AGRICULTURAL QUALITY OF VICARAGE DROVE PROPOSED SOLAR FARM LAND NORTH-WEST OF BICKER, LINCOLNSHIRE

Report 1770/1

16th June, 2021

Land Research ASSOCIATES

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VICARAGE DROVE PROPOSED SOLAR FARM,

LAND NORTH-WEST OF BICKER, LINCOLNSHIRE

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Report 1770/1
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SUMMARY

A study and survey of 80.36 ha of land of Vicarage Drove, Bicker in Lincolnshire has shown that soils are developed in a range typical fenland deposits in a complex pattern. Soil types vary from lighter types developed in fen silt, through medium textured soils in silty clay loam deposits, to heavier types in marine clay. The land is of 'best and most versatile' agricultural quality grade 2 (26.06 ha) and sub-grade 3a (54.3 ha).

Apart from small areas occupied by the substation compound, batteries, inverters and access roadways, the only impacts on soils will be the insertion of support legs for the solar panels and temporary surface compaction of soils during equipment installation. The unoccupied ground between rows of panels and under the panels is typically seeded to grassland, which can be grazed by sheep following the completion of installation. The land will be capable of returning to almost unchanged agricultural quality and use after the typical 40 year life of a solar park installation.

1.0 Introduction

1.1 This report provides information on the soil resources and agricultural quality and use of an area of 80.36 ha of land to the northwest of Bicker in Lincolnshire. The land is proposed for a solar farm with battery storage and associated infrastructure. The report is based on a soil and agricultural desk study, and a survey of the land in February 2021.

SITE ENVIRONMENT

1.2 The land investigated comprises arable fields bordered by the South Forty Foot Drain in the west and running as far north as Bicker Drove. The eastern and southern boundaries are marked by field drains mainly running up to Bicker Fen wind farm and its associated turbines. The land is level at an elevation of around 2-3m AOD.

AGRICULTURAL USE

1.3 The land is used for arable cropping. At the time of the survey several fields were ploughed land, and the rest was sown to winter wheat. The land is not subject to any Environmental Stewardship agreements.

PUBLISHED INFORMATION

1.4 The 1:50,000 BGS geological information shows that the basal geology is Oxford Clay with a cover of Clay and Silt Tidal Flat deposits.

1.5 On the National Soil Map[1] the land is in Wallasea 2 Association comprising deep stoneless clayey soils, calcareous in places, and some deep calcareous silty soils in a complex pattern.

1.6 Reconnaissance agricultural land classification (ALC) mapping carried out in the 1970s shows the land as grade 2. No more recent studies have been published.

[1] Hodge C A H. *et al* (1984). *Soils and their use in Eastern England.* Soil Survey Bulletin No 12

2.0 Soils

2.1 The National Planning Policy Guidance states that the planning system should protect and enhance valued soils and prevent the adverse effects of unacceptable levels of pollution. This is because soil is an essential finite resource that provides important ecosystem services, for example as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution.

2.2 A detailed soil resource and agricultural quality survey was carried out in February 2021. It was based on observations at intersects of a 100 m grid, giving a sampling density of one observation per hectare. During the survey soils were examined by a combination of pits and augerings to a maximum depth of 1.2 m. A log of the sampling points and a map (Map 1) showing their location is in an appendix to this report.

2.3 The deposition of soil-making materials in fenland is very complex and results in a wide range of soil types. Textures range from silty clay to silt loam, and all textures can occur in the same soil. A common type is “fen silt”, actually a fine sandy loam or fine sandy silt loam, where the sand fraction is dominated by particles of 60-100 µm.

2.4 The depositional layers often retain their original colours so that present soil colours may not reflect modern conditions. The land is arterially drained by ditches and pumps so that groundwater levels are controlled to low levels. The soils also retain the relic platy or laminar structure of the original deposition and this is also and aid to permeability. Many marine clay layers have considerable vertical porosity caused by worm channels and are thus not slowly permeable.

2.5 On this site the soil distribution patters fall into two distinct patterns. In the north there is a higher preponderance of lighter textured soils, while in the south heavy clay soils (Wallasea series) predominate. The distribution is shown on Map 2 in an appendix to this report.

Heavy Soils

2.6 The topsoil is heavy silty clay loam or silty clay, stoneless, and mainly non-calcareous. It overlies a range of subsoil types, but very often the upper layers are silty clay or heavy silty clay loam. These layers may continue to depth, but “fen silt” may also occur at as a layer. The layers are brown and grey with

ochreous mottles, and some show laminar or platy depositional structure especially at depth.

2.7 An example profile from close to observation 111 (Map 1) under a cereal crop is described below and represents one of the heavier soil types.

