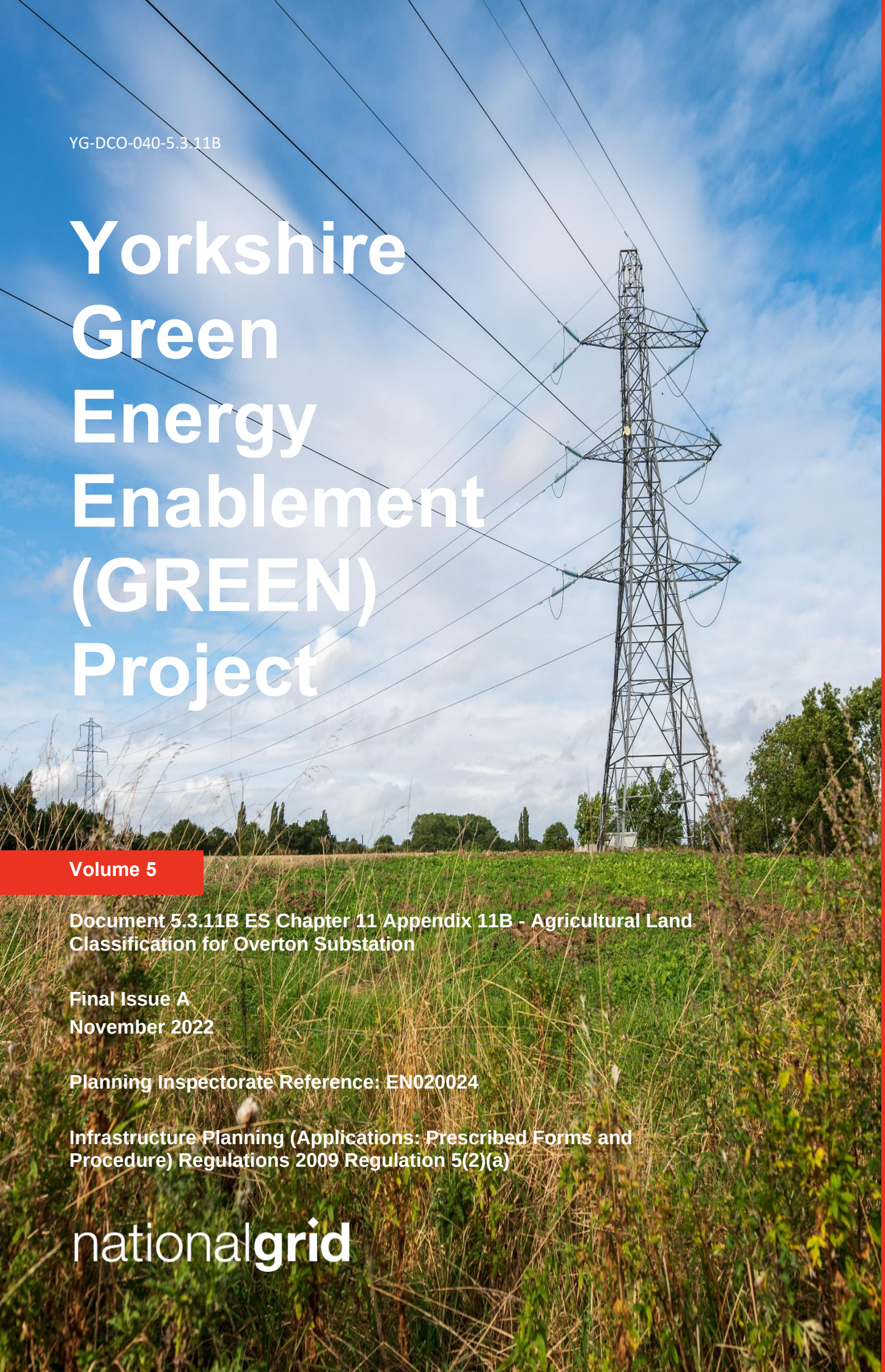
YG-DCO-040-5.3.11B

Yorkshire Green Energy Enablement (GREEN) Project



Volume 5

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

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Contents

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Date	**Version**	**Status**	**Description/changes**
01/11/2022	A	Final	First Issue

1. Agricultural Land Classification for the New Overton Substation Area

1.1 Introduction

Background

1.1.1 Agricultural Land Classification studies have been undertaken to provide an accurate baseline for areas of permanent development or where long-term soil disturbance is likely to take place as part of the Yorkshire Green Energy Enablement Project (referred to as the Project or Yorkshire GREEN). These survey locations were agreed through consultation with Natural England and have informed the Environmental Impact Assessment for **Chapter 11 Agriculture and Soils (Volume 5, Document 5.2.11).**

Site description

1.1.2 This appendix covers the areas where Overton Substation is proposed, the survey boundary (referred to in this document as 'the Site') can be seen on **Figure 11.5, Volume 5, Document 5.4.11**.

1.1.3 The Site is located within the administrative area of North Yorkshire County Council, on the border of the City of York, and lies to approximately 8 km northwest of York, approximate central grid reference SE557573.

1.1.4 The Site comprises two agricultural fields covering an area of approximately 46 ha. Surrounding land use includes further agricultural fields to the north, south and east of the Site. Immediately west of the Site lies a rail track. The north-western field and south-eastern field area separated by a road.

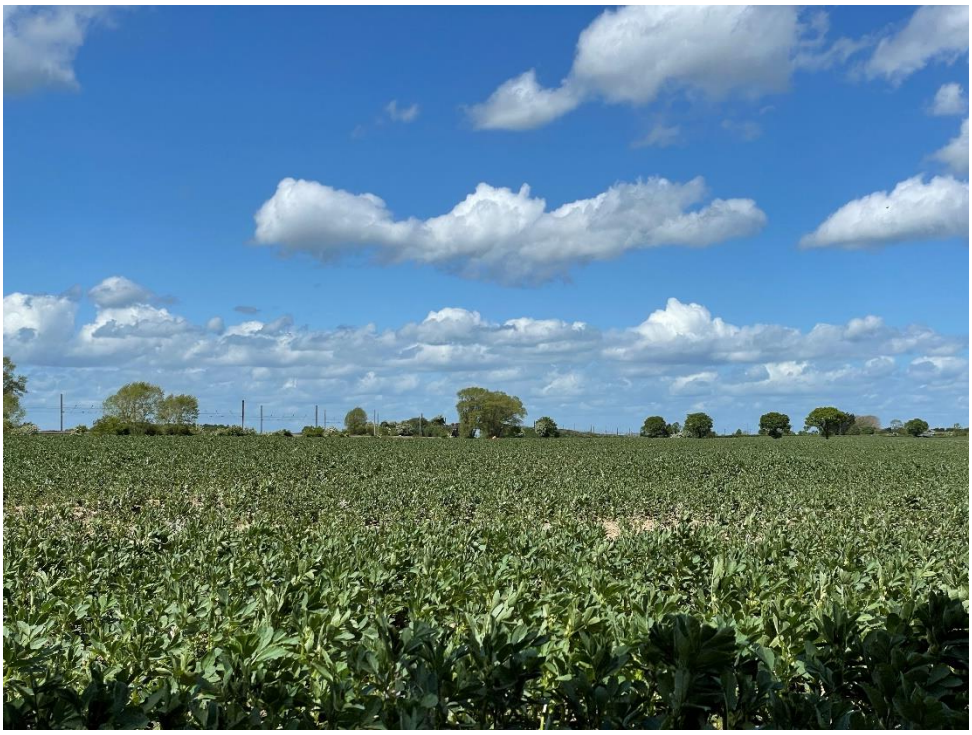
1.1.5 Areas of non-agricultural land were noted during the survey, these included a pond in the middle of the Site and a woodland strip to the west of the Site, as well as roads.

1.1.6 The entire site is typically flat lying, with the elevation ranging from ca. 15 to 18 m ASL.

1.1.7 The weather was sunny with some clouds.

1.1.8 Plate 1 shows a view of the Site conditions on the day of the survey. The weather was overcast with sunny intervals and one short rain shower.

Plate 1 - Site condition on the day of the survey (south-eastern field)



Definitions

1.1.9 The **Agricultural Land Classification** (ALC) system was devised by the Ministry of Agriculture, Fisheries and Food (MAFF) (1988)[1] and is the standard method for determining the quality of agricultural land in England and Wales according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage; i.e. ALC assesses land quality based upon the type and level of agricultural production the land can potentially support. The ALC grade is based on the most limiting factor to agricultural production, this may be a climatic limitation, site limitation (climate, gradient, risk of flooding, microrelief), soil limitation (texture and structure, depth, stoniness, chemical), or an interactive limitation (soil wetness, droughtiness, erosion). The ALC places land into one of five grades: Grade 1 (excellent); Grade 2 (very good); Grade 3 (good to moderate) which is divided into Subgrades 3a (good) and 3b (moderate); Grade 4 (poor); and Grade 5 (very poor).

1.1.10 **Best and most versatile** (BMV) agricultural land is defined as land of excellent to good agricultural quality (ALC Grades 1, 2 and Subgrade 3a) and is afforded a degree of protection in the National Planning Policy Framework (NPPF), 2021[2].

1.1.11 **Soil series** are the lowest category in the soil classification system and are precisely defined based upon particle-size distribution, parent material (substrate) type, colour, and mineralogical characteristics. **Soil Associations** are groupings of related soil series.

[1] MAFF, October 1988, Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (ALC011)

[2] Ministry of Housing, Communities and Local Government, 2021, National Planning Policy Framework, https://www.gov.uk/government/publications/national-planning-policy-framework--2

1.2 Desk study

Information Sources

1.2.1 Information about the soils and agricultural land present on the Site was obtained from the published sources outlined in **Table 1.1**. This information assists in preparing the surveyor on likely site conditions prior to commencement of the survey.

Table 1.1 - Data sources used to inform the agriculture and soils assessment

Organisation	Data Source	Data Provided
The Soil Survey of England and Wales	Soils and their Use in Northern England and accompanying 1:250,000 map Sheet 1[3] .	Mapped soil associations and details of soil characteristics.
MAFF (now Defra)	Provisional ALC 1:250,000 mapping Yorkshire and The Humber (ALC003) [4].	Mapped ALC distributions - agricultural land quality data.
Natural England	Likelihood of Best and Most Versatile (BMV) Agricultural Land - Strategic scale map Yorkshire and The Humber (ALC015)[5].	1:250,000 scale mapping predicting the likelihood of BMV agricultural land.
Google	Google Maps incorporating Streetview[6] and Google Earth Pro[7].	Aerial and street level imaging of the Project.
Department of the Environment, Farming and Rural Affairs (Defra)	The Government's geographic information website: Multi-Agency Geographical Information for the Countryside MAGIC.gov.uk [8.]	Administrative area boundaries, Provisional and Post-1988 ALC data, and aerial imaging available to view digitally and overlay.
Cranfield University (Knox *et al.)*	Report: Research to develop the evidence base on soil	Soil erosion criteria to inform soil sensitivity classifications.

[3] Soil Survey of England and Wales (1984). Soils and their Use in Northern England and accompanying 1:250,000 map Sheet 1. National Soil Resources Institute; Cranfield.
[4] MAFF (1993). 1:250,000 Provisional Agricultural Land Classification Sheet, Yorkshire and the Humber (ALC003) (online). Available at: https://data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc (Accessed 30 June 2021).
[5] Natural England (2017) Likelihood of Best and Most Versatile (BMV) Agricultural Land - Strategic scale map Strategic scale map Yorkshire and The Humber (ALC015) (online).
[6] Google (2021). Google Maps incorporating Google Streetview. (online) (Accessed 30 June 2021).
[7] Google (2022). Google Earth Pro. (online). (Accessed April 2022).
[8] Defra (2021). Multi-Agency Geographical Information for the Countryside (MAGIC) (online). Available at https://magic.defra.gov.uk/magicmap.aspx (Accessed 30 June 2021).

Organisation	Data Source	Data Provided
	erosion and water use in agriculture[9].	
Cranfield University	Climatological Data for Agricultural Land Classification[10]	Agroclimatic data to inform ALC.

Soils

1.2.2 The scale of the Soil Survey of England and Wales (1984) mapping is such that it is not accurate to the field level and does not pick up small-scale local variations in soil type. It does however provide a general indication of the soil types within the Site and the wider Borough. The Site lies in an area of Foggathorpe 2 (712i) association.

1.2.3 A summary of the characteristics of this soil association is provided in Table 1.2.

Table 1.2 - Summary of soil types and soil erodibility risk for the soil within the study area

Soil Association	Description	Erodability
Foggathorpe 2 (712i)	Slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils. Some similar coarse loamy over clayey soils. Soils are slowly permeable and can be seasonally waterlogged (Wetness Class III and IV) even with drainage	Very Small Risk (Water).

Agricultural land classification

1.2.4 The Provisional 1:250,000 ALC mapping indicates that agricultural land within the Site is ALC Grade 3 (good to moderate). However, as with the soils data, the scale of the mapping is not accurate at the field level as it does not pick up variations in ALC grade for areas less than approximately 80 ha. However, it does provide an indication of the predominant ALC grading in the wider area.

