MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Environmental Statement

Volume 3, Annex 6.2: Agricultural land classification survey results

Date: September 2024
Rev: Final Issue
MRCNS-J3303-RPS-10137
MOR001-FLO-CON-ENV-RPT-0093
PINS Reference: EN020028
APFP Regulations: 5(2)(a)
Document reference: F3.6.2

Document status					
Version	**Purpose of document**	**Approved by**	**Date**	**Approved by**	**Date**
ES	For issue	AS	September 2024	IM	September 2024

Prepared by:

RPS

Prepared for:

Morgan Offshore Wind Limited
Morecambe Offshore Windfarm Ltd

Contents

Tables

Figures

Appendices

Glossary

Term	Meaning
Agricultural Land Classification	Agricultural Land Classification is a system used in England and Wales to grade the quality of land for agricultural use. The land is classified into five grades, with 1 being the best and 5 being the worst. The classification is based on the extent of limitations on agricultural use for food production, including climate, gradient, soil depth, wetness, droughtiness, and stoniness.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Soil Associations	Soil Associations are groups of soils that share similar characteristics and are often found together in the landscape. These associations are typically named after the dominant soil series or groups within them.
Soil Wetness Class	Soil Wetness Class is one of the criteria used in the assessment of Agricultural Land Classification (ALC). There are six distinct soil wetness classes ranging from I (least wet) to VI (most wet).
Study area	This is an area which is defined for each environmental topic which includes the Transmission Assets Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
Survey area	The area within which each survey has been undertaken. This may differ from the Study Area as a Survey Area will be based on species or survey-specific guidance on the extent of survey required, which may be limited by, for example, habitat conditions, or be defined in terms of buffer areas around an area of potential impact.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits: Onshore	The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds). Also referred to in this report as the Onshore Order Limits, for ease of reading.

Acronyms

Acronym	Meaning
ALC	Agricultural Land Classification

Acronym	Meaning
ALC	Agricultural Land Classification
EIA	Environmental Impact Assessment
MAFF	Ministry of Agriculture, Fisheries and Food
MHWS	Mean High Water Springs

Units

Unit	Description
cm	Centimetre
kV	Kilovolt
m	Metre

1 Agricultural land classification survey results

1.1 Introduction

1.1.1.1 This document forms Volume 3, Annex 6.2: Agricultural land classification survey results of the Environmental Statement (ES) prepared for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (referred to hereafter as 'the Transmission Assets'). The Environmental Statement presents the findings of the Environmental Impact Assessment (EIA) process for the Transmission Assets.

1.1.1.2 This technical report provides results of the hand auger boring soil surveys within the Onshore Order Limits. This information has been used to inform relevant sections of Volume 3, Chapter 6: Land use and recreation of the ES.

1.2 Site-specific surveys

1.2.1 Survey area

1.2.1.1 The survey area comprised areas of agricultural land located within the Onshore Order Limits, landward of Mean High Water Springs (MHWS) where:

- There would be a permanent loss of agricultural land associated with onshore substations including associated permanent access tracks; and
- Areas of land located along the onshore export cable corridor and 400 kV grid connection cables corridor, including associated temporary construction compounds and temporary construction access, where representative locations of several main soil types were identified.

1.2.1.2 Although the proposed biodiversity benefit and ecological mitigation areas would result in a change in land use, the soils would remain *in situ* during construction. As such, the biodiversity benefit areas, ecological mitigation areas and enhancement areas have not been subject to soil surveys.

1.2.1.3 The location and geographic extent of the survey area is provided in to **Figure 1.1** to **Figure 1.6** of this technical report.

1.2.2 Methodology

1.2.2.1 The soils survey were undertaken using a 1.2 m Dutch hand auger to examine soil samples on site at approximately 100 m intervals within the survey area in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) Agricultural Land Classification (ALC) of England and Wales, Revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988).

1.2.2.2 The location of representative auger boring surveys were chosen to reflect the main soil types identified within the Onshore Order Limits, according to the desktop information presented in Volume 3, Annex 6.1: Published soils and agricultural land classification data technical report of the ES.

