BATEMAN RURAL ASSOCIATES LIMITED

Agricultural Land Classification

of

Land at Ashtree Farm
Gorefield
Lincolnshire
PE13 4PL

For

Pathfinder Clean Energy

CONTENTS

1. INTRODUCTION

An Agricultural Land Classification (ALC) has been carried out on 132 ha of land at Gorefield (Drawing 1). The site is centred on OS Grid Ref. 538416, 312822.

The survey was conducted on the 21st and 22nd June 2022 and classified the land into one or more of the below grades (see Drawing 1). On the survey date, the site was in agricultural use.

1.1 Methodology

Agricultural land is classified into the following grades according to the 1988 guidelines[1].

Grade	Description
1	**Excellent quality agricultural land** with no or very minor limitations to agricultural use.
2	**Very good quality agricultural land** with minor limitations which affect crop yield, cultivation or harvesting.
3a 3b	**Good quality agricultural land** capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops. **Moderate quality agricultural land** capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.
4	**Poor quality agricultural land** with severe limitations which significantly restrict the range of crops and/or level of yields.
5	**Very poor quality agricultural land** with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

The classification includes an initial desktop investigation to examine previously mapped soil types and to note the drift and solid geology followed by the field survey consisting of auger borings at one every 100 m in general and a pit excavated in each of the main soil types to confirm the structures and stone content if needed. Laboratory analysis of soil textures is undertaken if needed in order to confirm textures such the *heavy/medium* clay and *medium/fine* sand categories or stone content. All site survey profile data is listed in Appendix A.

All of the potential limitations are assessed and then the most limiting factor dictating the ALC grade was determined for this site and is detailed in Table 2.

1.2 Previous ALC gradings

Grading on the MAFF (1983) 1: 250 000 provisional map indicated the site is mapped as Grade 2 land. No former detailed surveys have been undertaken for the site.

2. CLIMATIC LIMITATIONS

2.1 Overall climate

The climatological data for the site centre is detailed in Table 1.

Table 1 Climatological information[3]		
Factor	**Units**	**Value**
Altitude AOD	m	0
Accumulated temperature	day°C (Jan-June)	1446.2
Average Annual Rainfall	mm	559.6
Field Capacity Days	days	97.0
Moisture Deficit Wheat	mm	122.4
Moisture Deficit Potatoes	mm	118.8
Overall climate ALC Grade	Grade 1	

Climate will not result in the most significant limiting factor for the site.

2.2. Local climate

Local climate will not result in a significant limiting factor for this site.

3 SITE LIMITATIONS

3.1 Gradient

The gradient will not result in a significant limiting factor for this site.

3.2 Microrelief

The microrelief will not result in a significant limiting factor for this site.

3.3 Flooding

A low risk of flooding from surface waters and rivers has been identified for the site (https://flood-warning-information.service.gov.uk/long-term-flood-risk).

4 SOIL LIMITATIONS

4.1 Texture and structure

Over the majority of the site, clayey soils predominate. The textures noted across the site were mainly heavy silty clay loam over silty clay or clay subsoils. Subsoil structure was moderate coarse angular blocky and moderate coarse prismatic.

Wallasea and Newchurch soils are less permeable but respond to underdrainage; drained soils are occasionally waterlogged (Wetness Class II) (www.landis.org.uk). Numerous ditches and reed channels were noted on site. Profiles are stone free or very slightly stony and typically non or only very slightly calcareous throughout. The critical variation noted across the site was whether the topsoil heavy or medium silty clay loam.

The site has previously been mapped as having soils of the following Associations:
The Normoor Association soils over the majority of the site are mapped as: *Deep stoneless clayey soils in places with humose surface horizon, often very acid. Flat land crossed by low ridges with deep calcareous silty soils. Groundwater controlled by ditches and pumps. Slight risk of wind erosion* (www.landis.org.uk).
The Wallasea 2 Association soils over the north-west of the site are mapped as: *Deep stoneless clayey soils. Calcareous in places. Some deep calcareous silty soils. Flat land often with low ridges giving a complex soil pattern. Groundwater controlled by ditches and pumps* (www.landis.org.uk).

Superficial Geology 1:50 000 scale superficial deposits description:
Tidal Flat Deposits, 1 - Clay and Silt.
Bedrock Geology 1:50 000 scale bedrock geology description:
West Walton Formation and Ampthill Clay Formation (undifferentiated) - Mudstone.

Table 1a - PSD Results

No	Percentages Sand	Silt	Clay	Total	Textural Class
83	5.28	68.25	26.47	100.00	MZCL
36	4.62	61.46	33.92	100.00	HZCL

Method: BS1377 Pipette Method

4.2 Depth

Soil depth will not result in a significant limiting factor for this site.

4.3 Stoniness

Stoniness is not a direct significant limiting factor for soils noted on site.

4.4 Chemical

Chemical contamination will not result in a significant limiting factor for this site.

5. INTERACTIVE LIMITATIONS

5.1 Wetness

Mottling and gleying was noted within the soils from around 25 cm depth in the clayey soils.

The combination of a Wetness Class of II for the soils (see Appendix A) with Field Capacity Days of 97.0 and a topsoil texture of non-calcareous heavy silty clay loam or silty clay results in an ALC Grade of 3a. A small area of land to the west with light loamy soils resulted in an ALC Grading of 2.

5.2. Droughtiness

The Available Water Capacity which subsequently when considered with respect to the Moisture Deficit for wheat and potatoes resulted in a slight droughtiness limitation for soils on the site.

5.3 Erosion

Erosion will not result in a significant limiting factor for this site.

6. AGRICULTURAL LAND CLASSIFICATION

6.1 Most limiting factors

Grade 3a land – Wetness Limitation

The combination of a Wetness Class of II for the soils (see Appendix A) with Field Capacity Days of 97.0 and a topsoil texture of non-calcareous heavy silty clay loam or silty clay results in an ALC Grade of 3a.