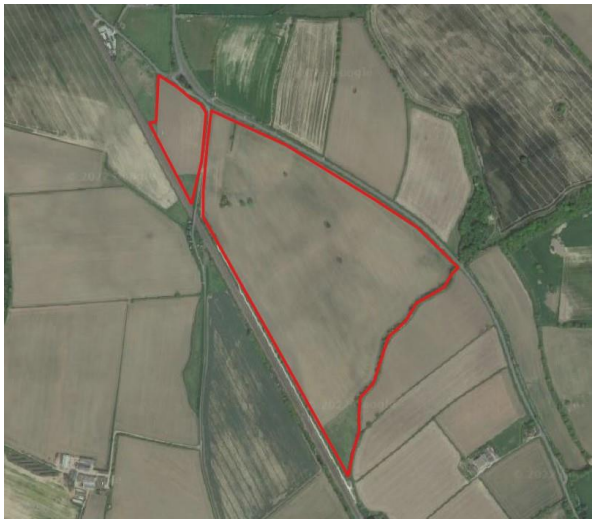
1.2.5 The BMV Likelihood mapping indicates that agricultural land within the Site is of moderate likelihood of BMV land (20 – 60 % area of BMV).

[9]Cranfield University, Knox *et al*. (2015). 'Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report. pp147'. (online) (Accessed 30 June 2021).
[10]Cranfield University (2013). Climatological Data for Agricultural Land Classification (online). Available at: https://data.gov.uk/dataset/8a334958-ff65-4f5c-9674-5a85e61ee269/climatological-data-for-agricultural-land-classification (Accessed 30 June 2021).

Aerial imagery

1.2.6 Satellite imagery of the Site, shown in Plate 2, which shows some signs of soil variability in the central and southern field, and no obvious changes in the northern field.

Plate 2 Satellite imagery of the Site (© Google Earth)



1.3 Site Survey

Methodology

1.3.1 A soil survey was undertaken from the 9 - 10 May 2022 by experienced soil surveyors using augered soil cores and soil profile pits. A detailed soil survey was undertaken with 1 point per ha.

1.3.2 Auger cores were taken using a 70 mm diameter hand-held Edelman auger, capable of sampling to a maximum depth of 120 cm; the soil profile pit was excavated, using a spade to a maximum depth of 75 cm, sufficient to evaluate the *in-situ* structure of the soil profile.

1.3.3 A total of 46 points, 41 cores and 5 pits were inspected. As shown on **Figure 11.5, Volume 5, Document 5.4.11**, the survey points were distributed across the Site, giving a survey density of one point per hectare in the areas of agricultural land for detailed ALC survey, and a less densely distributed to verify the existing ALC survey. This includes all of the conditions present on Site, above the recommendations set out in standard survey and ALC guidance and methodology. The purpose of the survey was to provide details of soil profile characteristics and to inform the ALC assessment.

1.3.4 To confirm the soil texture across the Site, ten soil samples were sent for analysis of particle size distribution by NRM Laboratories, accredited by UKAS to the internationally recognised standard for competence; ISO/IEC 17025.

Site description

1.3.5 The south-eastern field was sown in with a bean crop, the north-western field was grassland.

1.3.6 A large hedgerow separates both fields from the road traversing between them, with smaller hedgerows between separate parcels of the southern field.

Soils

1.3.7 Two soil series, both from the Foggathorpe 2 (712i) association, were identified during the site survey. The Portington Series and the Foggathorpe Series, a description and image of each is provided below.

Portington Series

1.3.8 Horizon 1, topsoil, depth averaged 32 cm, with a sandy loam to clay texture, dark brown colour (10YR 5/1), with sparse mottling if any (10YR 6/6) and a granular to angular blocky structure. The soil was weakly to moderately developed with fine to coarse ped sizes and a firm to very firm consistency. There were no stones observed.

1.3.9 Horizon 2, upper subsoil, depth averaged 61 cm, with a silty clay loam to clay texture, pale colour (10YR 6/1) with many ochreous mottles (100%, 10YR 6/8). Biopores were observed in this horizon, the structure was subangular blocky to prismatic with moderate development and a medium to coarse ped sizes, the consistence was very friable. Some profiles showed a thin grey band before the main subsoil, which was of the same colour but with very few mottles. There were no stones observed.

1.3.10 Horizon 3, lower subsoil, depth ranged 70 to 120 cm (the maximum observed for ALC surveys), with a silty clay to clay texture, dark grey in colour (5Y 4/1), moderate ochreous mottling (40%, 10YR 5/8). No biopores were observed, the structure was prismatic, of moderate development, with a very coarse ped size and extremely firm consistence. Where sand occurred in the horizon a typical granular structure and friable consistence was observed. In none of the profiles were stones observed.

1.3.11 The soils in this series are predominantly of Wetness Class 2, with gleying occurring within 70cm, and a slowly permeable layer occurring within 80 cm.

1.3.12 Example plates of this soil series are shown below.

Plate 3 - Point 66 – Portington Series – Wetness Class 4

Plate 4 - Point 75 – Portington Series – Wetness Class 3

Plate 5 - Point 88 – Portington Series – Wetness Class 2

Plate 6 - Point 84 – Portington Series – Wetness Class 1

Foggathorpe Series

1.3.13 Horizon 1, topsoil, depth averaged 37 cm, with a sandy loam to clay loam texture, dark brown colour (10YR 3/2), with no mottling and a granular to subangular blocky structure. The soil was weakly to moderately developed with fine to coarse ped sizes and a friable to extremely friable consistency. There were no stones observed.

1.3.14 Horizon 2, upper subsoil, depth averaged 70 cm, with a heavy clay loam to silty loam texture, dark to pale colour (10YR 6/1), with darker colours occurring in textures with larger sand fraction. All had moderate to many ochreous mottles (100%, 10YR 5/8). Biopores were generally not observed in this horizon, the structure was subangular blocky to prismatic with weak to moderate development and a medium (where sandy) to very coarse (where clay) ped size, the consistence was extremely firm. There were no stones observed.

1.3.15 Horizon 3, lower subsoil, depth ranged 70 to 120 cm (the maximum observed for ALC surveys), with a silty clay loam to clay texture, dark grey in colour (10YR 5/4), slight to moderate ochreous mottling (40-100%, 10YR 5/8). No biopores were observed, the structure was prismatic, except where sand dominated structure was singular grains, but all of moderate development, with a coarse to very coarse ped size and friable to extremely friable consistence. There were no stones observed.

1.3.16 The soils in this series are predominantly of Wetness Class 1, with gleying occurring within 80cm, and a slowly permeable layer occurring within 80 cm. Two observed points were of Wetness Class 3 (64 and 65), and four observed points were of Wetness Class 2 (98, 100, 105 and 106).

1.3.17 Example photographs of this soil series are shown below.

Plate 7 - Point 65 – Foggathorpe Series – Wetness Class 3

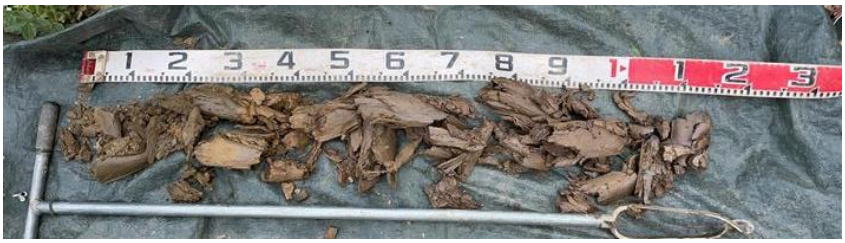


Plate 8 - Point 100 – Foggathorpe Series – Wetness Class 2

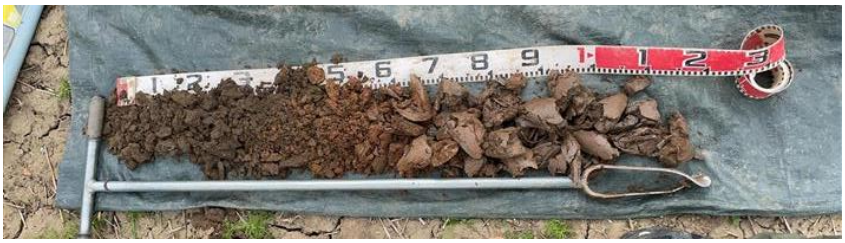


Plate 9 - Point 100 – Foggathorpe Series – Wetness Class 1

Agroclimatic data

1.3.18 Agroclimatic data was taken from the nearest meteorological stations and interpolated to obtain site-specific values, see **Table 1.3**.This was then used to establish whether the agricultural land quality of the Site is limited by climate and, in conjunction with soil profile characteristics, wetness and droughtiness.

1.3.19 It was found that the climate did not poses a limitation to the ALC on Site.

Table 1.3 – Interpolated agroclimatic data for the Site

Measure (units)	Value
Average annual rainfall (mm)	633
Accumulated Temperature (0C)	1381
Field Capacity Duration (FCD) (days)	142
Moisture Deficit Wheat (mm)	104.7
Moisture Deficit Potatoes (mm)	95.5

Direct limitations

1.3.20 This section summarises the limitations present at the Site (for detailed assessment of each Survey Point refer to **Annex 11B.1**).

1.3.21 There is no further limitation to land quality due to topsoil texture, soil stone content, soil depth, gradient, or flood risk (summer and winter).

Interactive limitations

1.3.22 The combination of 142 Field Capacity Days, varying soil textures, structure and consistence, with the Wetness Classes 1 and 2 there are interactive limitations at the Site.

1.3.23 Wetness poses a limitation to the agricultural land of the Site for some points where heavier and more firm subsoils were encountered which impedes soil drainage. This is found in areas with pale coloured subsoils and ochreous mottling, resulting in limitation to Grade 2, Subgrade 3a and Subgrade 3b across the Site.

1.3.24 Droughtiness poses a limitation to the agricultural land quality for some points where the upper subsoil has a higher clay content, these soils will suffer from droughtiness in this lower rainfall area due to lower levels of available water. Calculations indicate that the droughtiness will be slight for potatoes and in some areas also wheat. The resulting in limitation to Grade 2 and Subgrade 3a at some points within the Site.

1.4 Overall agricultural land classification

1.4.1 Grade boundaries were drawn based on field observations and the calculations from the individual points to make mapping units representative of field conditions. The boundaries of the previous ALC survey were amended slightly to take into account the new surrounding ALC information. The ALC map comprises Grade 1, Grade 2, Subgrade 3a and Subgrade 3b Agricultural Land, with some small areas of non-agricultural land.

1.4.2 A description of each grade is provided below, a summary of the ALC gradings for the site is shown in **Table 1.4**, and in geographically in **Figure 11.5, Volume 5, Document 5.4.11**.

Grade 1

1.4.3 Areas of land with no restrictions to agricultural production.

Grade 2

1.4.4 Areas of land showing only slight limitations to agricultural production due to droughtiness and/or wetness.

Subgrade 3a

1.4.5 Areas of land with limitations to agricultural production due to subsoil wetness, where a slowly permeable layer occurs within 70cm, and gleying within 80cm depth.

Subgrade 3b

1.4.6 Areas of land with moderate limitations to agricultural production due to subsoil wetness, where gleying is present within 40cm depth.

Non-agricultural

1.4.7 Land not used for agricultural production. A portion of the agricultural land within the survey boundary had been planted with tree saplings to the south east, and a road separates the two fields.

Table 1.4 – Summary of Agricultural Land Classification at the Site

ALC or other land category	Area (ha)	Percentage (%)
Grade 1 (excellent)	**4.5**	**8.9**
Grade 2 (very good)	**9.4**	**18.8**
Subgrade 3a (good)	**23.8**	**47.8**
Subgrade 3b (moderate)	**10.3**	**20.6**
Grade 4 (poor)	0.0	0.0
Grade 5 (very poor)	0.0	0.0
Non-agricultural	**1.9**	**3.9**
Total	**49.9**	**100**

1.5 Summary and Conclusions

The agricultural land within the survey boundary is made up of Grade 1 (excellent quality, 4.5 ha, 8.9%), Grade 2 (very good quality, 9.4 ha, 18.8 %), Subgrade 3a (good quality, 23.8, 47.8%) and Subgrade 3b (moderate quality, 10.3 ha, 20.6 %) agricultural land. The main differentiation between gradings at the Site was the depths to the slowly permeable and gleyed soil horizons. A small area of non-agricultural land (1.9 ha, 3.9 %) is present where the public highway transects the site, and where new tree planting has been done in the south eastern corner of the site.

The proposed location of the substation for the Project would be located on an area of Subgrade 3b, with smaller areas of Subgrade 3a and Grade 2 agricultural land.

The soils in the survey boundary range from light textured where sandy loams are present to heavy clays of the Foggathorpe 2 (712i) soil association, specifically the Foggathorpe and Portington series.

Annex 11B.1
Soil Survey Record and ALC Breakdown

Survey point number corresponds with the numbers on **Figure 11.5, Volume 5, Document 5.4.11,** and in the other Annexes.

