk04	WE,DR
	68	Dk Yl Br	10yr34	SCL		5			4	x	no	Sos								
Bk18-2	37	Dk Gr Br	10yr42	C	(ca)	5	3	0	4				arable	3	(I)	2	3b	3b	Bk04	DR
	48	Br	10yr53	C	ca	33			4	o	no	Stopped on ls								
Bk18-3	29	Dk Gr Br	10yr42	C	(ca)	3	2	0	4				arable	3	III	3a	3a	3a	Bk04	WE,DR
	75	Gr Br + Gr	25y52	10yr51	C		1		4	xxx	yes	Mny st br mottles								
Bk18-4	33	Br	10yr43	HCL	(ca)	2			4				arable	1	III	3a	3a	3a		WE,DR
	100	Br Yl + Gr Br	10yr66	10yr52	C		2		4	xxxx	yes									

* DR calculator extensions used; Bk03 = 30cm @ 45% stone, Bk04 = 20cm @ 70% stone, Bk10 = no extension

Appendix A continued; Auger data from land surveyed in 2024

Name	Depth	Munsel colour 1	Munsel colour 2	Colour	Texture	Calc	Total stones (%)	St > 2cm	St > 6cm	Lith'gy	Mott' & gleying	SPL	Notes	Land use	Slope (°)	WC	WE grade	DR grade	ALC grade	Limit
125	37	75yr42	75yr43	Br + Br	MSL	sl ca	5	2	1	4				arable	1	l	1	3a	3a	DR
	75	75yr44	75yr46	Br + St Br	LMS	sl ca	5			4	o	no								
	105	75yr44	75yr46	Br + St Br	LMS	sl ca	45			4	o	no								
126	40	75yr43		Br	MSL	ca	10	6	2	4				arable	1	l	1	3b	3b	DR
	70	75yr43		Br	MSL	v ca	45			4	o	no								
	100						45			4										
127	32	75yr42	75yr43	Br + Br	MSL	ca	15	10	2	4				arable	1	l	1	3b	3b	DR
	62	75yr42	75yr43	Br + Br	MSL	ca	45			4	o	no								
	92						45			4										
128	39	75yr42	75yr43	Br + Br	MSL	ca	5	2	1	4				arable	1	l	1	3b	3b	DR
	90	75yr56		St Br	MS	v ca	1			4	o	no								
	120						45			4										
129	32	75yr43	75yr44	Br + Br	MSL	ca	5	3	1	4				arable	1	l	1	3a	3a	DR
	55	75yr54		Br	MSL	ca	2			4	o	no								
	85	75yr54		Br	MSL	v ca	45			4	o	no								
130	36	75yr43	75yr44	Br + Br	MSL	ca	5	2	1	4				arable	1	l	1	3a	3a	DR
	48	75yr44	75yr46	Br + St Br	MSL	ca	5			4	o	no								
	78	75yr44	75yr46	Br + St Br	MSL	v ca	45			4	o	no								
131	30	75yr42	75yr43	Br + Br	SCL	ca	5	3	1	4				arable	1	l	1	3a	3a	DR
	50	75yr54	75yr56	Br + St Br	SCL	v ca	15			4	o	no								
	80	75yr54	75yr56	Br + St Br	SCL	v ca	45			4	o	no								
132	40	75yr43		Br	MSL	ca	10	6	1	4				arable	1	l	1	3a	3a	DR
	60	75yr54		Br	MSL	ca	10			4	o	no								
	90	75yr54		Br	MSL	v ca	45			4	o	no								
133	40	75yr42		Br	MSL	ca	15	6	2	4				arable	1	l	1	3b	3b	DR
	70	75yr42		Br	MSL	v ca	45			4	o	no								
134	37	75yr43		Br	MSL	ca	10	6	2	4				arable	1	l	1	3a	3a	DR
	50	10yr64	10yr54	i Yl Br + Yl f	CSL	v ca	5			4	o	no								
	80	10yr64	10yr54	i Yl Br + Yl f	CSL	v ca	45			4	o	no								
135	38	75yr43	75yr44	Br + Br	MSL	ca	10	6	2	4				arable	1	l	1	3b	3b	DR
	45	10yr64	10yr66	i Yl Br + Br f	LCS	ca	2			4	o	no								
	75	10yr64	10yr66	i Yl Br + Br f	LCS	v ca	45			4	o	no								
136	37	75yr43		Br	MSL	ca	10	6	2	4				arable	1	l	1	3b	3b	DR
	67	75yr43		Br	MSL	v ca	45			4	o	no	Sos							