Grade 2 land – Wetness and Droughtiness Limitation

The combination of a Wetness Class of II for the soils (see Appendix A) with Field Capacity Days of 97.0 and a topsoil texture of non-calcareous medium loamy soils results in an ALC Grade 2 for a small area of land to the west.

6.2 Current grading

This survey has resulted in an Agricultural Land Classification of the following grades (Drawing 1):

Table 2. ALC gradings and limitations

Grade	ha	%	Limitation
1			
2	15	11.36	Wetness and droughtiness
3a	117	86.66	Wetness
3b			
4			
5			
Non-agricultural land			
Total	132	100%	

DRAWING 1

ALC Grade

Key

ALC Grades

- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Non agricultural land

● Boring

■ Pit

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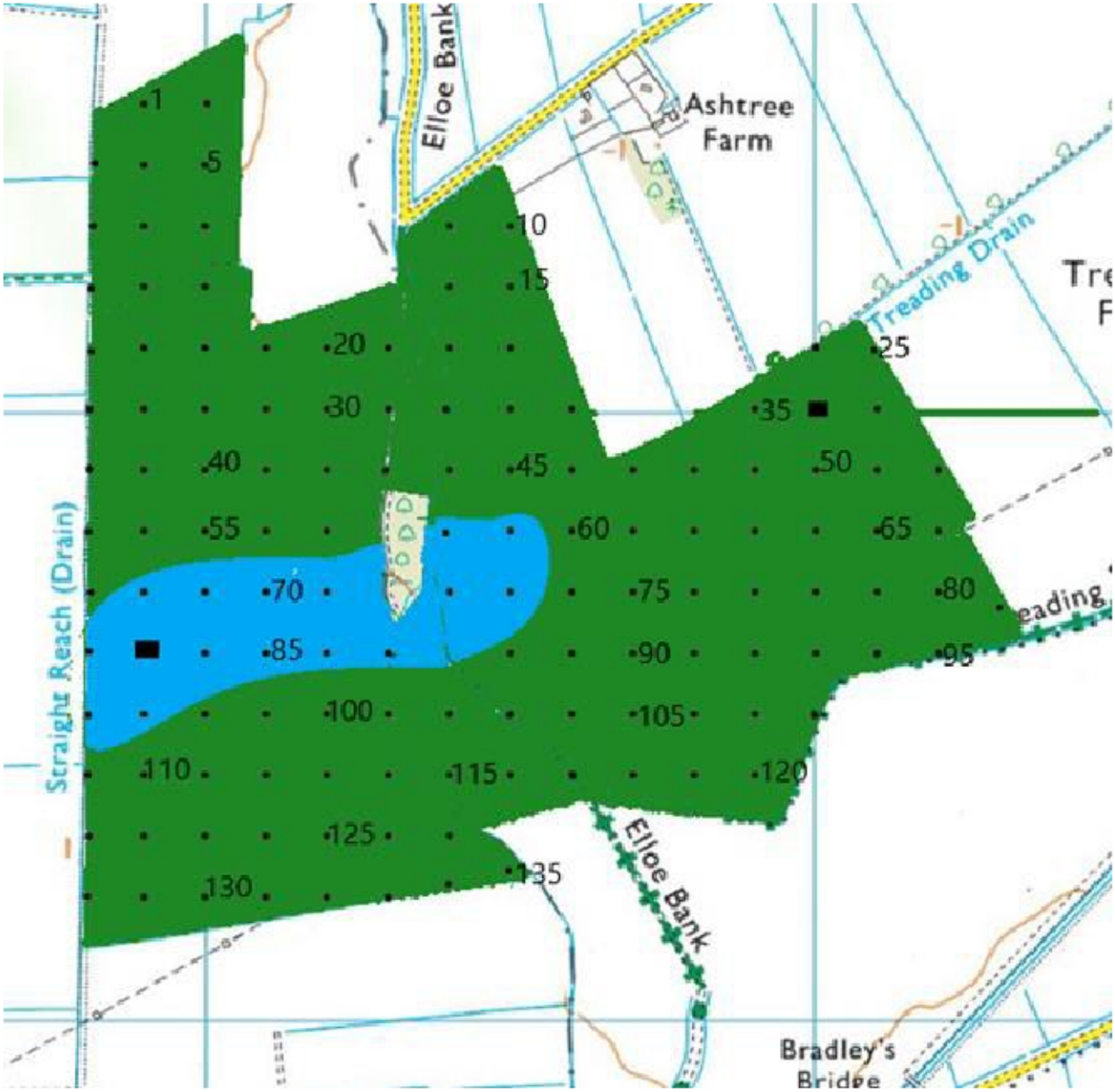
Drawing Title: ALC Grade	Drawing No.: 1
Scale: 1:10000	Date:14/07/2022



APPENDIX A

Soil profile data

Notes

1 All abbreviations relating to soil parameters are standard and derived from the guidance documents:

Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land. MAFF. 1988.
Soil Survey Field Handbook. Technical Monograph No.5. Soil Survey of England and Wales.1976.

2 The pit data is detailed in this table and information on structure and stone content copied to the appropriate boring profiles.

3 Any blanks or zeros in the cells indicate the data is not needed or appropriate for that cell.

4 If 'NA' is inserted in a cell the information is not appropriate on this occasion.

5. Boring or pit locations are directly (within 2 m accuracy) on the grid reference corresponding to the points on the map unless otherwise stated.

6 A point directly marked on a track, boundary or other feature will be moved 2-3 m off the point or omitted if surrounding points and soil types allow.

7. Borings that are potentially within 15 m of a gas pipeline are limited to 0.4 m depth and the strata description in the data table below this depth will be extrapolated from nearby borings and upper strata characteristics.