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Soil Survey Record and ALC Calculations

Legend for non-self-explanatory terms:

Horizons - number of different horizons identified within the profile
Type - type of sample, auger core or soil profile pit dug using a spade
Depth - depth to the bottom of the (horizon number) horizon in cm
Texture - C - clay, ZC - silty clay, SC - sandy clay, CL - clay loam, SCL - sandy clay loam, ZCL - silty clay loam, SL - sandy loam, LS - loamy sand, S - sand;
CL and ZCL textures are subdivided into medium (M) and heavy (H) classes according to clay content, as follows: M medium (less than 27 % clay), H heavy (27-35 % clay); F, M and C refer to fine, medium and coarse, respectively, and are subdivisions of S, LS, SL, and SZL textures; O - organic, P - peat or peaty, HP - humified (highly decomposed peat), FP - fibrous peat, SFP - semi-fibrous peat; MZ - marine light silts
Matrix (main) colour - dominant colour of the soil; **Hue** - Munsell colour hue; **Value** - Munsell colour value; **Chroma** - Munsell colour chroma
Mottling - spots and blotches of different colour than the dominant matrix colour
Ped faces - surfaces of the primary soil fragments into which the soil naturally breaks up upon excavating
FeMn - ferri-manganifeours concertions
Biopores - 'yes' if >0.5 % biopores greater than 0.5 mm diameter present (by area)
Stones > 2 cm up to % - maximum percentage of 2 - 6 cm diameter stones
Stones > 6 cm up to % - maximum percentage of > 6 cm diameter stones
Type - H - All hard rocks or stones (those which cannot be scratched with a finger nail); SS - Soft, medium or coarse grained sandstones; SIM - Soft 'weathered' igneous or metamorphic rocks or stones; SL - Soft oolitic or dolomitic limestones; SFS - Soft fine-grained sandstones; SAZ - Soft, argillaceous or silty rocks or stones; CH - Chalk or chalk stones; GRH - Gravel[1] with non-porous (hard) stones; GRS - Gravel[1] with porous stones (mainly soft stone types listed);1 - Gravel with at least 70% rounded stones by volume
Structure type - SG - single grain; GR - granular; SAB - subangular blocky; AB - angular blocky; PR - prismatic; PL - platy; MAS - massive
Dev - Development, how well the structure is developed; W - weak; M - moderate; S - strong
Consistence - Soil consistence (strength); L - loose; VFR - very friable; FR - friable; FIR - firm; VFIR - very firm; EXFIR - extremely firm; EXHD - extremely hard
Gley - depth to gleying
SPL - depth to slowly permeable layer
Wetness Class - classification of the soil according to the depth and duration of waterlogging in the soil profile, the higher the class, the longer and at the shallower depth the soil is wet

Overall ALC - this part of the table combines results of the classification for each of the limitations

Soil profile descriptions																														
Soil profile descriptions continued																														
							Matrix (main) colour			Peat-specific properties					Mottling				Ped faces						Stones and rocks		
Survey point	Type	Grad-ient	Soil distur-bed or resto-red	Horizon	Depth	Texture	Hue	Value	Chroma	Von Post	Water content (B)	Fine fibre content (F)	Coarse fibre content (R)	Wood remains (W)	Abundan-ce up to %	Hue	Value	Chroma	Colour different to matrix	Hue	Value	Chroma	FeMn up to %	Biopo-res	> 2 cm up to %	> 6 cm up to %	Type
64	**Core**	0	no	1	42	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	73	HCL	10YR	5	2	n/a	n/a	n/a	n/a	n/a	100	10YR	7	8	no	n/a	n/a	n/a	2	no	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
65	**Core**	0	no	1	30	HCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	46	MCL	10YR	6	1	n/a	n/a	n/a	n/a	n/a	40	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	MZCL	10YR	4	1	n/a	n/a	n/a	n/a	n/a	100	10YR	5	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
66	**Core**	0	no	1	21	MZCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	70	HZCL	10YR	6	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
67	**Pit**	0	no	1	30	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	45	C	N	5	0	n/a	n/a	n/a	n/a	n/a	40	7.5YR	4	6	no	n/a	n/a	n/a	20	no	0	0	n/a
				3	55	SC	N	5	0	n/a	n/a	n/a	n/a	n/a	2	10YR	6	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	85	C	N	4	0	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	yes	7.5YR	6	8	0	no	0	0	n/a
				5																							
68	**Core**	0	no	1	35	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	2	7.5YR	6	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	55	ZC	10YR	5	1	n/a	n/a	n/a	n/a	n/a	20	7.5YR	6	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	115	C	5PB	4	0	n/a	n/a	n/a	n/a	n/a	40	10YR	3	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
69	**Core**	0	no	1	25	HCL	10YR	5	1	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	2	yes	0	0	n/a
				2	55	C	2.5Y	5	1	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	8	yes	7.5YR	7	4	20	no	0	0	n/a
				3	75	LS	10YR	6	1	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	ZC	N	2.5	0	n/a	n/a	n/a	n/a	n/a	20	7.5YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
70	**Core**	0	no	1	41	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	75	MCL	10YR	5	2	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	0	0	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
71	**Core**	0	no	1	33	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	66	MZCL	10YR	6	1	n/a	n/a	n/a	n/a	n/a	100	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							

ALC for areas represented by individual survey points																				
Survey point	Structure			Consis-tence	Calca-reous	Gley-ing	SPL	Notes	Wetness class	Climate	Gradient	Summer flood risk	Winter flood risk	Topsoil texture	Soil Depth	Topsoil stoniness	Wetness	Droughti-ness	Other (see "Limited by" column)	ALC Grade	Limited by
	Type	Deve-lop-ment	Ped size																		
64	SAB PR PR	M M M	M VC C	FIR EXFIR EXHD	no no no	NO NO YES	NO YES YES	-	3	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
65	SAB PR PR	M M M	C C VC	EXFIR EXFIR EXFIR	no no no	NO NO YES	NO NO YES	-	3	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
66	SAB PR PR	M M M	C VC VC	VFIR VFIR EXFIR	no no no	NO YES YES	NO YES YES	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
67	SAB PR GR PR	M S W S	M C F C	FIR EXFIR FR EXFIR	no no no no	NO YES NO NO	NO YES NO YES	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
68	SAB PR PR	W M S	F M M	FIR FIR EXFIR	no no no	NO YES NO	NO YES YES	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
69	SAB SAB GR PR	M M S S	M M F C	FIR FIR FR EXFIR	no no no no	NO YES YES NO	NO NO NO YES	-	2	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
70	SAB PR PR	M M M	M C VC	FIR FIR EXFIR	no no no	NO YES YES	NO NO YES	Small sand pocket in H2.	2	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness
71	SAB PR PR	M M M	C C VC	FIR EXFIR EXFIR	no no no	NO NO YES	NO NO YES	-	2	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness

Soil profile descriptions																	Soil profile descriptions continued									
							Matrix (main) colour			Peat-specific properties					Mottling					Ped faces						Stones and rocks		
Survey point	Type	Grad-ient	Soil distur-bed or resto-red	Horizon	Depth	Texture	Hue	Value	Chroma	Von Post	Water content (B)	Fine fibre content (F)	Coarse fibre content (R)	Wood remains (W)	Abundan-ce up to %	Hue	Value	Chroma	Colour different to matrix	Hue	Value	Chroma	FeMn up to %	Biopo-res	> 2 cm up to %	> 6 cm up to %	Type
72	**Core**	0	no	1	31	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	65	MZCL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	yes	10YR	5	1	0	no	0	0	n/a
				3	120	MZCL	10YR	5	2	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	yes	5Y	4	1	0	no	0	0	n/a
				4																							
				5																							
73	**Core**	0	no	1	30	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	68	MZCL	10YR	5	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	MZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
74	**Core**	0	no	1	28	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	47	ZC	N	6	0	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	6	yes	7.5YR	5	8	20	no	0	0	n/a
				3	115	C	N	4	0	n/a	n/a	n/a	n/a	n/a	40	7.5YR	4	6	no	n/a	n/a	n/a	20	no	0	0	n/a
				4																							
				5																							
75	**Core**	0	no	1	28	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	55	ZC	7.5YR	6	1	n/a	n/a	n/a	n/a	n/a	40	7.5YR	5	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	C	N	4	0	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	2	no	0	0	n/a
				4																							
				5																							
76	**Core**	0	no	1	32	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	84	HCL	10YR	6	1	n/a	n/a	n/a	n/a	n/a	100	10YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	C	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
77	**Pit**	0	no	1	35	C	10YR	3	2	n/a	n/a	n/a	n/a	n/a	2	10YR	4	6	no	n/a	n/a	n/a	2	yes	0	0	n/a
				2	55	SL	N	7	0	n/a	n/a	n/a	n/a	n/a	40	7.5YR	5	6	no	n/a	n/a	n/a	40	no	0	0	n/a
				3	80	C	7.5YR	7	1	n/a	n/a	n/a	n/a	n/a	20	7.5YR	6	8	no	n/a	n/a	n/a	20	no	0	0	n/a
				4																							
				5																							
78	**Core**	0	no	1	33	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	2	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	58	SL	10YR	6	1	n/a	n/a	n/a	n/a	n/a	100	10YR	6	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	C	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
79	**Core**	0	no	1	33	HCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	63	HCL	10YR	6	1	n/a	n/a	n/a	n/a	n/a	100	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
80	**Core**	0	no	1	24	C	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	59	C	10YR	5	2	n/a	n/a	n/a	n/a	n/a	100	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	ZC	5Y	4	1	n/a	n/a	n/a	n/a	n/a	100	10YR	5	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
81	**Core**	0	no	1	33	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	58	SCL	2.5Y	6	1	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	80	LMS	7.5YR	6	6	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	115	ZC	5PB	4	0	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
82	**Core**	0	no	1	30	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	80	MCL	10YR	5	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	MZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	0	0	0	n/a
				4																							
				5																							

ALC for areas represented by individual survey points																				
Survey point	Structure			Consis-tence	Calca-reous	Gley-ing	SPL	Notes	Wetness class	Climate	Gradient	Summer flood risk	Winter flood risk	Topsoil texture	Soil Depth	Topsoil stoniness	Wetness	Droughti-ness	Other (see "Limited by" column)	ALC Grade	Limited by
	Type	Deve-lop-ment	Ped size																		
72	SAB PR PR	M M M	M C C	VFIR EXFIR EXFIR	no no no	NO YES YES	NO YES YES	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
73	SAB PR PR	M M S	M C VC	FIR VFIR EXFIR	no no no	NO YES YES	NO NO YES	-	2	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness
74	SAB PR PR	W M S	F M M	FIR FIR EXFIR	no no no	NO YES YES	NO YES YES	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
75	SAB SAB PR	W M S	F F M	FIR FIR EXFIR	no no no	NO YES NO	NO NO YES	-	3	0	1	1	1	1	1	1	3a	1	1	**3a**	Wetness
76	SAB PR PR	M M M	C VC VC	VFIR EXFIR EXFIR	no no no	NO YES YES	NO YES NO	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
77	SAB AB GR	M M W	M M F	FIR FIR FR	no no no	NO YES YES	NO NO NO	-	2	0	1	1	1	1	1	1	3b	1	1	**3b**	Wetness
78	SAB PR PR	M M M	C M VC	VFIR FR EXFIR	no no no	NO YES YES	NO NO YES	-	3	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
79	SAB PR PR	M M M	M C VC	EXFIR VFIR EXFIR	no no no	NO NO NO	NO NO NO	-	1	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness
80	SAB PR PR	M M M	C VC VC	VFIR VFIR EXFIR	no no no	NO NO NO	NO NO NO	-	1	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
81	SAB PR SG PR	M M M S	M M VC C	FIR FIR L EXFIR	no no no no	NO YES NO NO	NO YES NO NO	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
82	SAB PR PR	M M M	C VC VC	VFIR EXFIR EXFIR	no no no	NO YES YES	NO YES NO	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness

Soil profile descriptions																	Soil profile descriptions continued									
							Matrix (main) colour			Peat-specific properties					Mottling					Ped faces						Stones and rocks		
Survey point	Type	Grad-ient	Soil distur-bed or resto-red	Horizon	Depth	Texture	Hue	Value	Chroma	Von Post	Water content (B)	Fine fibre content (F)	Coarse fibre content (R)	Wood remains (W)	Abundan-ce up to %	Hue	Value	Chroma	Colour different to matrix	Hue	Value	Chroma	FeMn up to %	Biopo-res	> 2 cm up to %	> 6 cm up to %	Type
83	**Core**	0	no	1	33	MCL	10YR	3	3	n/a	n/a	n/a	n/a	n/a	2	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	54	HCL	10YR	5	8	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	87	SCL	10YR	5	2	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	HZCL	10YR	5	4	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	yes	10YR	5	1	0	no	0	0	n/a
				5																							
84	**Core**	0	no	1	34	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	70	C	7.5YR	6	8	n/a	n/a	n/a	n/a	n/a	100	7.5YR	6	3	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	95	LFS	7.5YR	6	1	n/a	n/a	n/a	n/a	n/a	20	7.5YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	115	SC	7.5YR	3	3	n/a	n/a	n/a	n/a	n/a	40	7.5YR	5	1	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
85	**Core**	0	no	1	23	C	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	75	MZCL	10YR	5	2	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	95	MSL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	40	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	MZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
86	**Core**	0	no	1	35	MCL	10YR	4	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	45	HCL	5YR	7	1	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	8	yes	7.5YR	5	1	0	no	0	0	n/a
				3	65	C	N	7	0	n/a	n/a	n/a	n/a	n/a	40	10YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	115	C	5PB	4	0	n/a	n/a	n/a	n/a	n/a	20	10YR	3	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
87	**Pit**	0	no	1	25	MZCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	45	HZCL	10YR	5	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	20	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
88	**Core**	0	no	1	45	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	20	7.5YR	6	6	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	70	HCL	N	6	0	n/a	n/a	n/a	n/a	n/a	40	10YR	6	6	no	n/a	n/a	n/a	2	no	0	0	n/a
				3	90	C	5PB	4	0	n/a	n/a	n/a	n/a	n/a	40	7.5YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	LMS	7.5YR	6	2	n/a	n/a	n/a	n/a	n/a	20	7.5YR	4	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
89	**Core**	0	no	1	33	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	43	MCL	10YR	5	1	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	72	LMS	10YR	6	1	n/a	n/a	n/a	n/a	n/a	100	10YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	C	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
90	**Core**	0	no	1	28	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	40	HCL	10YR	5	2	n/a	n/a	n/a	n/a	n/a	100	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	C	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
91	**Core**	0	no	1	32	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	63	LMS	10YR	5	1	n/a	n/a	n/a	n/a	n/a	100	10YR	6	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	MZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							