1.2.2.3 In addition, the auger boring data has been supplemented by the examination of dug archaeological trenches available at the time of survey, together with the excavation of six further soil pits to identify soil structural characteristics and other soil profile characteristics noted during the auger boring survey in the main soil types. Further information regarding the archaeological investigations undertaken to date can be found in Volume 3, Annex 5.6: Interim trial trenching report of the ES.

1.2.2.4 The results of the soil auger boring surveys undertaken within the Onshore Order Limits, including the soil series, provisional ALC and surveyed ALC grade are presented in **Table 1.1** to **Table 1.9** below.

1.2.2.5 The results of the soil auger boring surveys undertaken within the Morgan onshore substation site and Morecambe substation site, including the associated permanent access tracks are presented in **Table 1.7**. This is indicated by the survey numbers being proceeded by an 'S' (e.g. S01).

1.2.2.6 The location of soil auger boring surveys within the Onshore Order Limits is provided in to **Figure 1.1** to **Figure 1.6** of this technical report. Soil auger boring surveys undertaken at the onshore substations are included in **Figure 1.4** and **Figure 1.5**. This is indicated by the survey numbers being proceeded by an 'S' (e.g. S01).

1.2.2.7 The results of the soil pits, including the soil pit number, location, depth and description of soils within the Onshore Order Limits is presented in at the end of **Table 1.2** and **Table 1.9** where relevant.

1.2.2.8 Soil sample textural analysis is provided in **Appendix A** at the end of this technical report.

1.2.3 Survey data

Key to auger boring data

1.2.3.1 **Table 1.1** provides a key for the auger boring data provided in **Table 1.2** to **Table 1.9**, including definitions for each abbreviation used.

Table 1.1: Key to auger boring data

Abbreviation	Definition
Textures	
Msl	Medium sandy loam
Lms	Loamy medium sand
Lfs	Loamy fine sand
Szl	Sandy silt loam

Abbreviation	Definition
Ms	Medium sand
Zl	Silt loam
Scl	Sandy clay loam
Mcl	Medium clay loam
Mzcl	Medium silty clay loam
Hcl	Heavy clay loam
Hzcl	Heavy silty clay loam
C	Clay
Sc	Sandy clay
Zc	Silty clay
(o)	Organic
Colours	
Vdb	Very dark brown
Db	Dark brown
Dgb	Dark grey brown
Dg	Dark grey
Gb	Grey brown
Lbg	Light brownish grey
Yb	Yellowish brown
Rb	Reddish brown
Others	
Cdom	Common distinct ochreous mottles
Fdom	Few distinct ochreous mottles
v.sl.st	Very slightly stony
SPL	Slowly permeable layer

Soil auger boring data

1.2.3.2 **Table 1.2** to **Table 1.9** provide the results of the soil auger boring surveys undertaken within Area 1 to Area 8, including the soil series and surveyed ALC grade.

Table 1.2: Soil auger borings - Area 1

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Doughtiness	ALC Limitation	Grade
101	0 – 35	Vdb	10 YR 2/2	Omcl					
	35 – 90+	G	5Y 6/1	Zc	Cdom	IV	N/A	Wetness	3b
102	0 – 35	Vdb	10 YR 2/2	Omcl					
	35 – 90+	G	5Y 6/1	Zc	Cdom	IV	N/A	Wetness	3b
103	0 – 32	Vdb	10 YR 2/2	Ohcl					
	32 – 90+	G	5Y 6/1	Zc	Cdom	IV	N/A	Wetness	3b/4
104	0 – 32	Vdb	10 YR 2/2	Ohcl					
	32 – 90+	G	5Y 6/1	Zc	Cdom	IV	N/A	Wetness	3b/4
105	0 – 32	Vdb	10 YR 2/2	Oszl		II	N/A	Wetness	2
	32 – 75	Lbg	10YR 6/2	szl					
	75 – 95+	Lbg	10YR 6/2	Mzcl	Cdom				
106	0 – 32	Vdb	10 YR 2/2	Peaty (TS3)		II	N/A	Wetness	2
	32 – 75	Lbg	10YR 6/2	szl					
	75 – 95+	Gb		Mzcl	Cdom				
107	0 – 30	Vdb	10 YR 2/2	Omcl		II	N/A	Wetness	3a
	30 – 65	Lbg	10YR 6/2	mcl	Fdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Doughtiness	ALC Limitation	Grade
	65 – 80+	G	5Y 6/1	Zc	Fsl patches; cdom; lying wet				
108	0 – 28	Vdb	10 YR 2/2	Omcl		II	N/A	Wetness	2
	28- 80	Lbg	10YR 6/2	Mcl	Fdom				
	80 – 100+	Lbg	10YR 6/2	Mzcl	cdom				
109	0 – 30	Vdb	10 YR 2/2	Omcl		II	N/A	Wetness	3a
	30 – 65	Lbg	10YR 6/2	Fsl	Fdom				
	65 – 80+	G	5Y 6/1	Zc	Fsl patches; cdom; lying wet				
110	0 – 30	Vdb	10 YR 2/2	Omcl		II	N/A	Wetness	3a
	30 – 65	Lbg	10YR 6/2	Fsl	Fdom				
	65 – 80+	G	5Y 6/1	Zc	Fsl patches; cdom; lying wet				