8. The *Observation Density* is 1 per ha on a 100 m grid using a semi *Free Survey* method if appropriate*. The letter 'B' in the second column of the data table refers to an observation point at which a boring may have been undertaken. In some situations it is not possible to visit the location due to for example crop status or animals in a field. In some cases the location is visited and observation of the soils at the surface is sufficient. In all cases the soil, geology, topography, flood risk and aerial crop patterns are assessed from published sources and the soils will be subject to a full 120 cm depth boring either side of a non-visited or non-bored point. If all data sources are agreeable, a soil pattern can be established.

* British Society of Soil Science. Working With Soil – The Professional Competency Scheme. Agricultural Land Classification: England and Wales. How2 sheet 4.2.4. 2018.

9. For moisture balance calculations, *strongly, moderately* and *well developed* structure will equate to *good, moderate* or *poor* structure terms respectively in Table 14 of the guidelines.

10. Pit information in addition to that listed in the table below will be detailed in Section 4.1 and 4.3 if needed.

Obs point	Grid ref. if off intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Motts./black ferro. conc. %/depth	Mott colour or FC if ferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct (? Pattern consistence)	Degree of development	SPL depth (cm)	Gleying depth (cm)	SWC	Grade (wetness)	TAv	EAv	StTAv	StEAv	MBW	Grade (Drought WHEAT)	MBP	Grade (Drought POTATOES)
1		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		12.01	2	-9.17	2
				120		ZC		10YR42	15/25	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
2		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		12.01	2	-9.17	2
				120		ZC		10YR42	20/25	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
3		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		12.01	2	-9.17	2
				120		ZC		10YR42	20/25	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
4		B	≤7	28		HZCL	N	10YR43				5	HR				28	28	II	3a	19		1		13.15	2	-8.03	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
5		B	≤7	28		HZCL	N	10YR43				5	HR				28	28	II	3a	19		1		13.15	2	-8.03	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
6		B	≤7	28		HZCL	N	10YR43				5	HR				28	28	II	3a	19		1		13.15	2	-8.03	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
7		B	≤7	28		HZCL	N	10YR43				5	HR				28	28	II	3a	19		1		13.15	2	-8.03	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
8		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		14.38	2	-4.89	2
				120		C		10YR42	20/25	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
9		B	≤7	28		C	N	10YR31				5	HR				30	30	II	3a	17		1		8.19	2	-10.21	3a
				60		C		10YR42	20/28	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/60	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
10		B	≤7	30		C	N	10YR31				0	HR				30	30	II	3a	17		1		10.63	2	-7.77	2
				60		C		10YR42	25/30	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/60	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
11		B	≤7	25		HZCL	N	10YR31				5	HR				25	25	II	3a	19		1		14.38	2	-4.89	2
				120		C		10YR42	25/25	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
12		B	≤7	25		HZCL	N	10YR31				5	HR				25	25	II	3a	19		1		14.38	2	-4.89	2
				120		C		10YR42	25/25	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
13		B	≤7	28		HZCL	N	10YR31				5	HR				28	28	II	3a	19		1		15.24	2	-4.04	2
				120		C		10YR42	25/28	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
14		B	≤7	25		C	N	10YR31				0	HR				25	25	II	3a	17		1		10.13	2	-8.27	2
				60		C		10YR42	25/25	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/60	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
15		B	≤7	25		C	N	10YR31				0	HR				25	25	II	3a	17		1		9.63	2	-10.27	3a
				55		C		10YR42	25/25	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/55	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
16		B	≤7	25		HZCL	N	10YR31				5	HR				25	25	II	3a	19		1		14.38	2	-4.89	2
				120		C		10YR42	25/25	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
17		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		18.88	2	-1.52	2
				120		C		10YR42	20/25	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
18		B	≤7	25		HZCL	N	10YR31				5	HR				25	25	II	3a	19		1		14.38	2	-4.89	2
				120		C		10YR42	25/25	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
19		B	≤7	28		ZC	N	10YR42				5	HR				28	28	II	3a	17		1		9.92	2	-9.36	2
				120		C		10YR53	20/28	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
20		B	≤7	28		ZC	N	10YR42				5	HR				28	28	II	3a	17		1		7.83	2	-13.35	3a
				120		ZC		10YR53	25/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								