ALC for areas represented by individual survey points																				
Survey point	Structure			Consis-tence	Calca-reous	Gley-ing	SPL	Notes	Wetness class	Climate	Gradient	Summer flood risk	Winter flood risk	Topsoil texture	Soil Depth	Topsoil stoniness	Wetness	Droughti-ness	Other (see "Limited by" column)	ALC Grade	Limited by
	Type	Deve-lop-ment	Ped size																		
83	SAB PR SAB PR	M M M M	C VC C VC	FIR VFIR FR EXFIR	no no no no	NO NO YES YES	NO NO NO NO	-	1	0	1	1	1	1	1	1	1	1	1	**1**	None
84	SAB PR SG SAB	M M M M	M M M M	FIR VFIR FR VFIR	no no no no	NO NO YES NO	NO NO NO NO	-	1	0	1	1	1	1	1	1	1	1	1	**1**	None
85	AB PR PR PR	M M M M	C VC M VC	EXFIR VFIR VFR EXFIR	no no no no	NO YES NO NO	NO NO NO NO	-	2	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
86	SAB SAB PR PR	W M M M	F M M M	FIR FIR VFIR EXFIR	no no no no	NO YES YES NO	NO NO YES YES	-	3	0	1	1	1	1	1	1	3a	1	1	**3a**	Wetness
87	SAB PR PR	M M M	C C VC	FIR FIR EXFIR	no no no	NO YES YES	NO YES YES	-	4	0	1	1	1	1	1	1	3b	2	1	**3b**	Wetness
88	SAB SAB PR GR	W M S W	F M M F	FIR VFIR EXFIR FR	no no no no	NO YES NO YES	NO NO YES NO	-	2	0	1	1	1	1	1	1	2	1	1	**2**	Wetness
89	SAB PR PR PR	M M M M	M M M VC	FIR VFIR FR EXFIR	no no no no	NO YES YES NO	NO NO NO YES	-	2	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness
90	SAB PR PR	M M M	VC VC VC	EXFIR VFIR EXFIR	no no no	NO NO NO	NO NO NO	-	1	0	1	1	1	1	1	1	1	2	1	**2**	Droughti-ness
91	SAB PR PR	M M M	C C VC	FIR FR EXFIR	no no no	NO YES NO	NO NO YES	-	3	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness

Soil profile descriptions																	Soil profile descriptions continued									
							Matrix (main) colour			Peat-specific properties					Mottling				Ped faces						Stones and rocks		
Survey point	Type	Grad-ient	Soil distur-bed or resto-red	Horizon	Depth	Texture	Hue	Value	Chroma	Von Post	Water content (B)	Fine fibre content (F)	Coarse fibre content (R)	Wood remains (W)	Abundan-ce up to %	Hue	Value	Chroma	Colour different to matrix	Hue	Value	Chroma	FeMn up to %	Biopo-res	> 2 cm up to %	> 6 cm up to %	Type
92	**Core**	0	no	1	40	FSL	10YR	4	1	n/a	n/a	n/a	n/a	n/a	2	7.5YR	6	6	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	58	FSZL	7.5YR	6	3	n/a	n/a	n/a	n/a	n/a	20	10YR	6	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	70	ZC	N	5	0	n/a	n/a	n/a	n/a	n/a	40	10YR	6	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	110	C	N	4	0	n/a	n/a	n/a	n/a	n/a	40	10YR	5	4	no	n/a	n/a	n/a	20	no	0	0	n/a
				5																							
93	**Core**	0	no	1	30	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	70	HZCL	10YR	6	2	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	6	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
94	**Core**	0	no	1	32	SC	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	80	C	7.5YR	7	6	n/a	n/a	n/a	n/a	n/a	100	7.5YR	5	1	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	110	C	5YR	4	2	n/a	n/a	n/a	n/a	n/a	100	N	5	0	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
95	**Core**	0	no	1	32	MSL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	45	SL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	90	MSL	7.5YR	5	4	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
96	**Core**	0	no	1	45	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	2	10YR	6	6	no	n/a	n/a	n/a	2	yes	0	0	n/a
				2	50	HCL	10YR	5	3	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	6	no	n/a	n/a	n/a	2	no	0	0	n/a
				3	105	C	N	4	0	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							
97	**Pit**	0	no	1	27	MCL	10YR	4	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	2	yes	0	0	n/a
				2	60	C	10YR	5	8	n/a	n/a	n/a	n/a	n/a	40	10YR	5	2	no	n/a	n/a	n/a	2	no	0	0	n/a
				3																							
				4																							
				5																							
98	**Core**	0	no	1	35	SCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	52	LFS	7.5YR	5	6	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	75	LS	7.5YR	6	4	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	C	7.5YR	6	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	6	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
99	**Core**	0	no	1	33	LS	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	45	MSL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	20	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	70	MSL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4	120	SL	7.5YR	4	3	n/a	n/a	n/a	n/a	n/a	2	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				5																							
100	**Core**	0	no	1	42	SCL	10YR	2	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	65	SCL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	2	0	0	0	n/a
				3	120	HZCL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	2	10YR	5	8	yes	10YR	6	1	0	no	0	0	n/a
				4																							
				5																							
101	**Core**	0	no	1	35	MCL	10YR	4	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	75	C	10YR	7	6	n/a	n/a	n/a	n/a	n/a	40	10YR	7	1	no	n/a	n/a	n/a	2	no	0	0	n/a
				3	105	C	7.5YR	4	4	n/a	n/a	n/a	n/a	n/a	40	N	6	0	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																							
				5																							

ALC for areas represented by individual survey points																				
Survey point	Structure			Consis-tence	Calca-reous	Gley-ing	SPL	Notes	Wetness class	Climate	Gradient	Summer flood risk	Winter flood risk	Topsoil texture	Soil Depth	Topsoil stoniness	Wetness	Droughti-ness	Other (see "Limited by" column)	ALC Grade	Limited by
	Type	Deve-lop-ment	Ped size																	
92	GR SG PR PR	W M M M	F C M C	FR FR FIR EXFIR	no no no no	NO YES NO NO	NO NO YES YES	-	2	0	1	1	1	1	1	1	1	3b	1	**3b**	Droughti-ness
93	SAB PR PR	M M M	M C VC	VFIR VFIR EXFIR	no no no	NO YES YES	NO NO YES	-	2	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness
94	SAB AB AB	W M S	F C C	FR EXFIR EXFIR	no no no	NO NO YES	NO NO NO	-	1	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
95	GR SAB PR	M M M	C M M	VFR VFR VFIR	no no no	NO NO NO	NO NO NO	-	1	0	1	1	1	1	1	1	1	3b	1	**3b**	Droughti-ness
96	SAB SAB PR	W M S	M M C	FIR FIR VFIR	no no no	NO YES NO	NO NO YES	-	2	0	1	1	1	1	1	1	2	2	1	**2**	Wetness Droughti-ness
97	SAB PR	M S	M C	FIR EXFIR	no no	NO NO	NO YES	-	3	0	1	1	1	1	1	1	3a	3a	1	**3a**	Wetness Droughti-ness
98	GR GR SG PR	W W M S	F F C C	FR FR FR EXFIR	no no no no	NO NO NO YES	NO NO NO YES	-	2	0	1	1	1	1	1	1	2	3b	1	**3b**	Droughti-ness
99	GR SAB PR PR	M M M M	M C C VC	VFR VFR VFR VFR	no no no no	NO NO NO NO	NO NO NO NO	-	1	0	1	1	1	2	1	1	2	3b	1	**3b**	Droughti-ness
100	SAB SAB PR	M M M	M M VC	FR FR EXFIR	no no no	NO NO NO	NO NO YES	-	2	0	1	1	1	1	1	1	2	1	1	**2**	Wetness
101	SAB PL PL	W M S	M M C	FR VFIR EXFIR	no no no	NO NO NO	NO YES YES	-	3	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness

Soil profile descriptions																	Soil profile descriptions continued									
							Matrix (main) colour			Peat-specific properties					Mottling				Ped faces						Stones and rocks		
Survey point	Type	Grad-ient	Soil distur-bed or resto-red	Horizon	Depth	Texture	Hue	Value	Chroma	Von Post	Water content (B)	Fine fibre content (F)	Coarse fibre content (R)	Wood remains (W)	Abundan-ce up to %	Hue	Value	Chroma	Colour different to matrix	Hue	Value	Chroma	FeMn up to %	Biopo-res	> 2 cm up to %	> 6 cm up to %	Type
102	**Core**	0	no	1	45	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	2	10YR	5	6	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	110	C	5PB	5	0	n/a	n/a	n/a	n/a	n/a	100	10YR	5	6	yes	10YR	7	6	0	no	0	0	n/a
				3																						
				4																						
				5																						
103	**Core**	0	no	1	45	MSL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	90	MSL	10YR	5	4	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	C	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																						
				5																						
104	**Core**	0	no	1	38	MSL	10YR	3	1	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	95	MSL	10YR	4	4	n/a	n/a	n/a	n/a	n/a	20	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	C	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	4	4	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																						
				5																						
105	**Core**	0	no	1	26	HCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	51	HCL	10YR	5	1	n/a	n/a	n/a	n/a	n/a	100	10YR	7	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				3	120	HZCL	5Y	4	1	n/a	n/a	n/a	n/a	n/a	40	10YR	5	8	no	n/a	n/a	n/a	0	no	0	0	n/a
				4																						
				5																						
106	**Core**	0	no	1	35	MSL	10YR	3	1	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	55	MSL	10YR	3	1	n/a	n/a	n/a	n/a	n/a	20	10YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	SCL	10YR	5	4	n/a	n/a	n/a	n/a	n/a	100	10YR	5	8	no	n/a	n/a	n/a	2	no	0	0	n/a
				4																						
				5																						
107	**Pit**	0	no	1	29	SCL	10YR	4	3	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	85	SCL	7.5YR	5	6	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3																						
				4																						
				5																						
152	**Core**	0	no	1	38	MCL	10YR	3	2	n/a	n/a	n/a	n/a	n/a	2	7.5YR	6	6	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	75	C	N	7	0	n/a	n/a	n/a	n/a	n/a	40	7.5YR	6	8	yes	7.5YR	7	4	0	no	0	0	n/a
				3	115	C	N	5	0	n/a	n/a	n/a	n/a	n/a	20	7.5YR	6	6	yes	7.5YR	8	4	0	no	0	0	n/a
				4																						
				5																						
153	**Core**	0	no	1	41	SCL	10YR	3	1	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	yes	0	0	n/a
				2	70	SCL	10YR	5	4	n/a	n/a	n/a	n/a	n/a	100	7.5YR	5	8	no	n/a	n/a	n/a	0	yes	0	0	n/a
				3	120	R	0	0	0	n/a	n/a	n/a	n/a	n/a	0	0	0	0	no	n/a	n/a	n/a	0	0	0	0	n/a
				4																						
				5																						

ALC for areas represented by individual survey points																				
Survey point	Structure			Consis-tence	Calca-reous	Gley-ing	SPL	Notes	Wetness class	Climate	Gradient	Summer flood risk	Winter flood risk	Topsoil texture	Soil Depth	Topsoil stoniness	Wetness	Droughti-ness	Other (see "Limited by" column)	ALC Grade	Limited by
	Type	Deve-lop-ment	Ped size																	
102	SAB PR	W M	F M	FR VFIR	no no	NO YES	NO YES	-	3	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
103	GR PR PR	M M M	F M VC	L VFR EXFIR	no no no	NO NO NO	NO NO NO	-	1	0	1	1	1	1	1	1	1	1	1	**1**	None
104	GR PR PR	M M M	M M VC	VFR VFR EXFIR	no no no	NO NO NO	NO NO NO	-	1	0	1	1	1	1	1	1	1	1	1	**1**	None
105	SAB PR PR	M M M	C C C	FR VFIR EXHD	no no no	NO NO YES	NO NO YES	-	2	0	1	1	1	1	1	1	3a	2	1	**3a**	Wetness
106	GR PR PR	M W M	C M C	VFR VFR FR	no no no	NO NO NO	NO NO YES	-	2	0	1	1	1	1	1	1	1	1	1	**1**	None
107	GR SAB	W W	F F	FR FR	no no	NO NO	NO NO	-	1	0	1	1	1	1	1	1	1	1	1	**1**	None
152	SAB SAB SAB	M M M	M F F	FIR VFIR VFIR	no no no	NO YES YES	NO NO NO	-	2	0	1	1	1	1	1	1	2	1	1	**2**	Wetness
153	GR PR 0	M 0 0	0 M 0	VFR FIR 0	no no no	NO NO NO	NO NO NO	Hit rock at 70cm.	1	0	1	1	1	1	1	1	1	3b	1	**3b**	Droughti-ness

Annex 11B.2
Droughtiness Calculations

Survey point number corresponds with the numbers on **Figure 11.5, Document 5.4.11, Volume 5**, and in the other Annexes.