0-34/36 cm	Dark greyish brown (10YR 4/2) stoneless silty clay; weakly developed coarse angular blocky structure; firm; a few fine pores and a few earthworm channels; common very fine fibrous roots; clear undulating boundary to:
34/36-75 cm	Grey (10YR 5/1) on ped faces and matrix silty clay with abundant reddish brown (5YR 5/6); stoneless; moderately developed medium and coarse subangular blocky structure; firm; a few fine and medium pores; a few fine fibrous roots; merging to:
75-1000+ cm	Greyish brown (10YR 5/2) stoneless silty clay with common strong brown (7.5YR 5/6) mottles; weakly to moderately developed coarse prismatic structure; firm; 2% fine pores; a few fine fibrous roots.

2.8 The subsoil is moderately permeable and controlled arterial drainage results in this soil being in wetness class II with a moderate to good capacity to absorb excess winter rainfall.

Lighter soils

2.9 The topsoil is medium silty clay loam, silt loam or very fine sandy silt loam ('fen silt') and is usually calcareous in reaction. It overlies a similar range of subsoils, and may also overlie heavier textured layers like silty clay or heavy silty clay loam, or all in combination. The very fine sandy silt loam soils are often associated with minor rises in ground level called roddons (or rodhams).

2.10 An example profile from close to observation 3 (Map 1) in ploughed land is described below and represents one of the lighter textured soil types.

0-34 cm	Dark greyish brown (10YR 4/2) stoneless calcareous silt loam; moderately developed medium subangular blocky structure; friable; common fine and medium pores; a few fine fibrous roots; some surface slaking; clear smooth boundary to:
34-52 cm	Grey brown (10YR 5/1 and 6/1) stoneless calcareous silt loam with many strong brown (7.5YR 5/8) mottles; moderately developed medium angular blocky structure; friable; common fine and fine pores; a few fine fibrous roots; clear smooth boundary to:
52-90+ cm	Light grey (10YR 6/1) stoneless calcareous silt loam to medium silty clay loam with common yellowish brown (10YR 5/8) mottles; tabular depositional laminations becoming coarser at depth; friable; common fine pores; rare fine fibrous roots.

2.11 These light silty soil types are permeable and with good arterial drainage and are in wetness class I. They have a good capacity to absorb excess winter rainfall.

2.12 An example profile from close to observation 4 (Map 1) in ploughed land is described below and represents one of the medium textured soil types.

0-28 cm	Dark brown (10YR 3/3) stoneless calcareous heavy silty clay loam; moderately developed medium to coarse angular blocky structure; friable to

	firm; common medium pores; a few fine fibrous roots; some surface slaking clear smooth boundary to:
28-58 cm	Grey (10YR 5/1) stoneless calcareous heavy silty clay loam with abundant yellowish red (5YR 5/6) mottles; weakly developed medium subangular blocky structure with some depositional laminations; firm to friable; common fine and medium pores; common very fine fibrous roots clear smooth boundary to:
58-80+ cm	Dark grey (10YR 4/1 and strong brown (7.5YR 4/6) stoneless calcareous medium silty clay loam; coarse laminar structure; friable; common fine and medium pores; rare fine fibrous roots.

2.13 If these soils are over lighter textured subsoils they can be in wetness class I but over denser layers they may suffer occasional surface winter waterlogging (wetness class II). They have a good capacity to absorb excess winter rainfall.

3.0 Agricultural Quality

3.1 To assist in assessing land quality, the Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF Agricultural Land Classification (ALC) system classifies land into five grades numbered 1 to 5, with grade 3 divided into two sub-grades (3a and 3b). The system was devised and introduced in the 1960s and revised in 1988.

3.2 The agricultural climate is an important factor in assessing the agricultural quality of land and has been calculated using the Climatological Data for Agricultural Land Classification[2]. The relevant site data for an average elevation of 2 m is given below.

• Average annual rainfall:	570 mm
• January-June accumulated temperature >0°C	1437 day°
• Field capacity period (when the soils are fully replete with water)	108 days early Dec–early Apr
• Summer moisture deficits for:	wheat: 119 mm potatoes: 115 mm

3.3 The survey described in the previous section was used in conjunction with the agroclimatic data above to classify the site using the revised guidelines for agricultural land classification issued in 1988 by the Ministry of Agriculture, Fisheries and Food[3].

SURVEY RESULTS

3.4 The agricultural quality of most of the survey area is determined by the degree of soil wetness and the effect of this on the workability of the soils. The land is of "best and most versatile quality" in grade 2 and subgrade 3a agricultural quality.

[2] *Climatological Data for Agricultural Land Classification*. Meteorological Office, 1989
[3] *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*. MAFF, 1988.