Table 1.3: Soil auger borings - Area 2

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
201.	0 – 30	VDB	10 YR 2/2	Omcl		I	N/A	Wetness	2
	30 – 70	DB	10 YR 4/3	Omcl					
	70 – 100+	BL	10YR 2/1	peaty					

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
202.	0 – 30	VDB	10 YR 2/2	OC	TS1 sample	IV	N/A	Wetness	3b
	29 – 60+	GB	10YR 5/2	C	Cdom SPL				
203.	0 – 29	VDB	10 YR 2/2	Omcl		III	N/A	Wetness	3a
	29 – 58	DB	10 YR 4/3	Omcl					
	58 -90+	G	5Y 6/1	ZC	Cdom SPL				
204.	0 – 29	VDB	10 YR 2/2	Omcl		III	N/A	Wetness	3a
	29 – 55	DB	10 YR 4/3	Omcl					
	50 -90+	G	5Y 6/1	ZC	Cdom SPL				
205	0 – 29	VDB	10 YR 2/2	Omcl		III	N/A	Wetness	3a
	29 – 55	DB	10 YR 4/3	Omcl					
	55 -90+	G	5Y 6/1	ZC	Cdom SPL				
206	0 – 30	VDB	10 YR 2/2	Omcl		III	N/A	Wetness	3a
	30 – 60	DB	10 YR 4/3	Omcl					
	60 -90+	G	5Y 6/1	ZC	Cdom SPL				
207.	0 – 30	VDB	10 YR 2/2	Ohcl		IV	N/A	Wetness	3b
	30 – 80+	G	5Y 6/1	ZC	Cdom; think clay SPL				
208	0 – 30	VDB	10 YR 2/2	Ohcl		IV	N/A	Wetness	3b
	30 – 80+	G	5Y 6/1	ZC	Cdom; think clay SPL				
209.	0 – 30	VDB	10 YR 2/2	Omcl		III	N/A	Wetness	3a

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	30 - 65	Db	10 YR 3/3	Hcl	Few brownish and greyish mottles				
	65 – 90+	G	5 y 6/1		Cdom SPL				
210.	0 – 29	VDB	10 YR 2/2	Omcl		III	N/A	Wetness	3a
	29 – 60	G	5 y 6/1	Lfs	Cdom				
	60 – 100+	G	5 y 6/1	ZC	Cdom; lfs lenses SPL				
211.	0 – 30	Vdb	10 YR 2/2	Omcl	PIT and TS2 (Deep trench location)	II	N/A	Wetness	3a
	30 – 80	Gb	10 YR 5/2	mzcl	Cdom				
	80 – 150+	G	5 y 6/1	Hzcl/ZC	Cdom SPL – lenses of fine sandy material evident within the heavier matrix				
212.	0 – 30	Vdb	10 YR 2/2	Ozl	Omcl	III	N/A	Wetness	3a
	30 – 55	Gb	10 YR 5/2	mzcl	cdom				
	55 – 70	G	5 y 6/1	hzcl	Cdom SPL				
	70 – 100+	G	5y 6/1	Hzcl	Mixed fine sandy lenses within matrix				
213.	0 – 29	Vdb	10 YR 2/2	OMzcl		1	N/A	Wetness	2