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Droughtiness Calculations

Abbreviations for non self-explanatory terms:

TAv – Total amount of soil water available to plants, considered to be the volumetric soil water content between 0.05 and 15 bar suction or, in case of sands and loamy sands, 0.10 and 15 bar suction. These suctions approximate to the conditions of field capacity and wilting point (when the plants can extract no more moisture from the soil).

EAv – Easily available water, held in the soil between 0.05 and 2.0 bar suction, used for calculating cereal available water below 50 cm depth where root systems are less well developed, and the plant's ability to extract water is diminished.

Values of TAv and EAv are estimated for each horizon based on soil texture and structural condition according to the ALC guidelines (MAFF, 1988).

AP – crop adjusted available water capacity, a measure of the quantity of water held in the soil profile which can be taken up by a specific crop.

MD – the moisture deficit term used in the ALC droughtiness assessment is a crop-related meteorological variable which represents the balance between rainfall and potential evapotranspiration calculated over a critical portion of the growing season.

MB – moisture balance: MB=AP-MD, MB for wheat and potatoes determines limitation by droughtiness

Data inputs										Droughtiness calculations																											
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																Limited to ALC grade
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)		Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)							
64	1	42	MCL	0	GOOD	18				TAv	0	42	42	18	100	0	0	756				0	42	42	18	100	0	0	756									
										EAv	0	42	0	0	100	0	0	0																			
	2	31	HCL	0	POOR	12	7			TAv	42	73	8	12	100	0	0	96				42	73	28	12	100	0	0	336									
										EAv	42	73	23	7	100	0	0	161																			
	3	47	HZCL	0	POOR	12	6			TAv	73	120	0	12	100	0	0	0	130	25		73	120	0	12	100	0	0	0	109	14	2						
										EAv	73	120	47	6	100	0	0	282																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
65	1	30	HCL	0	GOOD	18				TAv	0	30	30	18	100	0	0	540				0	30	30	18	100	0	0	540									
										EAv	0	30	0	0	100	0	0	0																			
	2	16	MCL	0	POOR	12	7			TAv	30	46	16	12	100	0	0	192				30	46	16	12	100	0	0	192									
										EAv	30	46	0	7	100	0	0	0																			
	3	74	MZCL	0	POOR	12	6			TAv	46	120	4	12	100	0	0	48	120	15		46	120	24	12	100	0	0	288	102	6	2						
										EAv	46	120	70	6	100	0	0	420																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
66	1	21	MZCL	0	GOOD	19				TAv	0	21	21	19	100	0	0	399				0	21	21	19	100	0	0	399									
										EAv	0	21	0	0	100	0	0	0																			
	2	49	HZCL	0	POOR	12	6			TAv	21	70	29	12	100	0	0	348				21	70	49	12	100	0	0	588									
										EAv	21	70	20	6	100	0	0	120																			
	3	50	HZCL	0	POOR	12	6			TAv	70	120	0	12	100	0	0	0	117	12		70	120	0	12	100	0	0	0	99	3	2						
										EAv	70	120	50	6	100	0	0	300																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
67	1	30	MCL	0	GOOD	18				TAv	0	30	30	18	100	0	0	540				0	30	30	18	100	0	0	540									
										EAv	0	30	0	0	100	0	0	0																			
	2	15	C	0	POOR	13	7			TAv	30	45	15	13	100	0	0	195				30	45	15	13	100	0	0	195									
										EAv	30	45	0	7	100	0	0	0																			
	3	10	SC	0	GOOD	19	14			TAv	45	55	5	19	100	0	0	95				45	55	10	19	100	0	0	190									
										EAv	45	55	5	14	100	0	0	70	111	6																	
	4	30	C	0	POOR	13	7			TAv	55	85	0	13	100	0	0	0				55	85	15	13	100	0	0	195	112	16	2						
										EAv	55	85	30	7	100	0	0	210																			
	5									TAv	85	85	0	0	100	0	0	0				85	85	0	0	100	0	0	0									
										EAv	85	85	0	0	100	0	0	0																			
68	1	35	MCL	0	GOOD	18				TAv	0	35	35	18	100	0	0	630				0	35	35	18	100	0	0	630									
										EAv	0	35	0	0	100	0	0	0																			
	2	20	ZC	0	MODERATE	15	8			TAv	35	55	15	15	100	0	0	225				35	55	20	15	100	0	0	300									
										EAv	35	55	5	8	100	0	0	40																			
	3	60	C	0	POOR	13	7			TAv	55	115	0	13	100	0	0	0	132	27		55	115	15	13	100	0	0	195	113	17	2						
										EAv	55	115	60	7	100	0	0	420																			
	4									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0									
										EAv	115	115	0	0	100	0	0	0																			
	5									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0									
										EAv	115	115	0	0	100	0	0	0																			
69	1	25	HCL	0	GOOD	18				TAv	0	25	25	18	100	0	0	450				0	25	25	18	100	0	0	450									
										EAv	0	25	0	0	100	0	0	0																			
	2	30	C	0	GOOD	21	15			TAv	25	55	25	21	100	0	0	525				25	55	30	21	100	0	0	630									
										EAv	25	55	5	15	100	0	0	75																			
	3	20	LS	0	#N/A	#N/A	#N/A			TAv	55	75	0	#N/A	100	0	0	#N/A	#N/A	#N/A		55	75	15	#N/A	100	0	0	#N/A	#N/A	#N/A	#N/A						
										EAv	55	75	20	#N/A	100	0	0	#N/A																			
	4	45	ZC	0	POOR	12	7			TAv	75	120	0	12	100	0	0	0				75	120	0	12	100	0	0	0									
										EAv	75	120	45	7	100	0	0	315																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
70	1	41	MCL	0	GOOD	18				TAv	0	41	41	18	100	0	0	738				0	41	41	18	100	0	0	738									
										EAv	0	41	0	0	100	0	0	0																			
	2	34	MCL	0	POOR	12	7			TAv	41	75	9	12	100	0	0	108				41	75	29	12	100	0	0	348									
										EAv	41	75	25	7	100	0	0	175																			
	3	45	HZCL	0	POOR	12	6			TAv	75	120	0	12	100	0	0	0	129	24		75	120	0	12	100	0	0	0	109	13	2						
										EAv	75	120	45	6	100	0	0	270																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			

Data inputs										Droughtiness calculations																												
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																	
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)	Limited to ALC grade	Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)	
71	1	33	MCL	0	GOOD	18				TAv	0	33	33	18	100	0	0	594	122	17	2	0	33	33	18	100	0	0	594	104	8	2						
										EAv	0	33	0	0	100	0	0	0																		
	2	33	MZCL	0	POOR	12	6			TAv	33	66	17	12	100	0	0	204				33	66	33	12	100	0	0	396								
										EAv	33	66	16	6	100	0	0	96																		
	3	54	HZCL	0	POOR	12	6			TAv	66	120	0	12	100	0	0	0				66	120	4	12	100	0	0	48								
										EAv	66	120	54	6	100	0	0	324																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
72	1	31	MCL	0	GOOD	18				TAv	0	31	31	18	100	0	0	558	121	16	2	0	31	31	18	100	0	0	558	103	7	2						
										EAv	0	31	0	0	100	0	0	0																		
	2	34	MZCL	0	POOR	12	6			TAv	31	65	19	12	100	0	0	228				31	65	34	12	100	0	0	408								
										EAv	31	65	15	6	100	0	0	90																		
	3	55	MZCL	0	POOR	12	6			TAv	65	120	0	12	100	0	0	0				65	120	5	12	100	0	0	60								
										EAv	65	120	55	6	100	0	0	330																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
73	1	30	MCL	0	GOOD	18				TAv	0	30	30	18	100	0	0	540	120	15	2	0	30	30	18	100	0	0	540	102	6	2						
										EAv	0	30	0	0	100	0	0	0																		
	2	38	MZCL	0	POOR	12	6			TAv	30	68	20	12	100	0	0	240				30	68	38	12	100	0	0	456								
										EAv	30	68	18	6	100	0	0	108																		
	3	52	MZCL	0	POOR	12	6			TAv	68	120	0	12	100	0	0	0				68	120	2	12	100	0	0	24								
										EAv	68	120	52	6	100	0	0	312																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
74	1	28	MCL	0	GOOD	18				TAv	0	28	28	18	100	0	0	504	128	24	2	0	28	28	18	100	0	0	504	109	13	2						
										EAv	0	28	0	0	100	0	0	0																		
	2	19	ZC	0	MODERATE	15	8			TAv	28	47	19	15	100	0	0	285				28	47	19	15	100	0	0	285								
										EAv	28	47	0	8	100	0	0	0																		
	3	68	C	0	POOR	13	7			TAv	47	115	3	13	100	0	0	39				47	115	23	13	100	0	0	299								
										EAv	47	115	65	7	100	0	0	455																		
	4									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0								
										EAv	115	115	0	0	100	0	0	0																		
	5									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0								
										EAv	115	115	0	0	100	0	0	0																		
75	1	28	MCL	0	GOOD	18				TAv	0	28	28	18	100	0	0	504	150	45	1	0	28	28	18	100	0	0	504	127	31	1						
										EAv	0	28	0	0	100	0	0	0																		
	2	27	ZC	0	GOOD	21	15			TAv	28	55	22	21	100	0	0	462				28	55	27	21	100	0	0	567								
										EAv	28	55	5	15	100	0	0	75																		
	3	65	C	0	POOR	13	7			TAv	55	120	0	13	100	0	0	0				55	120	15	13	100	0	0	195								
										EAv	55	120	65	7	100	0	0	455																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
76	1	32	MCL	0	GOOD	18				TAv	0	32	32	18	100	0	0	576	128	23	2	0	32	32	18	100	0	0	576	103	8	2						
										EAv	0	32	0	0	100	0	0	0																		
	2	52	HCL	0	POOR	12	7			TAv	32	84	18	12	100	0	0	216				32	84	38	12	100	0	0	456								
										EAv	32	84	34	7	100	0	0	238																		
	3	36	C	0	POOR	13	7			TAv	84	120	0	13	100	0	0	0				84	120	0	13	100	0	0	0								
										EAv	84	120	36	7	100	0	0	252																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0								
										EAv	120	120	0	0	100	0	0	0																		
77	1	35	C	0	GOOD	17				TAv	0	35	35	17	100	0	0	595	#N/A	#N/A	#N/A	0	35	35	17	100	0	0	595	#N/A	#N/A	#N/A						
										EAv	0	35	0	0	100	0	0	0																		
	2	20	SL	0	#N/A	#N/A	#N/A			TAv	35	55	15	#N/A	100	0	0	#N/A				35	55	20	#N/A	100	0	0	#N/A								
										EAv	35	55	5	#N/A	100	0	0	#N/A																		
	3	25	C	0	GOOD	21	15			TAv	55	80	0	21	100	0	0	0				55	80	15	21	100	0	0	315								
										EAv	55	80	25	15	100	0	0	375																		
	4									TAv	80	80	0	0	100	0	0	0				80	80	0	0	100	0	0	0								
										EAv	80	80	0	0	100	0	0	0																		
	5									TAv	80	80	0	0	100	0	0	0				80	80	0	0	100	0	0	0								
										EAv	80	80	0	0	100	0	0	0																		