Grade 2

3.5 This grade of land is found over the northern part of the site where the soils are generally lighter in texture (Map 2). There is a mixture of soil types but most have calcareous medium or heavy textured topsoils and good to moderate permeability. Heavier types and lighter types are present in a complex pattern but overall the limitation is minor workability in winter and early spring.

Sub-grade 3a

3.6 This sub-grade of land is found on heavier land in the south of the area (Map2). Many soils have clay subsoils which reduces permeability (Wetness Class II). The topsoils are heavy silty clay loam or silty clay and are wetter in late autumn and early spring, thereby reducing the workability of the land. Lighter soils are included in a complex pattern because they could not be managed separately and are therefore limited by the wetness of the surrounding land.

Grade areas

3.7 The boundaries between the different grades of land are shown on Map 3 and the areas occupied by each are shown below.

Table 1. Areas occupied by the different land grades

Grade/sub-grade	*Area (ha)*	*% of agricultural land*
Grade2	26.06	32
Sub-grade 3a	54.30	68
Total	80.36	100

4.0 Soil resources and their use

4.1 As part of the Government's 'Safeguarding our Soils' Strategy, Defra published a code of practice on the sustainable use of soils on construction sites, which can be helpful in design of developments and setting planning conditions. An Environment Agency strategy *Soil a Precious Resource: Our strategy for protecting*, *managing and restoring soil* (Environment Agency, 2007) has complementary aims.

4.2 The proposed development will involve the installation of rows of interconnected photo-voltaic (PV) panels mounted on a steel supporting structure that is driven directly into the ground to a depth of 1-2 m, with no need for foundations. There is also a substation compound, batteries and inverters.

4.3 Apart from small areas occupied by these and access roadways the only impacts on soils will be the insertion of support legs for the solar panels and possible surface compaction of soils during equipment installation.

Topsoil

4.4 Topsoil stripped from the route of access tracks or where transformers or substations are to be built should be spread thinly on adjacent land.

Subsoil

4.5 Subsoils are easily damaged by trafficking by vehicles used for installation. If compacted during construction work they should be loosened in order to retain their ability to absorb direct rainfall and run-off from the panels.

Soil Handling

4.6 The Construction Code of Practice for Sustainable Use of Soils on Construction Sites (Defra 2009) provides guidance on good practice in soil handling.

APPENDIX

MAPS AND DETAILS OF OBSERVATIONS

Land at Vicarage Drove, north-west Bicker: ALC and soil resources survey February 2021 - Details of observations at each sampling point*

Obs No	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality	
	Depth (cm)	Texture	Stones (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling			Grade	Main limitation
1	0-40	ca MZCL	1	40-65	VFSZL	xx	65-110	ZC	xxx	0	II	2	W
2	0-30	ca MZCL	0	30-80	MZCL	xxx	80-110	VFSZK	xxx	0	I/II	1/2	W
3	0-30	ca VFSZL	0	30-70	VFSZL	xxx	70-110	MZCL	xxx	0	II	1	
4	0-30	HZCL	0	30-45	HZCL	xxx	45-110	ZL	xxx	0	II	3a	W
5	0-30	HZCL-ZC	0	30-60	ZC	xx	60+	water table		0	II	3a	W
6	0-30	HZCL	0	30-70	ZC	xxx	70-110	HZCL	xxx	0	II/III	3a/3b	W
7	0-30	ZL	0	30-110	ZL	xxx				0	I/II	1/2	W
8	0-30	ca VFSZL	0	30-50	VFSZL	xx	50-75 75-110	MZCL ZC	xxx xxxx	0	I	I	
9	0-30	ca MZCL	0	30-45	MZCL	xx	45-70 70-110	ZC HZCL	xxxx xxx	0	II	2	W
10	0-30	ZC	0	30-65	ZC	xxx	65-110	HZCL	xxx	0	II	3a	W
11	0-30	ca MZCL	4	30-100	HZCL	xx				0	II	2	W
12	0-35	MZCL	0	35-60	VFSZL	xx	60-110	ZC	xxx		II	2	W
13	0-30	(ca) HZCL	0	30-110	HZCL	xxx				0	II	2/3a	W
14	0-30	MZCL	0	30-60	MZCL	xxx	60-80 80-110	gr ZC BR ZC	xxxx xxx	0	II	2	W
15	0-32	ca ZL	0	32-90	VFSZL	xxx	90-110	ZC	xxxx	0	I	1	
16	0-35	ca MZCL	0	35-60	MZCL	xxx	60-110	ZC	xxx	0	II	2	W
17	0-30	ca MZCL	0	30-50	VFSZL	xxx	50-110	ZC	xxx	0	II	2	W
18	0-30	ca ZL	0	30-60	VFSZL	xx	60-110	HZCL	xxx	0	II	1/2	W
19	0-35	ca ZL	0	35-80	VFSZL	xxx	80-110	ZC	xxx	0	II	1/2	W
20	0-33	ca ZL	0	33-65	VFSZL	xxx	65-110	ZC	xxxx	0	II	1/2	W
21	0-33	ca HZCL	0	33-65	HZCL	xxx	65-110	shelly ZC	xxx	0	II	2	W
22	0-30	ca HZCL	0	30-50	ZC	xxxx	50-110	rb ZC	xxx	0	II/III	2/3a	W
23	0-30	ca MZCL	0	30-60	MZCL	x	60-110	M-HZCL	xxx	0	II	2	W
24	0-32	(ca) HZCL	0	32-60	HZCL	xxx	60-110	ZC	xxx	0	II	2/3a	W
25	0-30	HZCL-ZC	0	30-110	ZC	xxx				0	II	3a	W
26	0-30	HZCL	0	30-60	HZCL	xxx	60-110	ZC	xxxx	0	II	3a	W
27	0-30	ZC	0	30-100+	ZC	xxx				0	II/III	3a/3b	W
28	0-30	HZCL	0	30-45	ZC	xx	45-110	HZCL	xxx	0	II	3a	W
29	0-30	(ca) HZCL	0	30-50	ZC	xx	50-70 70-110	HZCL ZC	xxx xxxx	0	II	3a	W
30	0-40	ZC	0	40-70	ZC	xxx	70-110	gr ZC	xxx	0	II	3a	W
31	0-28	ZC	0	28-110	ZC	xxx				0	II	3a	W
32	0-30	ca MZCL	0	30-80	ZL	xxx	80-110	VFSZL	xxx	0	I/II	1/2	W
33	0-30	ca ZL	0	30-110	VFSZL	xxx				0	I	1	