Obs point	Grid ref. if off intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Motts / black ferro. conc. %/ depth	Mott colour or FC if ferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct	Degree of development	SPL depth (cm)	Gleying depth (cm)	SWC	Grade (wetness)	TAv	EAv	StTAv	StEAv	MBW	Grade (Drought WHEAT)	MBP	Grade (Drought POTATOES)
21		B	≤7	28		ZC	N	10YR42				0	HR				28	28	II	3a	17		1		14.23	2	-8.17	2
				120		ZC		10YR53	20/28	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
22		B	≤7	28		C	N	10YR31				0	HR				28	28	II	3a	17		1		9.33	2	-13.57	3a
				55		C		10YR31	20/28	10YR56		0	HR	P	CAB	MD					13	7	1	0.5				
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
23		B	≤7	30		C	N	10YR31				0	HR				30	30	II	3a	17		1		9.63	2	-13.77	3a
				60		C		10YR42	25/30	10YR56		0	HR	P	CAB	MD					13	7	1	0.5				
				120		ZC		10YR41	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
24		B	≤7	35		ZC	N	10YR31				0	HR				35	35	II	3a	17		1		15.63	2	-6.77	2
				120		ZC		10YR41	25/35	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
25		B	≤7	30		ZC	N	10YR31				0	HR				30	30	II	3a	17		1		14.63	2	-7.77	2
				120		ZC		10YR41	20/30	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
26		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		38.63	1	6.23	2
				120		MZCL		10YR43	15/30	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																	0	0	0	0				
				120																								
27		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		38.63	1	6.23	2
				120		MZCL		10YR43	20/30	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																	0	0	0	0				
				120																								
28		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		38.63	1	6.23	2
				120		MZCL		10YR43	20/30	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																	0	0	0	0				
				120																								
29		B	≤7	25		ZC	N	10YR42				0	HR				25	25	II	3a	17		1		13.63	2	-8.77	2
				120		ZC		10YR53	20/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
30		B	≤7	25		ZC	N	10YR42				0	HR				25	25	II	3a	17		1		13.63	2	-8.77	2
				120		ZC		10YR53	25/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
31		B	≤7	28		ZC	N	10YR42				5	HR				28	28	II	3a	17		1		9.92	2	-9.36	2
				120		C		10YR53	25/28	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
32		B	≤7	25		ZC	N	10YR42				5	HR				25	25	II	3a	17		1		5.06	2	-9.64	2
				120		C		10YR53	25/28	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
33		B	≤7	28		HZCL	N	10YR31				5	HR				28	28	II	3a	19		1		30.63	1	-0.05	2
				120		HZCL		10YR41	20/28	10YR56		5	HR	P	CPR	MD					17	10	1	0.5				
				120																	0	0	0	0				
				120																								
34		B	≤7	25		HZCL	N	10YR31				5	HR				28	28	II	3a	19		1		30.06	1	-0.62	2
				120		HZCL		10YR41	20/28	10YR56		5	HR	P	CPR	MD					17	10	1	0.5				
				120																	0	0	0	0				
				120																								
35		B	≤7	35		HZCL	N	10YR31				0	HR				35	35	II	3a	19		1		22.63	2	0.23	2
				120		ZC		10YR41	25/35	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
36		P	≤7	35		HZCL	N	10YR31				0	HR				35	35	II	3a	19		1		22.63	2	0.23	2
				120		ZC		10YR41	25/35	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
37		B	≤7	30		HZCL	N	10YR31				5	HR				30	30	II	3a	19		1		17.93	2	-4.47	2
				120		ZC		10YR41	20/30	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
38		B	≤7	28		C	N	10YR42				0	HR				28	28	II	3a	17		1		9.43	2	-11.97	3a
				50		C		10YR41	20/28	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/50	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
39		B	≤7	28		C	N	10YR42				0	HR				28	28	II	3a	17		1		9.43	2	-11.97	3a
				50		C		10YR41	20/28	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/50	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
40		B	≤7	25		C	N	10YR42				5	HR				25	25	II	3a	17		1		5.26	2	-16.14	3a
				50		C		10YR41	25/25	10YR56		5	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/50	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								

Obs point	Grid ref. if diff intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Mottle/ black ferro. conc. %/ depth	Mott colour or FC if ferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct (if P=firm consistence)	Degree of development	SPL depth (cm)	Gleying depth (cm)	SWC	Grade (seasonal)	TAv	EAv	StTAv	StEAv	MBW	Grade (Drought. WHEAT)	MAP	Grade (Drought. POTATOES)
41		B	≤7	25		ZC	N	10YR42				5	HR				25	25	II	3a	19		1		30.06	1	-0.62	2
				120		ZC		10YR53	25/25	10YR56		5	HR	P	CPR	MD					17	10	1	0.5				
				120																	17	10	1	0.5				
				120																								
42		B	≤7	25		ZC	N	10YR42				5	HR				25	25	II	3a	19		1		35.38	1	2.98	2
				120		ZC		10YR53	20/25	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																	17	10	1	0.5				
				120																								
43		B	≤7	25		ZC	N	10YR42				5	HR				25	25	II	3a	19		1		35.38	1	2.98	2
				120		ZC		10YR53	20/25	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																	17	10	1	0.5				
				120																								
44		B	≤7	35		HZCL	N	10YR31				0	HR				35	35	II	3a	19		1		22.63	2	0.23	2
				70		ZC		10YR41	20/35	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/70	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
45		B	≤7	35		HZCL	N	10YR31				0	HR				35	35	II	3a	19		1		22.63	2	0.23	2
				65		ZC		10YR41	20/35	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	20/65	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
46		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		20.63	2	-1.77	2
				120		ZC		10YR41	20/35	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
47		B	≤7	35		HZCL	N	10YR31				0	HR				35	35	II	3a	19		1		22.63	2	0.23	2
				65		ZC		10YR41	20/35	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	20/65	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
48		B	≤7	28		HZCL	N	10YR43				5	HR				28	28	II	3a	19		1		13.15	2	-8.03	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
49		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		20.63	2	-1.77	2
				120		ZC		10YR41	15/30	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
50		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		20.63	2	-1.77	2
				120		ZC		10YR41	20/30	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
51		B	≤7	28		HZCL	N	10YR43				5	HR				28	28	II	3a	19		1		13.15	2	-8.03	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
GAS PIPE																												
53		B	≤7	25		C	N	10YR42				5	HR				25	25	II	3a	17		1		7.13	2	-14.27	3a
				50		C		10YR41	25/25	10YR56		0	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/50	10YR56		0	HR	P	CPR	WK					12	7	1	0.5				
				120																								
54		B	≤7	25		C	N	10YR42				5	HR				25	25	II	3a	17		1		2.98	3a	-17.24	3a
				50		C		10YR41	25/25	10YR56		5	HR	P	CAB	MD					16	8	1	0.5				
				120		ZC		10YR41	25/50	10YR56		5	HR	P	CPR	WK					12	7	1	0.5				
				120																								
55		B	≤7	25		HZCL	N	10YR43				5	HR				25	25	II	3a	19		1		12.01	2	-9.17	2
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
56		B	≤7	25		ZC	N	10YR42				5	HR				25	25	II	3a	19		1		30.06	1	-0.62	2
				120		ZC		10YR53	25/25	10YR56		5	HR	P	CPR	MD					17	10	1	0.5				
				120																	17	10	1	0.5				
				120																								
57		B	≤7	25		ZC	N	10YR42				5	HR				25	25	II	3a	19		1		35.38	1	2.98	2
				120		ZC		10YR53	20/25	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																	17	10	1	0.5				
				120																								
58		B	≤7	25		MZCL	N	10YR32				0	HR				25	25	II	2	17		1		45.13	1	8.73	2
				50		ZL		10YR52	5/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
59		B	≤7	25		MZCL	N	10YR32				0	HR				25	25	II	2	17		1		42.51	1	6.11	2
				50		ZL		10YR52	5/25	10YR56		5	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	10/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
60		B	≤7	25		HZCL	N	10YR32				0	HR				25	25	II	3a	19		1		32.63	1	-3.77	2
				120		SCL		10YR31	15/25	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																	0	0	0	0				
				120																								