Data inputs										Droughtiness calculations																												
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																	Limited to ALC grade
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)		Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)								
78	1	33	MCL	0	GOOD	18				TAv	0	33	33	18	100	0	0	594	#N/A	#N/A	#N/A	0	33	33	18	100	0	0	594	#N/A	#N/A	#N/A								
										EAv	0	33	0	0	100	0	0	0																				
	2	25	SL	0	#N/A	#N/A	#N/A			TAv	33	58	17	#N/A	100	0	0	#N/A				33	58	25	#N/A	100	0	0	#N/A										
										EAv	33	58	8	#N/A	100	0	0	#N/A																				
	3	62	C	0	POOR	13	7			TAv	58	120	0	13	100	0	0	0				58	120	12	13	100	0	0	156										
										EAv	58	120	62	7	100	0	0	434																				
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
79	1	33	HCL	0	GOOD	18				TAv	0	33	33	18	100	0	0	594	123	18		0	33	33	18	100	0	0	594	104	8	2							
										EAv	0	33	0	0	100	0	0	0																				
	2	30	HCL	0	POOR	12	7			TAv	33	63	17	12	100	0	0	204				33	63	30	12	100	0	0	360										
										EAv	33	63	13	7	100	0	0	91																				
	3	57	HZCL	0	POOR	12	6			TAv	63	120	0	12	100	0	0	0				63	120	7	12	100	0	0	84										
										EAv	63	120	57	6	100	0	0	342																				
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
80	1	24	C	0	GOOD	17				TAv	0	24	24	17	100	0	0	408	124	19		0	24	24	17	100	0	0	408	100	4	2							
										EAv	0	24	0	0	100	0	0	0																				
	2	35	C	0	POOR	13	7			TAv	24	59	26	13	100	0	0	338				24	59	35	13	100	0	0	455										
										EAv	24	59	9	7	100	0	0	63																				
	3	61	ZC	0	POOR	12	7			TAv	59	120	0	12	100	0	0	0				59	120	11	12	100	0	0	132										
										EAv	59	120	61	7	100	0	0	427																				
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
81	1	33	MCL	0	GOOD	18				TAv	0	33	33	18	100	0	0	594	131	26		0	33	33	18	100	0	0	594	108	12	2							
										EAv	0	33	0	0	100	0	0	0																				
	2	25	SCL	0	MODERATE	15	10			TAv	33	58	17	15	100	0	0	255				33	58	25	15	100	0	0	375										
										EAv	33	58	8	10	100	0	0	80																				
	3	22	LMS	0	MODERATE	9	6			TAv	58	80	0	9	100	0	0	0				58	80	12	9	100	0	0	108										
										EAv	58	80	22	6	100	0	0	132																				
	4	35	ZC	0	POOR	12	7			TAv	80	115	0	12	100	0	0	0				80	115	0	12	100	0	0	0										
										EAv	80	115	35	7	100	0	0	245																				
	5									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0										
										EAv	115	115	0	0	100	0	0	0																				
82	1	30	MCL	0	GOOD	18				TAv	0	30	30	18	100	0	0	540	123	18		0	30	30	18	100	0	0	540	102	6	2							
										EAv	0	30	0	0	100	0	0	0																				
	2	50	MCL	0	POOR	12	7			TAv	30	80	20	12	100	0	0	240				30	80	40	12	100	0	0	480										
										EAv	30	80	30	7	100	0	0	210																				
	3	40	MZCL	0	POOR	12	6			TAv	80	120	0	12	100	0	0	0				80	120	0	12	100	0	0	0										
										EAv	80	120	40	6	100	0	0	240																				
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
83	1	33	MCL	0	GOOD	18				TAv	0	33	33	18	100	0	0	594	135	31		0	33	33	18	100	0	0	594	109	13	1							
										EAv	0	33	0	0	100	0	0	0																				
	2	21	HCL	0	POOR	12	7			TAv	33	54	17	12	100	0	0	204				33	54	21	12	100	0	0	252										
										EAv	33	54	4	7	100	0	0	28																				
	3	33	SCL	0	MODERATE	15	10			TAv	54	87	0	15	100	0	0	0				54	87	16	15	100	0	0	240										
										EAv	54	87	33	10	100	0	0	330																				
	4	33	HZCL	0	POOR	12	6			TAv	87	120	0	12	100	0	0	0				87	120	0	12	100	0	0	0										
										EAv	87	120	33	6	100	0	0	198																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
84	1	34	MCL	0	GOOD	18				TAv	0	34	34	18	100	0	0	612	157	52		0	34	34	18	100	0	0	612	108	12	1							
										EAv	0	34	0	0	100	0	0	0																				
	2	36	C	0	POOR	13	7			TAv	34	70	16	13	100	0	0	208				34	70	36	13	100	0	0	468										
										EAv	34	70	20	7	100	0	0	140																				
	3	25	LFS	0	MODERATE	15	13			TAv	70	95	0	15	100	0	0	0				70	95	0	15	100	0	0	0										
										EAv	70	95	25	13	100	0	0	325																				
	4	20	SC	0	GOOD	19	14			TAv	95	115	0	19	100	0	0	0				95	115	0	19	100	0	0	0										
										EAv	95	115	20	14	100	0	0	280																				
	5									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0										
										EAv	115	115	0	0	100	0	0	0																				

Data inputs										Droughtiness calculations																										
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																Limited to ALC grade
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)		Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)						
85	1	23	C	0	GOOD	17				TAv	0	23	23	17	100	0	0	391	124	19		0	23	23	17	100	0	0	391	96	0						2
										EAv	0	23	0	0	100	0	0	0																		
	2	52	MZCL	0	POOR	12	6			TAv	23	75	27	12	100	0	0	324				23	75	47	12	100	0	0	564							
										EAv	23	75	25	6	100	0	0	150																		
	3	20	MSL	0	MODERATE	15	11			TAv	75	95	0	15	100	0	0	0				75	95	0	15	100	0	0	0							
										EAv	75	95	20	11	100	0	0	220																		
	4	25	MZCL	0	POOR	12	6			TAv	95	120	0	12	100	0	0	0				95	120	0	12	100	0	0	0							
										EAv	95	120	25	6	100	0	0	150																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
86	1	35	MCL	0	GOOD	18				TAv	0	35	35	18	100	0	0	630	136	31		0	35	35	18	100	0	0	630	117	21						1
										EAv	0	35	0	0	100	0	0	0																		
	2	10	HCL	0	GOOD	21	14			TAv	35	45	10	21	100	0	0	210				35	45	10	21	100	0	0	210							
										EAv	35	45	0	14	100	0	0	0																		
	3	20	C	0	POOR	13	7			TAv	45	65	5	13	100	0	0	65				45	65	20	13	100	0	0	260							
										EAv	45	65	15	7	100	0	0	105																		
	4	50	C	0	POOR	13	7			TAv	65	115	0	13	100	0	0	0				65	115	5	13	100	0	0	65							
										EAv	65	115	50	7	100	0	0	350																		
	5									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0							
										EAv	115	115	0	0	100	0	0	0																		
87	1	25	MZCL	0	GOOD	19				TAv	0	25	25	19	100	0	0	475	120	15		0	25	25	19	100	0	0	475	102	6						2
										EAv	0	25	0	0	100	0	0	0																		
	2	20	HZCL	0	POOR	12	6			TAv	25	45	20	12	100	0	0	240				25	45	20	12	100	0	0	240							
										EAv	25	45	0	6	100	0	0	0																		
	3	75	HZCL	0	POOR	12	6			TAv	45	120	5	12	100	0	0	60				45	120	25	12	100	0	0	300							
										EAv	45	120	70	6	100	0	0	420																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
88	1	45	MCL	0	GOOD	18				TAv	0	45	45	18	100	0	0	810	161	56		0	45	45	18	100	0	0	810	134	38						1
										EAv	0	45	0	0	100	0	0	0																		
	2	25	HCL	0	GOOD	21	14			TAv	45	70	5	21	100	0	0	105				45	70	25	21	100	0	0	525							
										EAv	45	70	20	14	100	0	0	280																		
	3	20	C	0	POOR	13	7			TAv	70	90	0	13	100	0	0	0				70	90	0	13	100	0	0	0							
										EAv	70	90	20	7	100	0	0	140																		
	4	30	LMS	0	GOOD	12	9			TAv	90	120	0	12	100	0	0	0				90	120	0	12	100	0	0	0							
										EAv	90	120	30	9	100	0	0	270																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
89	1	33	MCL	0	GOOD	18				TAv	0	33	33	18	100	0	0	594	125	20		0	33	33	18	100	0	0	594	96	0						2
										EAv	0	33	0	0	100	0	0	0																		
	2	10	MCL	0	POOR	12	7			TAv	33	43	10	12	100	0	0	120				33	43	10	12	100	0	0	120							
										EAv	33	43	0	7	100	0	0	0																		
	3	29	LMS	0	MODERATE	9	6			TAv	43	72	7	9	100	0	0	63				43	72	27	9	100	0	0	243							
										EAv	43	72	22	6	100	0	0	132																		
	4	48	C	0	POOR	13	7			TAv	72	120	0	13	100	0	0	0				72	120	0	13	100	0	0	0							
										EAv	72	120	48	7	100	0	0	336																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
90	1	28	MCL	0	GOOD	18				TAv	0	28	28	18	100	0	0	504	127	22		0	28	28	18	100	0	0	504	104	8						2
										EAv	0	28	0	0	100	0	0	0																		
	2	12	HCL	0	POOR	12	7			TAv	28	40	12	12	100	0	0	144				28	40	12	12	100	0	0	144							
										EAv	28	40	0	7	100	0	0	0																		
	3	80	C	0	POOR	13	7			TAv	40	120	10	13	100	0	0	130				40	120	30	13	100	0	0	390							
										EAv	40	120	70	7	100	0	0	490																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
91	1	32	MCL	0	GOOD	18				TAv	0	32	32	18	100	0	0	576	116	11		0	32	32	18	100	0	0	576	94	-2						2
										EAv	0	32	0	0	100	0	0	0																		
	2	31	LMS	0	MODERATE	9	6			TAv	32	63	18	9	100	0	0	162				32	63	31	9	100	0	0	279							
										EAv	32	63	13	6	100	0	0	78																		
	3	57	MZCL	0	POOR	12	6			TAv	63	120	0	12	100	0	0	0				63	120	7	12	100	0	0	84							
										EAv	63	120	57	6	100	0	0	342																		
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0							
										EAv	120	120	0	0	100	0	0	0																		

Data inputs										Droughtiness calculations																												
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																	Limited to ALC grade
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)		Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)								
92	1	40	FSL	0	GOOD	18				TAv	0	40	40	18	100	0	0	720	#N/A	#N/A	#N/A	0	40	40	18	100	0	0	720	#N/A	#N/A	#N/A								
										EAv	0	40	0	0	100	0	0	0																				
	2	18	FSZL	0	RARE	#N/A	9			TAv	40	58	10	#N/A	100	0	0	#N/A				40	58	18	#N/A	100	0	0	#N/A										
										EAv	40	58	8	9	100	0	0	72																				
	3	12	ZC	0	MODERATE	15	8			TAv	58	70	0	15	100	0	0	0				58	70	12	15	100	0	0	180										
										EAv	58	70	12	8	100	0	0	96																				
	4	40	C	0	POOR	13	7			TAv	70	110	0	13	100	0	0	0				70	110	0	13	100	0	0	0										
										EAv	70	110	40	7	100	0	0	280																				
	5									TAv	110	110	0	0	100	0	0	0				110	110	0	0	100	0	0	0										
										EAv	110	110	0	0	100	0	0	0																				
93	1	30	MCL	0	GOOD	18				TAv	0	30	30	18	100	0	0	540	120	15		0	30	30	18	100	0	0	540	102	6	2							
										EAv	0	30	0	0	100	0	0	0																				
	2	40	HZCL	0	POOR	12	6			TAv	30	70	20	12	100	0	0	240				30	70	40	12	100	0	0	480										
										EAv	30	70	20	6	100	0	0	120																				
	3	50	HZCL	0	POOR	12	6			TAv	70	120	0	12	100	0	0	0				70	120	0	12	100	0	0	0										
										EAv	70	120	50	6	100	0	0	300																				
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				
94	1	32	SC	0	GOOD	17				TAv	0	32	32	17	100	0	0	544	120	15		0	32	32	17	100	0	0	544	104	8	2							
										EAv	0	32	0	0	100	0	0	0																				
	2	48	C	0	POOR	13	7			TAv	32	80	18	13	100	0	0	234				32	80	38	13	100	0	0	494										
										EAv	32	80	30	7	100	0	0	210																				
	3	30	C	0	POOR	13	7			TAv	80	110	0	13	100	0	0	0				80	110	0	13	100	0	0	0										
										EAv	80	110	30	7	100	0	0	210																				
	4									TAv	110	110	0	0	100	0	0	0				110	110	0	0	100	0	0	0										
										EAv	110	110	0	0	100	0	0	0																				
	5									TAv	110	110	0	0	100	0	0	0				110	110	0	0	100	0	0	0										
										EAv	110	110	0	0	100	0	0	0																				
95	1	32	MSL	0	GOOD	17				TAv	0	32	32	17	100	0	0	544	#N/A	#N/A		0	32	32	17	100	0	0	544	#N/A	#N/A	#N/A							
										EAv	0	32	0	0	100	0	0	0																				
	2	13	SL	0	#N/A	#N/A	#N/A			TAv	32	45	13	#N/A	100	0	0	#N/A				32	45	13	#N/A	100	0	0	#N/A										
										EAv	32	45	0	#N/A	100	0	0	#N/A																				
	3	45	MSL	0	POOR	11	8			TAv	45	90	5	11	100	0	0	55				45	90	25	11	100	0	0	275										
										EAv	45	90	40	8	100	0	0	320																				
	4									TAv	90	90	0	0	100	0	0	0				90	90	0	0	100	0	0	0										
										EAv	90	90	0	0	100	0	0	0																				
	5									TAv	90	90	0	0	100	0	0	0				90	90	0	0	100	0	0	0										
										EAv	90	90	0	0	100	0	0	0																				
96	1	45	MCL	0	GOOD	18				TAv	0	45	45	18	100	0	0	810	130	25		0	45	45	18	100	0	0	810	118	22	2							
										EAv	0	45	0	0	100	0	0	0																				
	2	5	HCL	0	GOOD	21	14			TAv	45	50	5	21	100	0	0	105				45	50	5	21	100	0	0	105										
										EAv	45	50	0	14	100	0	0	0																				
	3	55	C	0	POOR	13	7			TAv	50	105	0	13	100	0	0	0				50	105	20	13	100	0	0	260										
										EAv	50	105	55	7	100	0	0	385																				
	4									TAv	105	105	0	0	100	0	0	0				105	105	0	0	100	0	0	0										
										EAv	105	105	0	0	100	0	0	0																				
	5									TAv	105	105	0	0	100	0	0	0				105	105	0	0	100	0	0	0										
										EAv	105	105	0	0	100	0	0	0																				
97	1	27	MCL	0	GOOD	18				TAv	0	27	27	18	100	0	0	486	86	-19		0	27	27	18	100	0	0	486	92	-4	3a							
										EAv	0	27	0	0	100	0	0	0																				
	2	33	C	0	POOR	13	7			TAv	27	60	23	13	100	0	0	299				27	60	33	13	100	0	0	429										
										EAv	27	60	10	7	100	0	0	70																				
	3									TAv	60	60	0	0	100	0	0	0				60	60	0	0	100	0	0	0										
										EAv	60	60	0	0	100	0	0	0																				
	4									TAv	60	60	0	0	100	0	0	0				60	60	10	0	100	0	0	0										
										EAv	60	60	0	0	100	0	0	0																				
	5									TAv	60	60	0	0	100	0	0	0				60	60	0	0	100	0	0	0										
										EAv	60	60	0	0	100	0	0	0																				
98	1	35	SCL	0	GOOD	17				TAv	0	35	35	17	100	0	0	595	#N/A	#N/A		0	35	35	17	100	0	0	595	#N/A	#N/A	#N/A							
										EAv	0	35	0	0	100	0	0	0																				
	2	17	LFS	0	GOOD	15	13			TAv	35	52	15	15	100	0	0	225				35	52	17	15	100	0	0	255										
										EAv	35	52	2	13	100	0	0	26																				
	3	23	LS	0	#N/A	#N/A	#N/A			TAv	52	75	0	#N/A	100	0	0	#N/A				52	75	18	#N/A	100	0	0	#N/A										
										EAv	52	75	23	#N/A	100	0	0	#N/A																				
	4	45	C	0	POOR	13	7			TAv	75	120	0	13	100	0	0	0				75	120	0	13	100	0	0	0										
										EAv	75	120	45	7	100	0	0	315																				
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0										
										EAv	120	120	0	0	100	0	0	0																				