137	40	75yr43	Br	MSL	ca	10	6	1	4				arable	1	l	1	3b	3b	DR				
	70	75yr43	Br	MSL	ca	45														4	o	no	
138	40	75yr43	Br	MSL	ca	10			4				arable	1	l	1	3b	3b	DR				
	45	75yr46	St Br	CSL	ca	5														4	o	no	Gritty
	75	75yr46	St Br	CSL	v ca	45														4	o	no	
139	40	75yr43	Br	MSL	ca	10	6	1	4				arable	1	l	1	3b	3b	DR				
	70	75yr43	Br	MSL	v ca	45														4	o	no	
140	40	75yr43	Br	MSL	ca	20	15	10	4				arable	1	l	1	3b	3b	DR,ST				
	45	75yr44	Br	SCL	ca	2														4	o	no	
	75	75yr44	Br	SCL	v ca	45														4	o	no	
141	38	75yr43	Br	MSL	ca	5	3	1	4				arable	2	l	1	3b	3b	DR,ST				
	68	75yr43	Br	MSL	v ca	45														4	o	no	
142	40	75yr43	Br	MSL	ca	10	6	1	4				arable	1	l	1	3b	3b	DR				
	70	75yr43	Br	MSL	v ca	45														4	o	no	
143	40	75yr43	Br	MSL	ca	10	6	1	4				arable	1	l	1	3b	3b	DR				
	70	75yr43	Br	MSL	v ca	45														4	o	no	
144	37	75yr43	Br	MSL	ca	20	15	10	4				arable	1	l	1	3b	3b	DR,ST				
	67	75yr43	Br	MSL	v ca	45														4	o	no	
145	37	75yr43	Br	MSL	ca	20	10	10	4				arable	1	l	1	3b	3b	DR,ST				
	67	75yr43	Br	MSL	v ca	45														4	o	no	


Appendix 2 - Map 1: Location of Observations







Title
 Appendix B - Auger Locations
 Map 3

Project
 Agricultural Land Classification.
 Central Section, Springwell Solar
 Farm, Lincolnshire