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	29 – 65	Gb	10 YR 5/2	Mzcl	cdom				
	65 – 95+	PG	10 YR 7/2	Mzcl	Some light sandy material; cdom				
214	0 – 28	Db	10 YR 3/3	Szl		III		Wetness	3a
	28 – 60	Gb	10 YR 5/2	Lfs	Few brownish mottles				
	60 – 90+	G	5 YR 6/1	Zc	Thick clay ; cdom SPL				
215.	0 – 28	Db	10 YR 3/3	Szl		III	N/A	Wetness	3a
	28 – 60	Gb	10 YR 5/2	mzcl	Few brownish mottles				
	60 – 90+	G	5 YR 6/1	Zc	Thick clay ; cdom SPL				

Soil Pit – From Trench close to Boring 211 and archaeological trench. Altcar/Downholland

1.2.3.3 0 – 29cm very dark brown (10YR 2/2) organic medium clay loam; grass roots; moist.

1.2.3.4 29 – 75cm greyish brown (10 YR 5/2) medium silty clay loam; some lenses of fine sandy material; moderately developed medium to coarse angular blocky structure; common distinct ochreous mottles; few mn concretions.

1.2.3.5 75 – 90+cm grey tending to dark grey 5 y 6/1 clay; lenses of fine sand material; coarse prismatic structure; prominent ochreous mottling; slowly permeable layer.

Table 1.4: Soil auger borings - Area 3

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
301	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25-55	Gb	10 YR 5/2	Mzcl	Cdom and mn concs				
	55 – 75	Lbg	10 YR 6/2	Hzcl	Cdom; mn; SPL				
	75 -95+	Gb	10 YR 5/2	Zl	Cdom; lighter				
302	0 – 20	Vdb	10 YR 2/2	Ozl		II	N/A	Wetness	2
	20 - 75	Gb	10 YR 5/2	Zl	cdom				
	75 – 100+	Gb/g		Fs	Plus grey clayey lenses cdom				
303	0 – 25	Db	10 YR 3/3	Mzcl	TS 10	II	N/A	Wetness	3a
	25 – 60	Gb	10 YR 5/2	Mzcl	cdom				
	60 – 85	Gb	10 YR 5/2	Szl	cdom				
	85 – 100+	Lbg	10 YR 6/2	Hzcl	Cdom				
304	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 60	Gb	10 YR 5/2	Mzcl	cdom				
	60 – 95+	Gb	10 YR 5/2	Szl	cdom				
305	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 60	Gb	10 YR 5/2	Mzcl	cdom				
	60 – 85	Gb	10 YR 5/2	Szl	cdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	85 – 100+	Lbg	10 YR 6/2	Hzcl	Cdom				
306	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 60	Gb	10 YR 5/2	Mzcl	cdom				
	60 – 90	Gb	10 YR 5/2	Szl	cdom				
	90 – 100+	Lbg	10 YR 6/2	Hcl	Cdom				
307	0 – 22	Vdb	10 YR 2/2	Mzcl		II	N/A	Wetness	3a
	22 – 80	Gb	10 YR 5/2	Mzcl	cdom				
	80 – 00+	G	5 YR 6/1	Zl	Cdom; lying wet				
308	0 – 24	Vdb	10 YR 2/2	Mzcl		II	N/A	Wetness	3a
	24 – 80	Gb	10 YR 5/2	Mzcl	cdom				
	80 – 00+	G	5 YR 6/1	Zl	Cdom; lying wet				
309	0 – 25	Db	10 YR 3/3	Mzcl		I	N/A	Wetness	2
	25 – 45	Gb	10 YR 5/2	Mzcl	Few o m				
	45 – 100+	Gb	10 YR 5/2	Lfs	Few o m				
310	0 – 25	Db	10 YR 3/3	Mzl	(lighter top)	I	N/A	Wetness	2
	25 – 45	Gb	10 YR 5/2	Mzcl	Few o m				
	45 – 100+	Gb	10 YR 5/2	Lfs	Few o m				
311	0 – 30	Vdb	10 YR 2/2	Omcl	Wet low lying area	IV	N/A	Wetness	3b