Data inputs										Droughtiness calculations																											
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																Limited to ALC grade
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)		Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)							
99	1	33	LS	0	GOOD	#N/A				TAv	0	33	33	#N/A	100	0	0	#N/A	#N/A	#N/A	#N/A	0	33	33	#N/A	100	0	0	#N/A	#N/A	#N/A	#N/A							
										EAv	0	33	0	0	100	0	0	0																			
	2	12	MSL	0	MODERATE	15	11			TAv	33	45	12	15	100	0	0	180				33	45	12	15	100	0	0	180									
										EAv	33	45	0	11	100	0	0	0																			
	3	25	MSL	0	MODERATE	15	11			TAv	45	70	5	15	100	0	0	75				45	70	25	15	100	0	0	375									
										EAv	45	70	20	11	100	0	0	220																			
	4	50	SL	0	#N/A	#N/A	#N/A			TAv	70	120	0	#N/A	100	0	0	#N/A				70	120	0	#N/A	100	0	0	#N/A									
										EAv	70	120	50	#N/A	100	0	0	#N/A																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
100	1	42	SCL	0	GOOD	17				TAv	0	42	42	17	100	0	0	714				0	42	42	17	100	0	0	714									
										EAv	0	42	0	0	100	0	0	0																			
	2	23	SCL	0	GOOD	19	14			TAv	42	65	8	19	100	0	0	152				42	65	23	19	100	0	0	437									
										EAv	42	65	15	14	100	0	0	210																			
	3	55	HZCL	0	POOR	12	6			TAv	65	120	0	12	100	0	0	0	141	36		65	120	5	12	100	0	0	60	121	26	1						
										EAv	65	120	55	6	100	0	0	330																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
101	1	35	MCL	0	GOOD	18				TAv	0	35	35	18	100	0	0	630				0	35	35	18	100	0	0	630									
										EAv	0	35	0	0	100	0	0	0																			
	2	40	C	0	POOR	13	7			TAv	35	75	15	13	100	0	0	195				35	75	35	13	100	0	0	455									
										EAv	35	75	25	7	100	0	0	175																			
	3	30	C	0	POOR	13	7			TAv	75	105	0	13	100	0	0	0	121	16		75	105	0	13	100	0	0	0	109	13	2						
										EAv	75	105	30	7	100	0	0	210																			
	4									TAv	105	105	0	0	100	0	0	0				105	105	0	0	100	0	0	0									
										EAv	105	105	0	0	100	0	0	0																			
	5									TAv	105	105	0	0	100	0	0	0				105	105	0	0	100	0	0	0									
										EAv	105	105	0	0	100	0	0	0																			
102	1	45	MCL	0	GOOD	18				TAv	0	45	45	18	100	0	0	810				0	45	45	18	100	0	0	810									
										EAv	0	45	0	0	100	0	0	0																			
	2	65	C	0	POOR	13	7			TAv	45	110	5	13	100	0	0	65				45	110	25	13	100	0	0	325									
										EAv	45	110	60	7	100	0	0	420																			
	3									TAv	110	110	0	0	100	0	0	0				110	110	0	0	100	0	0	0									
										EAv	110	110	0	0	100	0	0	0																			
	4									TAv	110	110	0	0	100	0	0	0	130	25		110	110	0	0	100	0	0	0	114	18	2						
										EAv	110	110	0	0	100	0	0	0																			
	5									TAv	110	110	0	0	100	0	0	0				110	110	0	0	100	0	0	0									
										EAv	110	110	0	0	100	0	0	0																			
103	1	45	MSL	0	GOOD	17				TAv	0	45	45	17	100	0	0	765				0	45	45	17	100	0	0	765									
										EAv	0	45	0	0	100	0	0	0																			
	2	45	MSL	0	MODERATE	15	11			TAv	45	90	5	15	100	0	0	75				45	90	25	15	100	0	0	375									
										EAv	45	90	40	11	100	0	0	440																			
	3	30	C	0	POOR	13	7			TAv	90	120	0	13	100	0	0	0	149	44		90	120	0	13	100	0	0	0	114	18	1						
										EAv	90	120	30	7	100	0	0	210																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
104	1	38	MSL	0	GOOD	17				TAv	0	38	38	17	100	0	0	646				0	38	38	17	100	0	0	646									
										EAv	0	38	0	0	100	0	0	0																			
	2	57	MSL	0	MODERATE	15	11			TAv	38	95	12	15	100	0	0	180				38	95	32	15	100	0	0	480									
										EAv	38	95	45	11	100	0	0	495																			
	3	25	C	0	POOR	13	7			TAv	95	120	0	13	100	0	0	0	150	45		95	120	0	13	100	0	0	0	113	17	1						
										EAv	95	120	25	7	100	0	0	175																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
105	1	26	HCL	0	GOOD	18				TAv	0	26	26	18	100	0	0	468				0	26	26	18	100	0	0	468									
										EAv	0	26	0	0	100	0	0	0																			
	2	25	HCL	0	POOR	12	7			TAv	26	51	24	12	100	0	0	288				26	51	25	12	100	0	0	300									
										EAv	26	51	1	7	100	0	0	7																			
	3	69	HZCL	0	POOR	12	6			TAv	51	120	0	12	100	0	0	0	118	13		51	120	19	12	100	0	0	228	100	4	2						
										EAv	51	120	69	6	100	0	0	414																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			

Data inputs										Droughtiness calculations																											
						Av. water (soil)		Av. water (stones)		AP wheat												AP potatoes																Limited to ALC grade
Survey Point	Horizon	Horizon thickness	Texture	Stones %	Structural condition	TAv %	EAv %	TAv %	EAv %	TAv/EAv	Start depth	End depth	Horiz. thickn.	TAv/EAv soil	% non stone	TAv/EAv stones	Stones %	AP wheat		AP(wheat) -MD(wheat)		Start depth	End depth	Horiz. thickn.	TAv top/sub soil	non-stone %	TAv stones	Stone %	AP potatoes		AP(potato) -MD(potato)							
106	1	35	MSL	0	GOOD	17				TAv	0	35	35	17	100	0	0	595				0	35	35	17	100	0	0	595									
										EAv	0	35	0	0	100	0	0	0																			
	2	20	MSL	0	GOOD	17	13			TAv	35	55	15	17	100	0	0	255				35	55	20	17	100	0	0	340									
										EAv	35	55	5	13	100	0	0	65																			
	3	65	SCL	0	MODERATE	15	10			TAv	55	120	0	15	100	0	0	0	157	52		55	120	15	15	100	0	0	225	116	20	1						
										EAv	55	120	65	10	100	0	0	650																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
107	1	29	SCL	0	GOOD	17				TAv	0	29	29	17	100	0	0	493				0	29	29	17	100	0	0	493									
										EAv	0	29	0	0	100	0	0	0																			
	2	56	SCL	0	GOOD	19	14			TAv	29	85	21	19	100	0	0	399				29	85	41	19	100	0	0	779									
										EAv	29	85	35	14	100	0	0	490																			
	3									TAv	85	85	0	0	100	0	0	0	138	33		85	85	0	0	100	0	0	0	127	32	1						
										EAv	85	85	0	0	100	0	0	0																			
	4									TAv	85	85	0	0	100	0	0	0				85	85	0	0	100	0	0	0									
										EAv	85	85	0	0	100	0	0	0																			
	5									TAv	85	85	0	0	100	0	0	0				85	85	0	0	100	0	0	0									
										EAv	85	85	0	0	100	0	0	0																			
152	1	38	MCL	0	GOOD	18				TAv	0	38	38	18	100	0	0	684				0	38	38	18	100	0	0	684									
										EAv	0	38	0	0	100	0	0	0																			
	2	37	C	0	GOOD	21	15			TAv	38	75	12	21	100	0	0	252				38	75	32	21	100	0	0	672									
										EAv	38	75	25	15	100	0	0	375																			
	3	40	C	0	GOOD	21	15			TAv	75	115	0	21	100	0	0	0	191	86		75	115	0	21	100	0	0	0	136	40	1						
										EAv	75	115	40	15	100	0	0	600																			
	4									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0									
										EAv	115	115	0	0	100	0	0	0																			
	5									TAv	115	115	0	0	100	0	0	0				115	115	0	0	100	0	0	0									
										EAv	115	115	0	0	100	0	0	0																			
153	1	41	SCL	0	GOOD	17				TAv	0	41	41	17	100	0	0	697				0	41	41	17	100	0	0	697									
										EAv	0	41	0	0	100	0	0	0																			
	2	29	SCL	0	POOR	13	8			TAv	41	70	9	13	100	0	0	117				41	70	29	13	100	0	0	377									
										EAv	41	70	20	8	100	0	0	160																			
	3	50	R	0	#N/A	#N/A	#N/A			TAv	70	120	0	#N/A	100	0	0	#N/A	#N/A	#N/A		70	120	0	#N/A	100	0	0	#N/A	#N/A	#N/A	#N/A						
										EAv	70	120	50	#N/A	100	0	0	#N/A																			
	4									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			
	5									TAv	120	120	0	0	100	0	0	0				120	120	0	0	100	0	0	0									
										EAv	120	120	0	0	100	0	0	0																			

Annex 11B.3
Laboratory Results

Sample nomenclature:

NG-YG-NOS “survey point no” “Horizon number”

Laboratory data not applicable to this site have been redacted to avoid confusion.

Survey point number corresponds with the numbers on **Figure 11.5, Volume 5, Document 5.4.11,** and in the other Annexes.

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ANALYSIS REPORT

Contact : WARDELL ARMSTRONG LLP
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H448

Please quote the above code for all enquiries

Client : GM11455GMGE

Distributor : NT54881

Local Rep : KIRSTY ELLIOTT

Telephone :

Sample Matrix : Agricultural Soil

Laboratory Reference
Card Number 69151/22

Date Received 17-May-22
Date Reported 27-May-22

SOIL ANALYSIS REPORT

Laboratory Sample Reference	Field Details			Index			mg/l (Available)		
	No.	Name or O.S. Reference with Cropping Details	Soil pH	P	K	Mg	P	K	Mg
370237/22	1	**NG-YG-NOS 77 H1** *No cropping details given*	**7.0**	**0**	**1**	**5**	**5.2**	**87**	**258**
370238/22	2	**NG-YG-NOS 77 H2** *No cropping details given*	**5.5**	**0**	**0**	**3**	**<2.5**	**37**	**170**
370239/22	3	**NG-YG-NOS 77 H3** *No cropping details given*	**5.2**	**0**	**1**	**4**	**<2.5**	**66**	**200**
370240/22	4	**NG-YG-NOS 85 H1** *No cropping details given*	**7.2**	**0**	**2-**	**4**	**9.0**	**126**	**229**
370241/22	5	**NG-YG-NOS 98 H1** *No cropping details given*	**6.2**	**2**	**1**	**3**	**20.8**	**104**	**107**

If general fertiliser and lime recommendations have been requested, these are given on the following sheets.
The analytical methods used are as described in DEFRA Reference Book 427
The index values are determined from the AHDB Fertiliser Recommendations RB209 9th Edition.

Released by Sandy Cameron On behalf of NRM Date 27/05/22

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MICRO NUTRIENT REPORT

DATE **27th May 2022**

SAMPLES FROM **GM11455GMGE**

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NE1 4DP

Tel: [redacted]

Reference: **69151/370237/22**	Field Name: **NG-YG-NOS 77 H1**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		5.3	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		4						
Silt (0.063 - 0.002mm) %		42						
Clay (< 0.002mm) %		54						
Textural Classification		Clay	2					

Reference: **69151/370238/22**	Field Name: **NG-YG-NOS 77 H2**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		1.3	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		74						
Silt (0.063 - 0.002mm) %		12						
Clay (< 0.002mm) %		14						
Textural Classification		Sandy Loam	2					

Reference: **69151/370239/22**	Field Name: **NG-YG-NOS 77 H3**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		3.0	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		5						
Silt (0.063 - 0.002mm) %		41						
Clay (< 0.002mm) %		54						
Textural Classification		Clay	2					

Reference: **69151/370240/22**	Field Name: **NG-YG-NOS 85 H1**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		5.8	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		1						
Silt (0.063 - 0.002mm) %		40						
Clay (< 0.002mm) %		59						
Textural Classification		Clay	2					

Reference: **69151/370241/22**	Field Name: **NG-YG-NOS 98 H1**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		3.5	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		66						
Silt (0.063 - 0.002mm) %		14						
Clay (< 0.002mm) %		20						
Textural Classification		Sandy Clay Loam	2					

Notes (*)

(1) NRM considers Organic soils to contain between 10-20% organic material with Peaty soils containing over 20% . The optimum ranges for Organic Matter which have been set are dependent on the soil type and the cropping but these must be viewed as guidance values only.