Client


Key

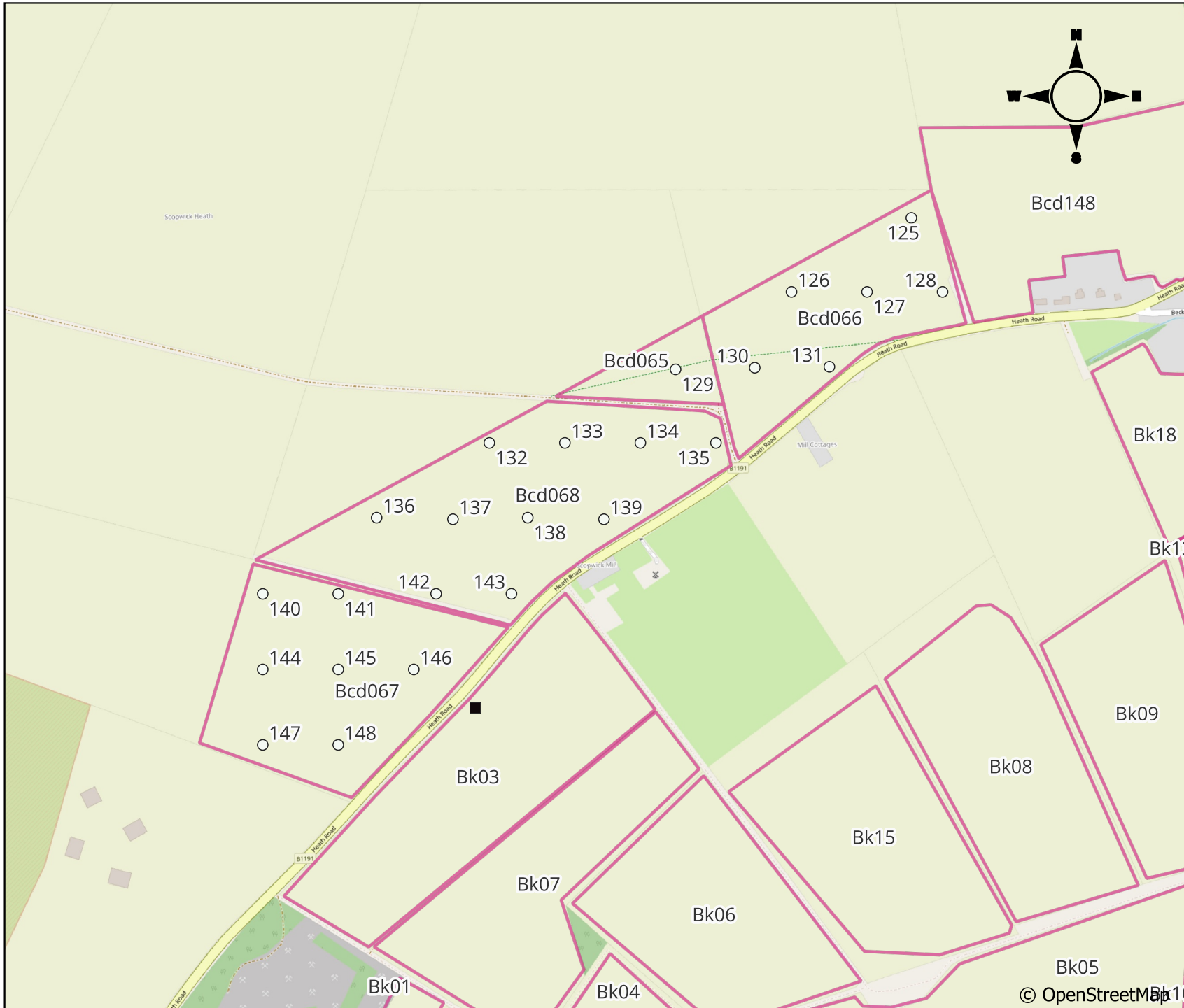
-  Field Boundaries
-  Auger Locations

Date: 11 / 05 / 2023

Scale: 1 : 700 at A4





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Title
Appendix B - Auger locations
Map 4

Project
Agricultural Land Classification.
Central Section, Springwell Solar
Farm, Lincolnshire

Client


Key
 Field boundaries
 Auger locations

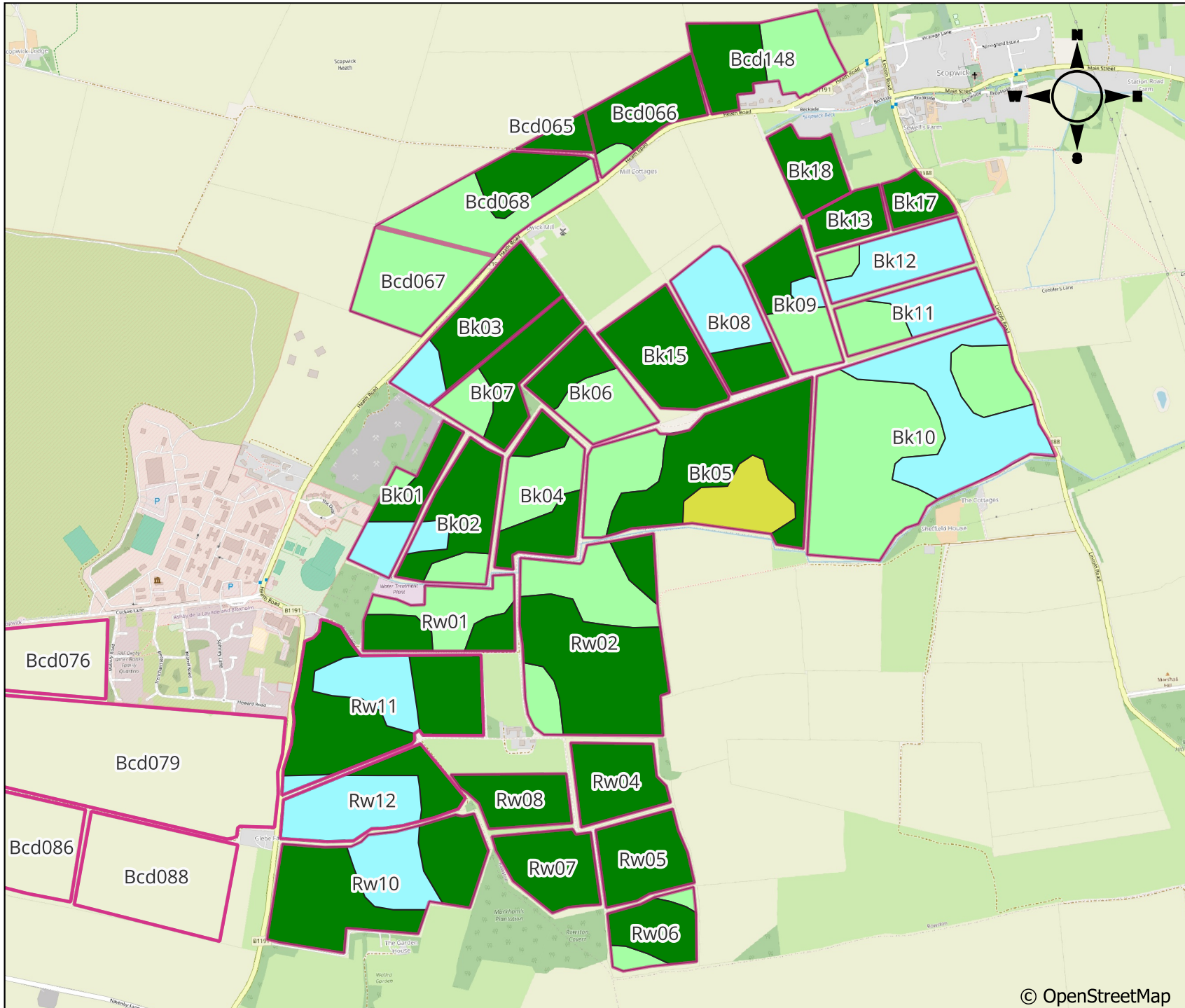
Date: 28 / 03 / 2024
Scale: 1 : 7,000 at A4