Obs No	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality	
	Depth (cm)	Texture	Stones (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling			Grade	Main limitation
34	0-30	HZCL	0	30-45	VFSZL	xxx	45-110	shelly ZC	xx	0	II	3a	W
35	0-30	ZC	0	30-110	ZC	xxx				0	II/III	3a/3b	W
36	0-40	ZC	0	40-110	DC	xxx				0	II	3a	W
37	0-25	(ca) HZCL	0	25-100+	rb ZC	xxx				0	II/III	2/3a	W
38	0-35	ca MZCL	0	35-80	br VFSZL	xxx	80-110	gr VFSZL	xxx	0	I/II	1/2	W
39	0-30	HZCL	0	30-80	HZCL	xxx	80-110	ZL	xxx	0	II	3a	W
40	0-40	ZC	0	40-110	rb ZC	xxx				0	II	3a	W
41	0-30	ca MZCL	0	30-80	MZCL	xxx	80-110	VFSZL	xxx	0	I/II	1/2	W
42	0-30	HZCL	0	30-65	HZCL	xxx	65-110	MZCL	xxx	0	II	3a	W
43	0-40	ZC	0	40-110	ZC	xxx				0	II	3a	W
44	0-35	HZCL	0	35-55	HZCL	xxx	55-110	ZC	xxxx	0	II	3a	W
45	0-35	ca MZCL	0	35-90	VFSZL	xx	90-110	VFSZL	xxx	0	I	1	
46	0-28	HZCL	0	28-55	HZCL	xx	55-110	ZC	xxx	0	II	3a	W
47	0-32	ca MZCL	0	32-90	ZC	xxx	90-120	HZCL	xxx	0	II	2	W
48	0-30	ZC	0	30-90+	ZC	xxx				0	II/III	3a/3b	W
49	0-30	HZCL	0	30-110	HZCL	xxx				0	II/III	3a/3b	W
50	0-40	HZCL	0	40-110	HZCL-ZC	xxx				0	II	3a	W
51	0-30	ZC	0	30-120	ZC	xxx				0	II	3a	W
52	0-30	HZCL	0	30-110	HZCL	xxx	wet			0	II	3a	W
53	0-30	ZC	0	30-80	ZC	xxxx	80-120	VFSZL	xxx	0	III	3b	W
54	0-30	ca ZC	0	30-80	HZCL-ZC	xxx	80-120	ZC	xxx	0	II	2/3a	W
66	0-32	HZCL	0	32-55	HZCL	xxx	55-110+	VFSZL	xxx	0	II	3a	W
67	0-30	ca MZCL	0	30-40	ZL	xxx	40-70 70-110	HZCL ZC	xxx xxx	0	II	2	W
68	0-30	HZCL	0	30-60	ZC	xxx	60-110+	HZCL	xxx	0	II	3a	W
69	0-30	ZC	0	30-80+	ZC	xxx				0	III	3b	W
70	0-30	ZC	0	30-100+	ZC	xxx				0	II/III	3a/3b	W
71	0-30	HZCL	1	30-60	HZCL	xx	60-110	HZCL	xxx	0	II	3a	W
							80+120	VFSZL					
81	0-28	NZCL	0	28-120	VFSZL	xx				0	I	1	
82	0-32	MZCL	0	32-60	HZCL	xxx	60-120	ZC	xxx	0	II	3a	W
83	0-30	ZC	0	30-90+	ZC	xxx				0	II	3a	W
84	0-30	0ZC	0	30-90+	ZC	xxx	wet			0	II	3a	W
85	0-30	HZCL	0	30-45	HZCL	xx	45-90 90-120	ZC MZCL	xxx xxx	0	II	3a	W
86	0-30	ZC	0	30-90+	ZC	xxx	wet			0	II/III	3a/3b	W
87	0-30	ZC	0	30-45	ZC	xxx	45-60 60-110	MZCL ZC	xxx xxx	0	II/III	3a/3b	W
88	0-28	HZCL	0	28-40	HZCL	xxx	40-100 100-120	ZC HZCL	xxx xxx	0	II	3a	W