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	30 -65	G	5 YR 6/1	C	Cdom SPL here				
	65 – 95+	Gb	10 YR 5/2	Hzcl	Cdom				
312	0 – 25	Db	10 YR 3/3	Mzcl		I	N/A	Wetness	2
	25 – 45	Gb	10 YR 5/2	Mzcl	Few o m				
	45 – 100+	Gb	10 YR 5/2	Lfs	Few o m				
313	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 60	Gb	10 YR 5/2	Mzcl	cdom				
	60 – 90	Gb	10 YR 5/2	Szl	cdom				
	90 – 100+	Lbg	10 YR 6/2	Hcl	Cdom				
314	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 55	Gb	10 YR 5/2	Mzcl	cdom				
	55 – 85	Gb	10 YR 5/2	Szl	cdom				
	85 – 100+	Lbg	10 YR 6/2	Hcl	Cdom				
315	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 60	Gb	10 YR 5/2	Mzcl	cdom				
	60 – 90	Gb	10 YR 5/2	Szl	cdom				
	90 – 100+	Lbg	10 YR 6/2	Hcl	Cdom				
316	0 – 25	Db	10 YR 3/3	Mzcl		II	N/A	Wetness	3a
	25 – 55	Gb	10 YR 5/2	Mzcl	cdom				
	55 – 85	Gb	10 YR 5/2	Szl	cdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	85 – 100+	Lbg	10 YR 6/2	Hcl	Cdom				

Soil Pit – Close to Auger Boring 304 (Downholland)

1.2.3.6 0 – 25cm dark brown (10 YR 3/3) medium silty clay loam (TS non- organic confirmed); grass roots; moist.

1.2.3.7 25 – 55cm greyish brown medium silty clay loam; moderately developed medium subangular blocky structure; moist; firm; common distinct ochreous mottling; few grass roots

1.2.3.8 55 – 75+cm greyish brown tending to grey 2.5 Y 6/2 mzcl with fine sandy lenses (textures like a szl); medium angular blocky but platy in areas where sandy material is located.

Table 1.5: Soil auger borings - Area 4

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
401	0 – 35	Vdb	10 YR 2/2	Oc	Wet (TS 11) Altcar				
	35 – 100+	Black		Peat	Waterlogged from 70cm +	IV	N/A	Wetness	4
402	0 – 35	Vdb	10 YR 2/2	Oc	Wet				
	35 – 100+	Black		Peat	Waterlogged from 70cm +	IV	N/A	Wetness	4
403	0 – 32	Vdb	10 YR 2/2	OHzcl	Higher elevation here -moving off the organic and peaty lower lying areas	IV	N/A	Wetness	

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	32 – 60	G	5 YR 6/1	Hcl	Cdom				
	60 – 85+	G	5 YR 6/1	C	Cdom; SPL				
404	0 – 27	Vdb	10 YR 2/2	M/Hcl	Moving to Cottam series; very slighty stony	IV	N/A	Wetness	3b
	27 – 45	Db	10 YR 3/3	hcl	Cdom; very slightly stony				
	45 – 70+	Rb	5 YR 5/4	C	Thick SPL				
405	0 – 26	Dgb	10YR 4/2	Mcl	Very slightly stony	IV	N/A	Wetness	3b
	26 -30	Gb	10 YR 5/2	hcl	Cdom ; very slightly stony				
	30 – 70+	Rb	5 YR 5/4	C	Common brownish mottles; mn; thick and plastic; SPL				
406	0 – 26	Db	10 YR 3/3	Mcl	Very slightly stony	IV	N/A	Wetness	3b
	26 – 35	Db	10 YR 3/3	Mcl	Cdom; very slight stony				
	35 – 50	Gb	10 YR 5/2	Scl	cdom				
	50 – 90+	Rb	5 YR 5/4	C	Brownish mottling				
407	0 – 25	Vdb	10 YR 2/2	Ohcl		IV	N/A	Wetness	4

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	25 – 35	Black		Peaty					
	35 – 70	Gb	10 YR 5/2	Scl	Cdom; gritty and wet				
	70 – 90+	Gb/rb	10 YR 5/2	C	Sandy patches; wet cdom; SPL				

Soil Pit – Close to Boring 405 (Cottam)

1.2.3.9 0 – 25cm dark grey brown (10 YR 4/2) medium clay loam (tending to heavy clay loam); common roots; very slightly stony (2-3% stone).