Obs point	Grid ref. if at intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Motts./ black ferro. conc. %/ depth	Mott colour or FC if ferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct (if Fullers consistence)	Degree of development	SPL depth (cm)	Gleying depth (cm)	SWC	Grade (wetness)	TAv	EAv	StTAv	StEAv	MBW	Grade (Drought. WHEAT)	MBP	Grade (Drought. POTATOES)
61		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				55		ZC		10YR31	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
62		B	≤7	25		HZCL	N	10YR32				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				55		ZC		10YR31	25/25	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
63		B	≤7	25		HZCL	N	10YR32				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				55		ZC		10YR31	25/25	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
64		B	≤7	25		HZCL	N	10YR32				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				120		ZC		10YR31	15/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
GAS PIPE																												
66		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				55		ZC		10YR31	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
67		B	≤7	25		HZCL	N	10YR31				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				50		ZC		10YR31	25/25	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	20/50	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
68		B	≤7	45		MZCL	N	10YR31				5	HR				45	45	II	2	19		1		41.22	1	9.13	2
				55		ZL		10YR53	15/45	10YR56		5	HR	P	M/F	MD					22	14	1	0.5				
				120		MZCL		10YR53	15/55	10YR56		0	HR	P	CAB	MD					17	10	1	0.5				
				120																								
69		B	≤7	25		MZCL	N	10YR32				0	HR				25	25	II	2	17		1		45.13	1	8.73	2
				50		ZL		10YR52	10/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
70		B	≤7	25		MZCL	N	10YR32				0	HR				25	25	II	2	17		1		45.13	1	8.73	2
				50		ZL		10YR52	5/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
71		B	≤7	28		MZCL	N	10YR31				0	HR				40	40	II	2	19		1		46.73	1	14.33	1
				45		ZL		10YR31				0	HR	P	M/F						22	14	1	0.5				
				120		MZCL		10YR41	10/45	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																								
72		B	≤7	28		MZCL	N	10YR31				0	HR				40	40	II	2	19		1		55.23	1	11.83	1
				40		ZL		10YR31				0	HR	P	M/F						22	14	1	0.5				
				120		MZCL		10YR41	10/40	10YR56		0	HR	P	CPR	MD					17	10	1	0.5				
				120																								
73		B	≤7	30		HZCL	N	10YR31				10	HR				30	30	II	3a	19		1		13.11	2	-6.17	2
				120		C		10YR42	10/28	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
74		B	≤7	28		HZCL	N	10YR31				10	HR				28	28	II	3a	19		1		12.72	2	-6.56	2
				120		C		10YR42	25/28	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
75		B	≤7	25		HZCL	N	10YR32				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				120		ZC		10YR31	25/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
76		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		16.38	2	-6.02	2
				120		ZC		10YR31	20/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
GAS PIPE																												
78		B	≤7	30		HZCL	N	10YR32				0	HR				30	30	II	3a	19		1		20.63	2	-1.77	2
				60		ZC		10YR41	15/30	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
79		B	≤7	25		HZCL	Y	10YR32				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				120		ZC		10YR31	25/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
80		B	≤7	25		HZCL	Y	10YR42				0	HR				25	25	II	3a	19		1		18.63	2	-3.77	2
				120		ZC		10YR31	15/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								