Obs No	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness Class	Agricultural quality	
	Depth (cm)	Texture	Stones (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling			Grade	Main limitation
96	0-35	HZCL	0	35-110	HZCL					0	II	3a	W
97	0-38	ZC	0	38-110	ZC	xxx				0	II	3a	W
98	0-30	ZC	0	30-60+	ZC	xxx	wet			0	II	3a	W
99	0-30	HZCL	0	30-80	ZC	xxx	80-110	HZCL	xxx	0	II	3a	W
100	0-30	HZCL	0	30-110	ZC	xxx				0	II	3a	W
101	0-30	ZC	0	30-100+	ZC	xxx				0	II/III	3a/3b	W
102	0-30	ZC	0	30-110	ZC	xxx				0	II	3a	W
105	0-35	ZC	0	35-55	ZC	xxx	55-90 90-120	MZCL HZCL	xx xxx	0	II	3a	W
106	0-20	ca HZCL	3	20-45	ZC	xxx	45-60 60+	HZCL stop on hard layer	xx	0	II	2	W disturbed
107	0-30	HZCL	0	30-60	HZCL	xxx	60-110	MZCL	xxx	0	II	3a	W
108	0-28	HZCL	0	28-110	ZC	xxxx				0	II	3a	W
109	0-35	HZCL	0	35-110	ZC	xxx				0	II	3a	W
110	0-30	ca MZCL	0	30-60	MZCL	xxx	60-110	HZCL	xxx	0	II	2	W
111	0-30	HZCL	0	30-110	ZC	xxx				0	II	3a	W
112	0-30	HZCL	0	30-110+	ZC	xxx				0	II	3a	W
113	0-30	ZC	0	30-120	ZC	xxx				0	III	3b	W
114	0-30	ca MZCL	0	30-80	MZCL	xxx	80-120	ZL	xxx	0	I/II	1/2	W
115	0-30	ZC	0	30-70+	ZC`	XZXX	wet			0	II/III	3a/3b	W
116	0-35	HZCL	0	35-110	ZC	xxx				0	II	3a	W
117	0-35	ZC	0	35-100+	ZC	xxx				0	II	3a	W
118	0-35	ZC	0	35-45	ZC	xx	45-110	ZC	xxxx	0	II	3a	W
119	0-35	ZC	0	35-110+	ZC	xxx				0	III	3a	W

***** This is a subset of data recorded for a larger survey, hence the numbering is not consecutive.

Key to table

Mottle intensity:

o	unmottled
x	1-2% ochreous mottles and brownish matrix (or a few to common rusty root mottles (topsoils)[3]
xx	>2% ochreous mottles and brownish matrix and/or dull structure faces (slightly gleyed horizon)
xxx	>2% ochreous mottles and greyish or pale matrix or reddish matrix and >2% greyish, brownish or ochreous mottles or fmn concentrations (gleyed horizon)
xxxx	dominantly bluish matrix , often with some ochreous mottles (gleyed horizon)

Slowly permeable layers[4]

A depth underlined (e.g. 50) indicates the top of a slowly permeable layer
A wavy underline (eg 50) indicates the top of a layer bordering to extremely)
slowly permeable

Texture:

C - clay
ZC - silty clay
SC - sandy clay
CL - clay loam (H-heavy, M-medium)
ZCL - silty clay loam (H-heavy, M-medium)
SCL - sandy clay loam
SZL - sandy silt loam (F-fine, M-medium, C-coarse
SL - sandy loam (F-fine, M-medium, C-coarse)
LS - loamy sand (F-fine, M-medium, C-coarse)
S - sand (F-fine, M-medium, C-coarse)
P - peat (H-humified, SF-semi-fibrous, F-fibrous)
LP - loamy peat; PL - peaty loam