1.2.3.10 25 – 32cm grey brown (10 YR 5/2); heavy clay loam; very slightly stony (2-3%); common distinct ochreous mottles; weakly developed medium to coarse subangular blocky; firm; few roots.

1.2.3.11 32 – 60cm+ reddish brown (5YR 5/4) clay; common brownish mottles; moderately developed prismatic structure; soft.

Table 1.6: Soil auger borings - Area 5

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
501	0 – 25	Dgb	10YR 4/2	Mcl	cdom		N/A		
	25 – 35	Gb	10 YR 5/2	Mcl	Cdom				
	40 – 65	Rb	5 YR 5/4	Sc	Cdom SPL	IV		Wetness	3b
502	0 -25	Dgb	10YR 4/2	Hcl	Fdom (TS20)	III	N/A	Wetness	3b
	25 – 35	Gb	10 YR 5/2	Hcl	Cdom				
	35-50	G	10 YR 6/1	Hcl	Cdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	50 – 60	G	10 YR 6/1	Scl	cdom				
	60 – 75+	Rb	5 YR 5/4	C	Com SPL				
503	0 – 25	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	25 – 45	Rb	5 YR 5/4	Mcl	cdom				
	45 – 55	Gb	10 YR 5/2	Hcl	cdom				
	55- 75	Rb	5 YR 5/4	C	Cdom SPL				
504	0 -22	Dgb	10YR 4/2	Mcl	cdom	IV	N/A	Wetness	3b
	22 – 30	Gb	10 YR 5/2	Hcl	cdom				
	30 – 45	Gb/rb	10 YR 5/2	Hcl	cdom				
	45 – 70+	Rb	5 YR 5/4	C	Common brown mottles SPL				
505	0 – 25	Dgb	10YR 4/2	Mcl	cdom	IV	N/A	Wetness	3b
	25 – 40	Gb	10 YR 5/2	Mcl	Cdom				
	40 – 50	Rb	5 YE 4/3	Hcl	Common brown mottles				
	50- 70	Rb	5 YR 5/4	C	Scl pockets common brownish mottles				
506	0 – 25	Dgb	10YR 4/2	Hcl (TS21)		IV	N/A	Wetness	3b
	25 – 35	Gb	10 YR 5/2	Hcl					
	35 – 70+	G	10 YR 6/1	C	Cdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
507	0 – 25	Db	10 YR 3/3	Mcl	Fom	IV	N/A	Wetness	3b
	25 – 35	Gb	10 YR 5/2	Scl	cdom				
	35-60+	Rb	5 YR 5/4	C	Pl; mn concs, common brownish mottles				
508	0 – 26	Db	10 YR 3/3	Mcl		II	N/A	Wetness	3a
	26 – 35	Gb	10 YR 5/2	Scl					
	35 – 60	Gb	10 YR 5/2	scl	cdom				
	60 – 90+	Gb	10 YR 5/2	Scl	Gritty and gravelly fom				
509	0 – 26	Db	10 YR 3/3	Scl		IV	N/A	Wetness	3b
	26 – 45	Rb	5 YR 5/4	Scl	Cdom				
	45 – 65+	Rb	5 YR 5/4	Sc	cdom				
510	0 – 27	Db	10 YR 3/3	Scl		IV	N/A	Wetness	3b
	27 – 45	Gb	10 YR 5/2	Scl	Cdom; mn				
	45 – 80+	Rb	5 YR 5/4	Sc	Common brown mottles;				
511	0 – 25	Db	10 YR 3/3	Scl		IV	N/A	Wetness	3b
	25 – 45	Rb	5 YR 5/4	Scl	Cdom				
	45 – 70+	Rb	5 YR 5/4	Sc	Cdom SPL				
512	0 – 26	Db	10 YR 3/3	Mcl		II	N/A	Wetness	3a
	26 – 35	Gb	10 YR 5/2	Scl					