Obs point	Grid ref. if off intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Motts./ black ferro. conc. %/ depth	Mott colour or FC if ferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct (// Follow consistence)	Degree of development	SPL depth (cm)	Gleying depth (cm)	SWC	Grade (wetness)	TAv	EAv	StTAv	StEAv	MBW	Grade (Drought WHEAT)	MBP	Grade (Drought POTATOES)
81		B	≤7	25		HZCL	N	10YR42				0	HR				25	25	III	3a	19		1		18.63	2	-3.77	2
				120		ZC		10YR31	15/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
82		B	≤7	25		MZCL	N	10YR32				0	HR				25	25	III	2	17		1		45.13	1	8.73	2
				50		ZL		10YR52	10/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
83		P	≤7	25		MZCL	N	10YR32				0	HR				25	25	III	2	17		1		45.13	1	8.73	2
				50		ZL		10YR52	10/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
84		B	≤7	25		MZCL	N	10YR32				5	HR				25	25	III	2	17		1		45.13	1	10.23	1
				55		ZL		10YR52	5/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/55	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
85		B	≤7	25		MZCL	N	10YR32				0	HR				25	25	III	2	17		1		45.13	1	8.73	2
				50		ZL		10YR52	5/25	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
86		B	≤7	45		MZCL	N	10YR31				0	HR				45	45	III	2	19		1		46.13	1	14.23	1
				55		ZL		10YR53	15/45	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		MZCL		10YR53	15/55	10YR56		0	HR	P	CAB	MD					17	10	1	0.5				
				120																								
87		B	≤7	35		HZCL	N	10YR31				5	HR				35	35	III	3a	19		1		17.23	2	-2.04	2
				120		C		10YR42	10/35	10YR56		5	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
88		B	≤7	30		HZCL	N	10YR32				0	HR				30	30	III	3a	19		1		20.63	2	-1.77	2
				60		ZC		10YR41	15/30	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
89		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	III	3a	19		1		22.63	2	2.23	2
				120		C		10YR42	20/28	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																	0	0	0	0				
				120																								
GAS PIPE																												
91		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	III	3a	19		1		19.83	2	-2.57	2
				55		ZC		10YR31	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
92		B	≤7	30		HZCL	N	10YR41				0	HR				30	30	III	3a	19		1		19.63	2	-1.77	2
				60		ZC		10YR41	15/30	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
93		B	≤7	28		HZCL	N	10YR41				0	HR				28	28	III	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
94		B	≤7	28		HZCL	N	10YR41				0	HR				28	28	III	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
95		B	≤7	25		HZCL	N	10YR32				0	HR				25	25	III	3a	19		1		18.63	2	-3.77	2
				60		ZC		10YR41	20/25	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
96		B	≤7	30		MZCL	N	10YR32				0	HR				30	30	III	2	17		1		42.63	1	6.23	2
				50		ZL		10YR52	5/30	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		SCL		10YR42	15/50	10YR56		0	HR	P	CPR	MD					15	10	1	0.5				
				120																								
97		B	≤7	35		MZCL	N	10YR31				0	HR				35	35	III	2	19		1		57.13	1	24.73	1
				75		ZL		10YR53	15/35	10YR56		0	HR	P	M/F	MD					22	14	1	0.5				
				120		MZCL		10YR42	20/75	10YR56		0	HR	P	CAB	MD					17	10	1	0.5				
				120																								
98		B	≤7	25		HZCL	N	10YR42				0	HR				45	45	III	3a	17		1		16.13	2	-4.27	2
				45		C		10YR41				0	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	20/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								
99		B	≤7	25		HZCL	N	10YR42				0	HR				45	45	III	3a	17		1		16.13	2	-4.27	2
				45		C		10YR41				0	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	20/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								
100		B	≤7	25		HZCL	N	10YR41				0	HR				45	45	III	3a	17		1		14.63	2	-5.77	2
				45		C		10YR41				5	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	20/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								

Obs point	Grid ref. at cell intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Matrix/ Mack ferro. conc. Sy/ depth	Mott colour or FC ifferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct (if Prism consistence)	Degree of development	SPL depth (cm)	Glaying depth (cm)	SWC	Grade (wetness)	TAv	EAv	StTAv	StEAv	MRP	Grade (Drought WHEAT)	MRP	Grade (Drought POTATOES)
101		B	≤7	20		HCL	N	10YR32				5	HR				20	20	II	3a	18		1		14.86	2	-6.32	2
				55		HZCL		10YR53	20/28	10YR56		5	HR	P	CAB	MD					17	10	1	0.5				
				120		ZC		10YR42	20/55	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																								
102		B	≤7	20		HCL	N	10YR32				5	HR				20	20	II	3a	18		1		15.81	2	-5.37	2
				60		HZCL		10YR53	20/28	10YR56		5	HR	P	CAB	MD					17	10	1	0.5				
				120		ZC		10YR42	25/50	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																								
GAS PIPE																												
104		B	≤7	28		H2CL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
105		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		20.63	2	-1.77	2
				60		ZC		10YR41	15/30	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
106		B	≤7	30		HZCL	N	10YR31				0	HR				30	30	II	3a	19		1		20.63	2	-1.77	2
				60		ZC		10YR41	15/30	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
107		B	≤7	28		H2CL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
108		B	≤7	25		HZCL	N	10YR32				5	HR				25	25	II	3a	19		1		12.01	2	-9.17	2
				120		ZC		10YR42	15/25	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
109		B	≤7	25		HZCL	NN	10YR32				5	HR				25	25	II	3a	19		1		16.38	2	-6.02	2
				120		ZC		10YR42	15/25	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								
110		B	≤7	20		HZCL	N	10YR42				0	HR				45	45	II	3a	17		1		13.76	2	-6.64	2
				45		C		10YR41				5	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	25/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								
111		B	≤7	20		HZCL	N	10YR42				0	HR				45	45	II	3a	17		1		15.63	2	-4.77	2
				45		C		10YR41				0	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	25/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								
112		B	≤7	25		HZCL	N	10YR42				0	HR				45	45	II	3a	17		1		24.13	2	-5.77	2
				45		C		10YR41				5	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	20/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								
113		B	≤7	25		HZCL	N	10YR42				0	HR				45	45	II	3a	17		1		14.63	2	-5.77	2
				45		C		10YR41				5	HR	P	CAB	MD					16	8	1	0.5				
				120		C		10YR42	25/45	10YR56		0	HR	P	CPR	MD					16	8	1	0.5				
				120																								
GAS PIPE																												
GAS PIPE																												
116		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
117		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
118		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
119		B	≤7	28		HZCL	N	10YR31				0	HR				28	28	II	3a	19		1		19.83	2	-2.57	2
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD					15	8	1	0.5				
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
120		B	≤7	25		HZCL	N	10YR42				5	HR				25	25	II	3a	19		1		12.01	2	-9.17	2
				120		ZC		10YR53	20/25	10YR56		5	HR	P	CPR	MD					15	8	1	0.5				
				120																	0	0	0	0				
				120																								