Wetness Class[5]

I (freely drained) to VI (very poorly drained)

Limitations:

W - wetness/workability
D - droughtiness
De - depth
St – stoniness
Sl – slope
F - flooding
T – topography/microrelief

Suffixes & prefixes

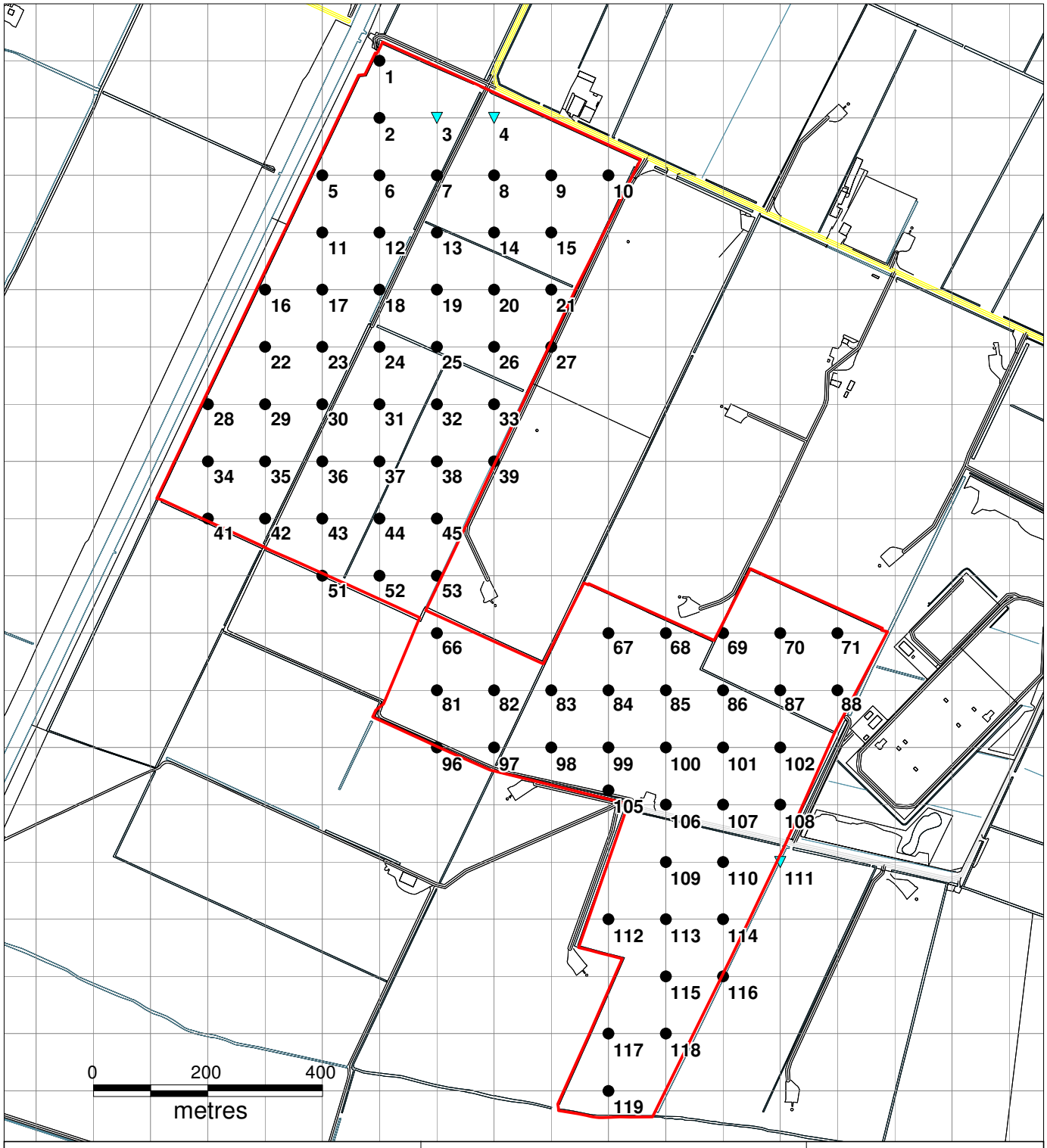
r-reddish, gn greenish, br brownish, gr-greyish
o-organic
(m, v, x)st (very slightly, slightly, extremely) stony
chky-chalky
[7](vsl, sl, m, v,x)(very slightly,slightly,moderately, very,

ca – calcareous

Other abbreviations

fmn –ferri-manganiferous concentrations
dist - disturbed soil layer;
R – bedrock (chky – Chalk, SST – Sandstone, PLST – Limestone, MST – Mudstone)