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	35 – 60	Gb	10 YR 5/2	scl	cdom				
	60 – 90+	Gb	10 YR 5/2	Scl	Gritty and gravelly fom				
513	0 -27	Db	10 YR 3/3	scl		III	N/A	Wetness	3a
	27 – 55	B	7.5 YR 5/4	Scl	Cdom; slightly stony				
	55 – 80+	Rb	5 YR 5/4	Scl	Cdom; SPL				
514	0 – 25	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	25 – 45	Gb	10 YR 5/2	Hcl	cdom				
	45 – 70+	Rb	5 YR 5/4						
515	0 -22	Dgb	10YR 4/2	Mcl/hcl (TS 22)	cdom	IV	N/A	Wetness	3b
	22 – 30	Gb	10 YR 5/2	Hcl	cdom				
	30 – 45	Gb/rb	10 YR 5/2	Hcl	cdom				
	45 – 70+	Rb	5 YR 5/4	C	Common brown mottles SPL				
516	0 -23	Dgb	10YR 4/2	Hcl	cdom	IV	N/A	Wetness	3b
	23 – 30	Gb	10 YR 5/2	Hcl	cdom				
	30 – 45	Gb/rb	10 YR 5/2	Hcl	cdom				
	45 – 70+	Rb	5 YR 5/4	C	Common brown mottles SPL				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
517	0 – 25	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	25 – 45	Rb	5 YR 5/4	Mcl	cdom				
	45 – 55	Gb	10 YR 5/2	Hcl	cdom				
	55- 75+	Rb	5 YR 5/4	C	Cdom SPL				
518	0 – 23	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	23 – 42	Rb	5 YR 5/4	Mcl	cdom				
	42 – 55	Gb	10 YR 5/2	Hcl	cdom				
	55- 75+	Rb	5 YR 5/4	C	Cdom SPL				
519	0 – 25	Dgb	10YR 4/2	Hcl		IV	N/A	Wetness	3b
	25 – 40	Rb	5 YR 5/4	Mcl	cdom				
	40 – 50	Gb	10 YR 5/2	Hcl	cdom				
	50- 80+	Rb	5 YR 5/4	C	Cdom SPL				

Soil Pit- Close to Boring 506

1.2.3.12 0 – 25 cm dark greyish brown (10 YR 4/2) medium clay loam (borderline Hcl on PSD TS sample); maize roots; moist.

1.2.3.13 25 – 35cm greyish brown (10 YR 5/2) heavy clay loam; moderately developed coarse subangular blocky structure few roots; slightly firm; moist.

1.2.3.14 35 - 65+cm grey (10 YR 6/1) clay; weakly developed coarse angular structure tending to prismatic with depth; becoming plastic with depth.

Table 1.7: Soil auger borings - Area 6 (onshore substation sites)