Obs point	Obs ref. if off intersection	Boring or Pit	Grad. (deg)	Base Depth (cm)		Text.	Calc	Matrix colour	Motts./ black ferro. conc. %/ depth	Mott colour or FC if ferro. conc.	Ped face colour	Stns %	Stns type	Porosity	Struct (y if clay consistence)	Degree of development	SPL depth (cm)	Gleying depth (cm)	SWC	Grade (wetness)	TAv	EAv	StTAv	StEAv	MRW	Grade Drought MRW	MBP	Grade Drought POTATOES
121		B	≤7	28		HZCL	N	10YR31				0	HR								19		1					
				60		ZC		10YR41	20/28	10YR56		0	HR	P	CAB	MD	28	28	II	3a	15	8	1	0.5	19.83	2	-2.57	2
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
122		B	≤7	30		HZCL	N	10YR41				5	HR								19		1					
				55		ZC		10YR41	25/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	17.93	2	-4.47	2
				120		ZC		10YR42	25/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
123		B	≤7	30		HZCL	N	10YR31				5	HR								19		1					
				55		ZC		10YR41	20/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	17.93	2	-4.47	2
				120		ZC		10YR42	20/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
124		B	≤7	30		HZCL	N	10YR31				0	HR								19		1					
				55		ZC		10YR41	20/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	20.63	2	-1.77	2
				120		ZC		10YR42	20/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
GAS PIPE																												
126		B	≤7	25		HZCL	N	10YR32				5	HR								19		1					
				120		ZC		10YR42	15/25	10YR56		5	HR	P	CPR	MD	25	25	II	3a	15	8	1	0.5	12.01	2	-9.17	2
				120																	0	0	0	0				
				120																								
127		B	≤7	30		HZCL	N	10YR41				5	HR								19		1					
				50		ZC		10YR41	20/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	17.93	2	-4.47	2
				120		ZC		10YR42	20/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
128		B	≤7	30		HZCL	N	10YR31				0	HR								19		1					
				55		ZC		10YR41	20/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	20.63	2	-1.77	2
				120		ZC		10YR42	20/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
129		B	≤7	30		HZCL	N	10YR41				0	HR								19		1					
				55		ZC		10YR41	20/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	20.63	2	-1.77	2
				120		ZC		10YR42	20/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
GAS PIPE																												
131		B	≤7	30		HZCL	N	10YR31				0	HR								19		1					
				55		ZC		10YR41	20/30	10YR56		0	HR	P	CAB	MD	30	30	II	3a	15	8	1	0.5	20.63	2	-1.77	2
				120		ZC		10YR42	20/55	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
132		B	≤7	25		HZCL	N	10YR43				5	HR								19		1					
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD	25	25	II	3a	15	8	1	0.5	-43.12	3b	-9.17	2
				120																	0	0	0	0				
				120																								
133		B	≤7	25		HZCL	N	10YR43				5	HR								19		1					
				120		ZC		10YR42	20/28	10YR56		5	HR	P	CPR	MD	25	25	II	3a	15	8	1	0.5	12.01	2	-9.17	2
				120																	0	0	0	0				
				120																								
134		B	≤7	25		HZCL	N	10YR31				0	HR								19		1					
				60		ZC		10YR41	20/25	10YR56		0	HR	P	CAB	MD	25	25	II	3a	15	8	1	0.5	18.63	2	-3.77	2
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								
135		B	≤7	25		HZCL	N	10YR31				0	HR								19		1					
				60		ZC		10YR41	25/25	10YR56		0	HR	P	CAB	MD	25	25	II	3a	15	8	1	0.5	18.63	2	-3.77	2
				120		ZC		10YR42	25/60	10YR56		0	HR	P	CPR	MD					15	8	1	0.5				
				120																								

GENERAL INFORMATION SOURCES

1. ***Agricultural Land Classification of England and Wales***. Revised guidelines and criteria for grading the quality of agricultural land. MAFF. 1988.

2. ***Soil Survey Field Handbook.*** Technical Monograph No.5. Soil Survey of England and Wales.1976.

3. ***Climatological Data for Agricultural Land Classification***, The Met. Office 1989

4. ***Soil Map of England and Wales: 1:250 000***. Soil Survey of England and Wales, Harpenden.

5. ***Soils and Their Use in Midlands and Western England.*** Soil Survey of England and Wales,

6. ***Agricultural Land Classification Map*** 1:250 000. MAFF 1983.

7. ***Risk of Flooding:*** https://flood-warning-information.service.gov.uk/long-term-flood-risk

8. ***Geology of Britain Viewer.*** *Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved*

9. ***Butler, B E.*** *Soil Classification for Soil Survey Monographs on Soil Survey (1980) Clarendon Press, Oxford*

10. ***Munsell Soil Colour Charts****, Munsell Colour, Grand Rapids* ***1994.***

GLOSSARY

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report. Terms used and abbreviations are set out below. These conform to definitions contained in the Soil Survey Field Handbook (Hodgson, 1997).

1. Terms used on computer database, in order of occurrence.

GRID REF: National 100 km grid square and 8 figure grid reference.

LAND USE: At the time of survey

WHT:	Wheat	**SBT:**	Sugar Beet	**HTH:**	Heathland
BAR:	Barley	**BRA:**	Brassicas	**BOG:**	Bog or Marsh
OAT:	Oats	**FCD:**	Fodder Crops	**DCW:**	Deciduous Wood
CER:	Cereals	**FRT:**	Soft and Top Fruit	**CFW:**	Coniferous Woodland
MZE:	Maize	**HRT:**	Horticultural Crops	**PLO:**	Ploughed
OSR:	Oilseed Rape	**LEY:**	Ley Grass	**FLW:**	Fallow (inc. Set aside)
POT:	Potatoes	**PGR:**	Permanent Pasture	**SAS:**	Set Aside (where known)
LIN:	Linseed	**RGR:**	Rough Grazing	**OTH:**	Other
BEN:	Field Beans	**SCR:**	Scrub		

GRDNT: Gradient as estimated or measured by hand-held optical clinometer.