[1]Gley indicators in accordance with Hodgson, J.M. (1997) Soil survey Field Handbook (third edition) Soil Survey Technical Monograph No 5
[2]Texture in accordance with particle size classes in Hodgson (1997)
[3]Occasionally recorded in the texture box
[4]Permeability is estimated for auger borings and confirmed by full pit observations in accordance with the definitions in Hodgson (1997)
[5]Soil Wetness Classes are defined in Hodgson (1997)
[6]Stoniness classes as defined in Hodgson (1997)
[7]Calcareous classes as defined in Hodgson (1997)



Client

renewable connections

Project

Land at Vicarage Drove, Bicker

Map

Map 1
Location of the observations

KEY

- Auger Location
- Soil description pit
- Survey area

Scale
1:10,000 at A4

Date
16/06/2021

Land Research Associates

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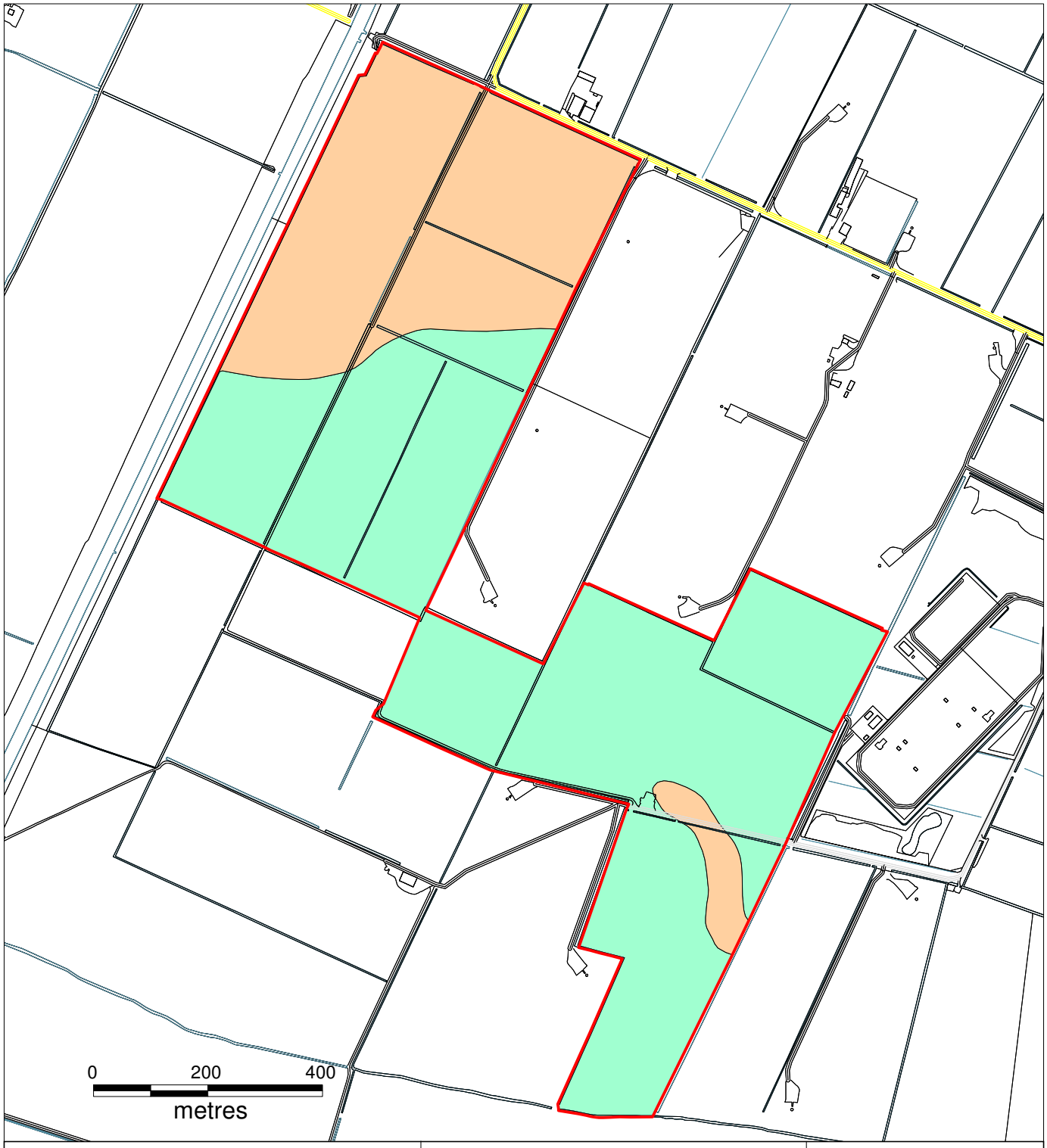

Client

renewable connections

Project

Land at Vicarage Drove, Bicker

Map

Map 2
Main Soil Types

KEY

Lighter soils predomiinate. Medium and light silty.