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Appendix 3: Map 2: Agricultural Classification Grades










Title
 Appendix C - ALC Grade Map

Project
 Agricultural Land Classification.
 Central Section, Springwell Solar
 Farm, Lincolnshire

Client


- Key**
-  Field boundaries
 -  Grade 2
 -  Grade 3a
 -  Grade 3b
 -  Grade 4

Date: 28 / 03 / 2024
 Scale: 1 : 15,000 at A4



Appendix 4 - Laboratory Results



ANALYTICAL REPORT

Report Number	34408-24	K754
Date Received	30-APR-2024	RSK ADAS LTD
Date Reported	06-JUN-2024	MEDEN VALE
Project	1010978	MANSFIELD
Reference	SPRINGWELL	NOTTINGHAMSHIRE
Order Number		NG20 9PD

Laboratory Reference		SOIL696315	SOIL696316	SOIL696317	SOIL696318	SOIL696319	SOIL696320	SOIL696321	SOIL696322	SOIL696323	SOIL696324
Sample Reference		TB4-15 T/S	TB4-15 USS	TB4-15 LSS	TB4-20 T/S	TB4-20 S/S	BK-12-1 T/S	BK-12-1 USS	BK-12-1 LSS	BK-04-4 T/S	BK-04-4 S/S
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Coarse Sand 2.00-0.60mm	% w/w	3	3	4	6	29	10	9	18	14	20
Medium Sand 0.60-0.212mm	% w/w	35	34	37	42	30	17	9	9	22	22
Fine Sand 0.212-0.106mm	% w/w	28	28	26	20	16	14	11	6	14	12
Very Fine Sand 0.106-0.063mm	% w/w	15	13	13	9	7	8	11	7	5	5
Silt 0.063-0.002mm	% w/w	6	7	11	10	8	25	34	37	17	17
Clay <0.002mm	% w/w	13	15	9	13	10	26	26	23	28	24
Textural Class **		mSL	mSL	LmS	mSL	LcS	MCL	MCL	MCL	SCL	SCL

Notes

Analysis Notes The sample submitted was of adequate size to complete all analysis requested.
 The results as reported relate only to the item(s) submitted for testing.
 The results are presented on a dry matter basis unless otherwise stipulated.

Document Control **This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

** Please see the attached document for the definition of textural classes.

Reported by [Redacted]
 Natural Resource Management, a trading division of Cawood Scientific Ltd.
 Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
 [Redacted]
 [Redacted]

ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

vf	Very Fine (more than 2/3's of sand less than 0.106 mm)
f	Fine (more than 2/3's of sand less than 0.212 mm)
c	Coarse (more than 1/3 of sand greater than 0.6 mm)
m	Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

M	medium (less than 27% clay)
H	heavy (27-35% clay)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.

Appendix 5 - Moisture Deficit Values for Central Section



Field name	Area (ha)	Easting*	Northing*	Field Capacity Days	Moisture Deficit Wheat (mm)	Moisture Deficit Potatoes (mm)
Bk01	5	505363	356837	118	115	109
Bk02	7	505521	356792	118	115	109
Bk03	8	505582	357349	120	114	107
Bk04	8	505757	356872	118	115	109
Bk05	21	506235	356936	118	116	109
Bk06	6	505895	357164	118	115	109
Bk07	7	505662	357200	118	115	109
Bk08	7	506288	357363	118	115	109
Bk09	6	506475	357413	118	115	109
Bk10	30	506812	357038	117	116	110
Bk11	6	506811	357390	117	116	109
Bk12	6	506758	357537	117	115	109
Bk13	3	506628	357653	117	116	109
Bk15	7	506106	357269	118	115	109
Bk17	2	506815	357703	119	114	107
Bk18	4	506517	357793	119	114	107
Bcd148	8	506384	358110	120	113	107
Rw01	7	505484	356516	118	115	109
Rw02	20	505906	356454	118	116	109
Rw04	5	505967	356062	118	116	109
Rw05	5	506043	355842	118	116	109
Rw06	5	506078	355632	118	116	109
Rw07	5	505787	355817	119	116	109
Rw08	4	505695	356011	119	116	109
Rw10	16	505286	355773	119	116	109
Rw11	16	505283	356276	120	114	107
Rw12	8	505277	356008	120	114	107

* centre of field



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