GLEY, SPL: Depth in centimetres to gleying or slowly permeable layer.

AP (WHEAT/POTS): Crop-adjusted available water capacity.

MB (WHEAT/POTS): Moisture Balance. (Crop adjusted AP - crop potential MD)

DRT: Best grade according to soil droughtiness.

If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

MREL:	Microrelief limitation	**FLOOD:**	Flood risk	**EROSN:**	Soil erosion risk
EXP:	Exposure limitation	**FROST:**	Frost prone	**DIST:**	Disturbed land
CHEM:	Chemical limitation				

LIMIT: The main limitation to land quality: The following abbreviations are used.

OC:	Overall Climate	**AE:**	Aspect	**EX:**	Exposure
FR:	Frost Risk	**GR:**	Gradient	**MR:**	Microrelief
FL:	Flood Risk	**TX:**	Topsoil Texture	**DP:**	Soil Depth
CH:	Chemical	**WE:**	Wetness	**WK:**	Workability
DR:	Drought	**ER:**	Erosion Risk	**WD:**	Soil Wetness/Droughtiness

ST: Topsoil Stoniness

TEXTURE: Soil texture classes are denoted by the following abbreviations:-

S:	Sand	**LS:**	Loamy Sand	**SL:**	Sandy Loam
SZL:	Sandy Silt Loam	**CL:**	Clay Loam	**ZCL**	Silty Clay Loam
ZL:	Silt Loam	**SCL:**	Sandy Clay Loam	**C:**	Clay
SC:	Sandy clay	**ZC:**	Silty clay	**OL:**	Organic Loam
P:	Peat	**SP:**	Sandy Peat	**LP:**	Loamy Peat
PL:	Peaty Loam	**PS:**	Peaty Sand	**MZ:**	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:-

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M:** Medium (< 27% clay) **H:** heavy (27 - 35% clay)

MOTTLE COL: Mottle colour using Munsell notation.

MOTTLE ABUN: Mottle abundance, expressed as a percentage of the matrix or surface described.

F: few <2% **C:** common 2 - 20% **M:** many 20 - 40% **VM:** very many 40%+

MOTTLE CONT: Mottle contrast

F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: Prominent - mottling is conspicuous and one of the outstanding features of the horizon.

PED. COL: Ped face colour using Munsell notation.

GLEY: If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

STONE LITH: Stone Lithology - One of the following is used.

HR:	All hard rocks and stones	**SLST:**	Soft oolitic or dolimitic limestone
CH:	Chalk	**FSST:**	Soft, fine grained sandstone
ZR:	Soft, argillaceous, or silty rocks	**GH:**	Gravel with non-porous (hard) stones
MSST:	Soft, medium grained sandstone	**GS:**	Gravel with porous (soft) stones
SI:	Soft weathered igneous or metamorphic rock		

Stone contents are given in % by volume for sizes >2cm, >6cm and total stone >2mm.

STRUCT: The degree of development, size and shape of soil peds are described using the following notation

Degree of development	**WA:**	Weakly developed Adherent	**WK:**	Weakly developed
	MD:	Moderately developed	**ST:**	Strongly developed
Ped size	**F:**	Fine	**M:**	Medium
	C:	Coarse	**VC:**	Very coarse
Ped Shape	**S:**	Single grain	**M:**	Massive
	GR:	Granular	**AB:**	Angular blocky
	SAB:	Sub-angular blocky	**PR:**	Prismatic
	PL:	Platy		

CONSIST: Soil consistence is described using the following notation:

L:	Loose	**VF:**	Very Friable	**FR:**	Friable	**FM:**	Firm
VM:	Very firm	**EM:**	Extremely firm			**EH:**	Extremely Hard

SUBS STR: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G:** Good **M:** Moderate **P:** Poor

POR: Soil porosity. If a soil horizon has poor porosity with less than 0.5% biopores >0.5mm, a 'Y' will appear in this column.

IMP: If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

SPL: Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

CALC: If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a 'Y' will appear this column.

2. Additional terms and abbreviations used mainly in soil pit descriptions.

STONE ASSESSMENT:

V:	Visual	**S:**	Sieved	**D:**	Displacement

MOTTLE SIZE:

EF:	Extremely fine <1mm	**M:**	Medium 5-15mm
VF:	Very fine 1-2mm>	**C:**	Coarse >15mm
F:	Fine 2-5mm		

MOTTLE COLOUR: May be described by Munsell notation or as ochreous (OM) or grey (GM).

ROOT CHANNELS: In topsoil the presence of 'rusty root channels' might also be noted as RRC.

MANGANESE CONCRETIONS: Assessed by volume

N:	None		**M:**	Many	20-40%
F:	Few	<2%	**VM:**	Very Many	>40%
C:	Common	2-20%			

POROSITY:

P:	Poor	- less than 0.5% biopores at least 0.5mm in diameter
G:	Good	- more than 0.5% biopores at least 0.5mm in diameter

ROOT ABUNDANCE:

The number of roots per $100cm^2$:		Very Fine and Fine	Medium and Coarse
F:	Few	1-10	1 or 2
C:	Common	10.25	2 - 5
M:	Many	25-200	>5
A:	Abundant	>200	

ROOT SIZE

VF:	Very fine	<1mm	**M:**	Medium	2 - 5mm
F:	Fine	1-2mm	**C:**	Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS:

Sharp:	<0.5cm	**Gradual:**	6 - 13cm
Abrupt:	0.5 - 2.5cm	**Diffuse:**	>13cm
Clear:	2.5 - 6cm		

HORIZON BOUNDARY FORM: Smooth, wavy, irregular or broken.*

* See Soil Survey Field Handbook (Hodgson, 1997) for details.