Heavy soils predominate. Heavy silt loams and clays

Survey area

Scale
1:10,000 at A4

Date
16/06/2021

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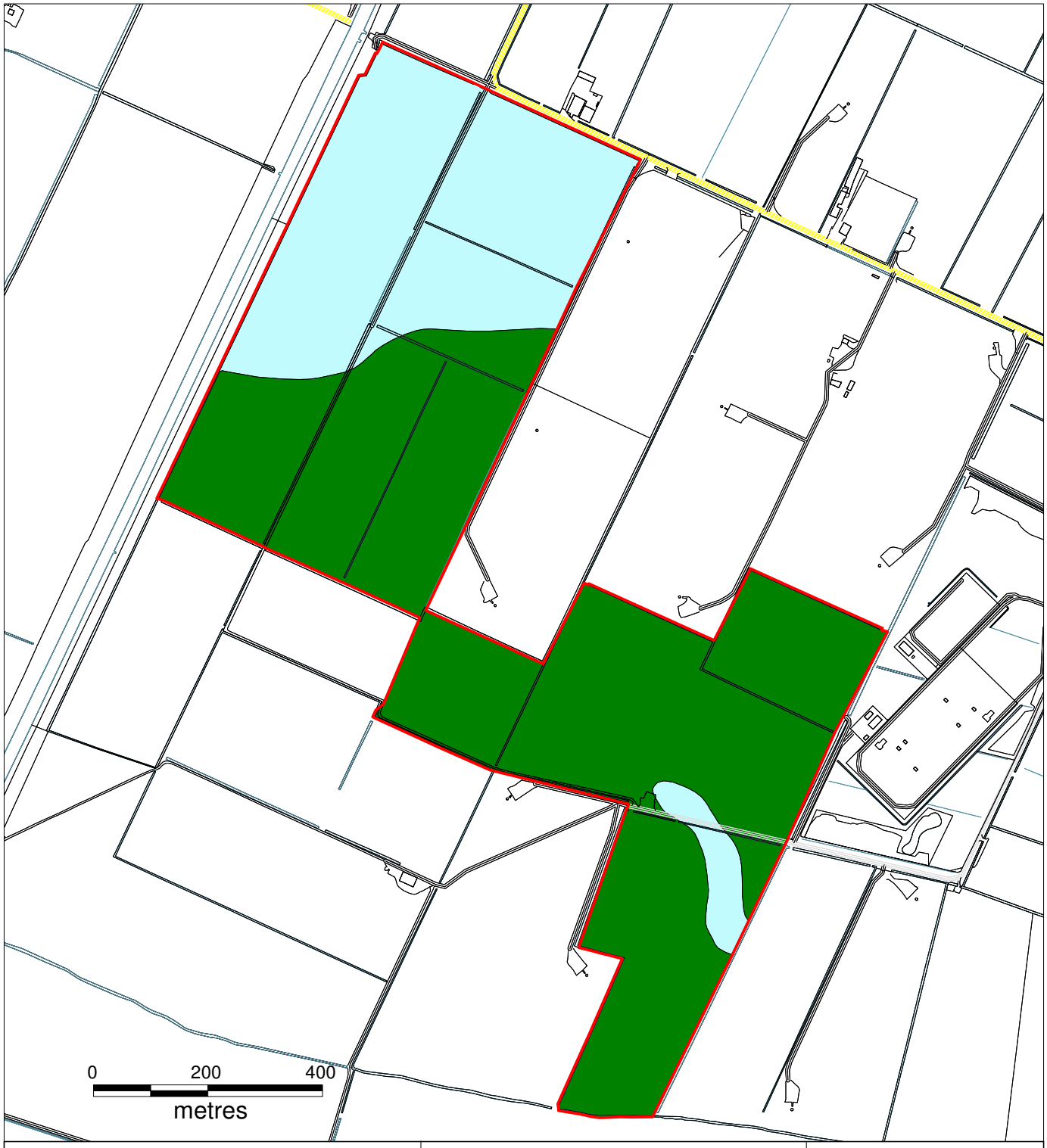

Client

renewable connections

Project

Land at Vicarage Drove, Bicker

Map

Map 3
Agricultural Land Quality

KEY

- Grade 2 (26.4 ha)
- Sub-grade 3a (54.6 ha)
- Survey area

Scale
1:10,000 at A4

Date
16/06/2021

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