(2) In calcareous soils the sand, silt and clay sized fractions are likely to contain particles of carbonate which may result in the incorrect classification of soil type.

ANALYSIS REPORT

DATE 27th May 2022
SAMPLES FROM GM11455GMGE

SAMPLED BY KIRSTY ELLIOTT
NT54881

Report reference 69151/22

WARDELL ARMSTRONG LLP
CITY QUADRANT
11 WATERLOO SQUARE
NEWCASTLE UPON TYNE
NE1 4DP

Tel: [redacted]

Fertiliser Recommendations

The phosphate and potash recommendations shown below, are those required to replace the offtake and maintain target soil indices. The larger recommended applications for soils below target index will allow the soil to build up to this target index over a number of years. Not applying fertiliser to soils which are above target index will allow the soil to run down over a number of years to the target index.
The recommendation should be increased or decreased where yields are substantially more or less than that specified. The amount to apply can be calculated using the expected yield and values for the offtake of phosphate and potash per tonne of yield given in the RB209 9th edition.
All recommendations are given for the mid-point of each Index.
Where a soil analysis value (as given by the laboratory) is close to the range of an adjacent Index, the recommendation may be reduced or increased slightly taking account of the recommendation given for the adjacent Index. Small adjustments of less than 10 kg/ha are generally not justified.
Efficient use of P and K is most likely to be achieved on soils that are well structured and enable good rooting.
For visual evaluation of soil structure (VESS), a score on 1 or 2 would be considered adequate.
Don't forget to deduct nutrients applied as organic manures.
For Nitrogen recommendations please refer to the RB209 9th edition or seek advice from an FACTS qualified adviser.
Target Indices:
Arable, Forage, Grassland and Potato Crops: P Index 2, K Index 2-
(In rotations where most crops are Autumn-sown, soils are in good condition and P is applied annually, high index 1 can be an adequate target.)
Vegetables and Bulbs: P Index 3, K Index 2+
(If vegetables are only grown occasionally as part of an arable rotation, it would be most economic to target index 2 for arable and forage crops.)
Fruit Vines and Hops: P Index 2, K Index 2, Mg Index 2
(Note: Cider apples respond to K Index 3, Mg Index 3)
A lime recommendation is usually for a 20cm depth of cultivated soil or a 15cm depth of grassland soil. Where soil is acid below 20 cm and soils are ploughed for arable crops, a proportionately larger quantity of lime should be applied. However, if more than 10 t/ha is needed, half should be deeply cultivated into the soil and ploughed down, with the remainder applied to the surface and worked in.
For established grassland or other situations where there is no, or only minimal soil cultivation, no more than 7.5 t/ha of lime should be applied in one application.
In these situations, applications of lime change the pH below the surface very slowly. Consequently, the underlying soil should not be allowed to become too acidic because this will affect the root growth and thus limit nutrient and water uptake, which will adversely affect yield.

Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*		*Lime (Arable)*	*(Grass)*
NG-YG-NOS 77 H1	**Not Given / Not Given**	*Units/Acre*				*T/Ac*	**0**	**0**
370237 / Heavy		*Kg/Ha*				*Te/Ha*	**0**	**0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*		*Lime (Arable)*	*(Grass)*
NG-YG-NOS 77 H2	**Not Given / Not Given**	*Units/Acre*				*T/Ac*	**3.4**	**1.5**
370238 / Medium		*Kg/Ha*				*Te/Ha*	**8.4**	**3.7**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*		*Lime (Arable)*	*(Grass)*
NG-YG-NOS 77 H3	**Not Given / Not Given**	*Units/Acre*				*T/Ac*	**4.9**	**2.4**
370239 / Heavy		*Kg/Ha*				*Te/Ha*	**12.0**	**6.0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*		*Lime (Arable)*	*(Grass)*
NG-YG-NOS 85 H1	**Not Given / Not Given**	*Units/Acre*				*T/Ac*	**0**	**0**
370240 / Heavy		*Kg/Ha*				*Te/Ha*	**0**	**0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*		*Lime (Arable)*	*(Grass)*
NG-YG-NOS 98 H1	**Not Given / Not Given**	*Units/Acre*				*T/Ac*	**1.4**	**0**
370241 / Medium		*Kg/Ha*				*Te/Ha*	**3.5**	**0**

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

ANALYSIS REPORT

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Please quote the above code for all enquiries

Client : GM11455GMGE

Distributor : NT54881

Local Rep : KIRSTY ELLIOTT

Telephone :

Sample Matrix : Agricultural Soil

Laboratory Reference
Card Number 69150/22

Date Received 17-May-22
Date Reported 27-May-22

SOIL ANALYSIS REPORT

Laboratory Sample Reference	Field Details			Index			mg/l (Available)		
	No.	Name or O.S. Reference with Cropping Details	Soil pH	P	K	Mg	P	K	Mg
[redacted]									
370232/22	6	**NG-YG-NOS 80 H1** *No cropping details given*	**7.4**	**1**	**1**	**5**	**11.0**	**84**	**257**

If general fertiliser and lime recommendations have been requested, these are given on the following sheets.
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The index values are determined from the AHDB Fertiliser Recommendations RB209 9th Edition.

Released by Sandy Cameron On behalf of NRM Date 27/05/22

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ANALYSIS REPORT

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Sample Matrix : Agricultural Soil

Laboratory Reference
Card Number 69150/22

Date Received 17-May-22
Date Reported 27-May-22

SOIL ANALYSIS REPORT

Laboratory Sample Reference	Field Details			Index			mg/l (Available)		
	No.	Name or O.S. Reference with Cropping Details	Soil pH	P	K	Mg	P	K	Mg
370233/22	7	**NG-YG-NOS 80 H2** *No cropping details given*	**7.7**	**0**	**1**	**6**	**3.8**	**81**	**545**
370234/22	8	**NG-YG-NOS 80 H3** *No cropping details given*	**7.9**	**0**	**1**	**7**	**<2.5**	**73**	**995**
370235/22	9	**NG-YG-NOS 107 H1** *No cropping details given*	**6.6**	**2**	**2-**	**3**	**21.6**	**155**	**167**
370236/22	10	**NG-YG-NOS 107 H2** *No cropping details given*	**7.0**	**0**	**1**	**3**	**9.2**	**112**	**151**

If general fertiliser and lime recommendations have been requested, these are given on the following sheets.
The analytical methods used are as described in DEFRA Reference Book 427
The index values are determined from the AHDB Fertiliser Recommendations RB209 9th Edition.

Released by Sandy Cameron On behalf of NRM Date 27/05/22

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MICRO NUTRIENT REPORT

DATE **27th May 2022**

SAMPLES FROM **GM11455GMGE**

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NEWCASTLE UPON TYNE
NE1 4DP

Tel: [redacted]

[redacted]

Reference: **69150/370232/22** Field Name: **NG-YG-NOS 80 H1**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %	6.3	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %	0						
Silt (0.063 - 0.002mm) %	39						
Clay (< 0.002mm) %	61						

Reference: **69150/370233/22** Field Name: **NG-YG-NOS 80 H2**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %	4.5	1	*OM level data not available for this crop*				

Report continued.....

MICRO NUTRIENT REPORT

DATE **27th May 2022**

SAMPLES FROM **GM11455GMGE**

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CITY QUADRANT
11 WATERLOO SQUARE
NEWCASTLE UPON TYNE
NE1 4DP

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Reference: **69150/370233/22**	Field Name: **NG-YG-NOS 80 H2**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Sand (2.00 - 0.063mm) %		0						
Silt (0.063 - 0.002mm) %		36						
Clay (< 0.002mm) %		64						

Reference: **69150/370234/22**	Field Name: **NG-YG-NOS 80 H3**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		3.7	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		2						
Silt (0.063 - 0.002mm) %		45						
Clay (< 0.002mm) %		53						
Textural Classification		Silty Clay	2					

Reference: **69150/370235/22**	Field Name: **NG-YG-NOS 107 H1**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		2.5	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		55						
Silt (0.063 - 0.002mm) %		19						
Clay (< 0.002mm) %		26						
Textural Classification		Sandy Clay Loam	2					

Reference: **69150/370236/22**	Field Name: **NG-YG-NOS 107 H2**	**Result**	**(*)**	**Deficient**	**Marginal**	**Target**	**Marginal**	**Excessive**
Organic matter (LOI) %		1.5	1	*OM level data not available for this crop*				
Sand (2.00 - 0.063mm) %		63						
Silt (0.063 - 0.002mm) %		17						
Clay (< 0.002mm) %		20						
Textural Classification		Sandy Clay Loam	2					

Notes (*)

(1) NRM considers Organic soils to contain between 10-20% organic material with Peaty soils containing over 20% . The optimum ranges for Organic Matter which have been set are dependent on the soil type and the cropping but these must be viewed as guidance values only.

(2) In calcareous soils the sand, silt and clay sized fractions are likely to contain particles of carbonate which may result in the incorrect classification of soil type.

ANALYSIS REPORT

DATE	27th May 2022
SAMPLES FROM	GM11455GMGE
SAMPLED BY	KIRSTY ELLIOTT NT54881
Report reference	69150/22

WARDELL ARMSTRONG LLP
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11 WATERLOO SQUARE
NEWCASTLE UPON TYNE
NE1 4DP

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Fertiliser Recommendations

The phosphate and potash recommendations shown below, are those required to replace the offtake and maintain target soil indices. The larger recommended applications for soils below target index will allow the soil to build up to this target index over a number of years. Not applying fertiliser to soils which are above target index will allow the soil to run down over a number of years to the target index.
The recommendation should be increased or decreased where yields are substantially more or less than that specified. The amount to apply can be calculated using the expected yield and values for the offtake of phosphate and potash per tonne of yield given in the RB209 9th edition.
All recommendations are given for the mid-point of each Index.
Where a soil analysis value (as given by the laboratory) is close to the range of an adjacent Index, the recommendation may be reduced or increased slightly taking account of the recommendation given for the adjacent Index. Small adjustments of less than 10 kg/ha are generally not justified.
Efficient use of P and K is most likely to be achieved on soils that are well structured and enable good rooting.
For visual evaluation of soil structure (VESS), a score on 1 or 2 would be considered adequate.
Don't forget to deduct nutrients applied as organic manures.
For Nitrogen recommendations please refer to the RB209 9th edition or seek advice from an FACTS qualified adviser.
Target Indices:
Arable, Forage, Grassland and Potato Crops: P Index 2, K Index 2-
(In rotations where most crops are Autumn-sown, soils are in good condition and P is applied annually, high index 1 can be an adequate target.)
Vegetables and Bulbs: P Index 3, K Index 2+
(If vegetables are only grown occasionally as part of an arable rotation, it would be most economic to target index 2 for arable and forage crops.)
Fruit Vines and Hops: P Index 2, K Index 2, Mg Index 2
(Note: Cider apples respond to K Index 3, Mg Index 3)
A lime recommendation is usually for a 20cm depth of cultivated soil or a 15cm depth of grassland soil. Where soil is acid below 20 cm and soils are ploughed for arable crops, a proportionately larger quantity of lime should be applied. However, if more than 10 t/ha is needed, half should be deeply cultivated into the soil and ploughed down, with the remainder applied to the surface and worked in.
For established grassland or other situations where there is no, or only minimal soil cultivation, no more than 7.5 t/ha of lime should be applied in one application.
In these situations, applications of lime change the pH below the surface very slowly. Consequently, the underlying soil should not be allowed to become too acidic because this will affect the root growth and thus limit nutrient and water uptake, which will adversely affect yield.

[redacted]

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

Report continued.....

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Fertiliser Recommendations

Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
NG-YG-NOS 80 H1	**Not Given / Not Given**	*Units/Acre*				*T/Ac* **0**	**0**
370232 / Heavy		*Kg/Ha*				*Te/Ha* **0**	**0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
NG-YG-NOS 80 H2	**Not Given / Not Given**	*Units/Acre*				*T/Ac* **0**	**0**
370233 / Heavy		*Kg/Ha*				*Te/Ha* **0**	**0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
NG-YG-NOS 80 H3	**Not Given / Not Given**	*Units/Acre*				*T/Ac* **0**	**0**
370234 / Heavy		*Kg/Ha*				*Te/Ha* **0**	**0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
NG-YG-NOS 107 H1	**Not Given / Not Given**	*Units/Acre*				*T/Ac* **0**	**0**
370235 / Medium		*Kg/Ha*				*Te/Ha* **0**	**0**
Field Name / Ref / Soil Type	*Last Crop / Next Crop*		*P2O5*	*K2O*	*MgO*	*Lime (Arable)*	*(Grass)*
NG-YG-NOS 107 H2	**Not Given / Not Given**	*Units/Acre*				*T/Ac* **0**	**0**
370236 / Medium		*Kg/Ha*				*Te/Ha* **0**	**0**

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