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S1	0 – 26	Db	10 YR 3/3	Szl		III	N/A	Wetness	3a
	26 – 40	B	10 YR 5/3	szl	Few stones				
	40 – 60	Yb	10 YR 5/4	Scl	Cdom; mn concs 2-3% total stone				
	60 – 80+	Rb/Gb	10 YR 5/2	Hcl/c	Mottled; mn SPL				
S2	0 – 27	Db	10 YR 3/3	Szl		III	N/A	Wetness	3a
	27 – 42	B	10 YR 5/3	scl					
	42 – 65	Yb	10 YR 5/4	Scl	Mottled; 2-3% total stone				
	90+65 - 80	Rb	5 YR 5/4	Sc	Brownish mottles; 2-3% total stone; SPL	III		Wetness	3a
S3	0 – 27	Db	10 YR 3/3	Msl	Few stones (Sub TS1)	III	N/A	Wetness	3a
	27 – 45	B	10 YR 5/3	Msl	Feint mottling (lms patched within matrix)				
	45 – 65	Yb	10 YR 5/4	Scl	Cdom				
	65 – 85+	Rb	5 YR 5/4	Sc	Common brownish mottles SPL				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S4	0 – 27	Db	10YR 3/3	Scl	(MOR-TS1)	III	N/A	Wetness	3a
	27 – 40	B	10 YR 5/3	Scl	cdom				
	40 – 75	Yb	10 YR 5/4	Scl	cdom				
	75 – 100+	Rb	5 YR 5/4	C	Brownish mottling SPL				
S5	0 – 28	Db	10YR 3/3	Msl	Brick fragments (localised disturbance)	III	N/A	Wetness	3a
	28 – 40	B	10 YR 5/3	Msl/mscl	Few o m; mn				
	40 – 70	Yb	10 YR 5/4	Scl	Cdom; mn				
	70 – 85+	Gb	10 YR 5/2	Sc	Cdom; mn SPL				
S6	0 – 26	Db	10YR 3/3	Szl		III/IV	N/A	Wetness	3a/3b
	26 – 45	B	10 YR 5/3	Mcl	Cdom; mn				
	45 – 75+	Rb	5 YR 5/4	C	Common brownish mottled; abundant mn SPL				
S7	0 – 27	Db	10YR 3/3	Msl		II/III	N/A	Wetness	2/3a
	27 – 60	B	10 YR 5/3	Msl	Few o m				
	60 – 70	b/yb	10 YR 5/4	Scl	mottled				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	70- 80	Gb	10 YR 5/2	sc	Cdom SPL (sandy patches)				
	80 – 100+	Rb	5 YR 5/4	C	Cdom				
S8	0 - 27	Db	10 YR 3/3	Msl	Few stones	III	N/A	Wetness	3a
	27 – 45	B	10 YR 5/3	Msl	Feint mottling (lms patched within matrix)				
	45 – 65	Yb	10 YR 5/4	Scl	Cdom				
	65 – 85+	Rb	5 YR 5/4	Sc	Common brownish mottles SPL				
S9	0 – 25	Db	10 YR 3/3	Szl	Occn stone	III	N/A	Wetness	3a
	25 – 45	B	10 YR 5/3	Szl	Cdom				
	45 – 65	Gb	10 YR 5/2	Scl	Cdom				
	45 – 65+	Rb/yb	5 YR 5/4	Sc	Cdom SPL				
S10	0 – 30	Db	10YR 3/3	Szl	(MOR - TS2)	III	N/A	Wetness	3a
	30 – 42	B	10 YR 5/3	scl	Few mn; few o m				
	42 – 55	YB	10 YR 5/4	scl	Cdom mn				
	55 – 80+	Gb	10 YR 5/2	Sc	Cdom SPL				
S11	29	Db	10YR 3/3	Szl		III	N/A	Wetness	3a
	29 – 50	Rb	5 YR 5/4	Scl	Cdom; mn				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	50 – 70+	Gb	10 YR 5/2	Sc	Cdom SPL				
S12	0 – 28	Db	10YR 3/3	Szl	2-3% stone	III	N/A	Wetness	3a
	28 – 40	Yb	10 YR 5/4	Scl	Fdom				
	40 – 50	Yb	10 YR 5/4	Scl	Cdom; mn				
	50 – 70+	Rb	5 YR 5/4	Sc	Cdom; mn				
S13	0 - 28	Db	10YR 3/3	msl	Few stones	III	N/A	Wetness	3a
	28 – 50	Rb	5 YR 5/4	Scl	Cdom; mn				
	50 – 70+	Gb	10 YR 5/2	Sc	Cdom SPL				
S14	0 - 27	Db	10 YR 3/3	Msl (MOR-TS3)	Few stones	III	N/A	Wetness	3a
	27 – 45	B	10 YR 5/3	Msl	Feint mottling				
	45 – 65	Yb	10 YR 5/4	Scl	Cdom				
	65 – 85+	Rb	5 YR 5/4	Sc	Common brownish mottles SPL				
S15	0 – 23	Dgb	10YR 4/2	Hcl	Cdom (Similar to Hesketh in Area 7)	IV	N/A	Wetness	3b
	23 – 35	Gb	10 YR 5/2	Hcl	Cdom				
	35 – 60+	G	5Y 6/1	C	Cdom SPL				
S16	0 – 23	Dgb	10YR 4/2	Hcl	Cdom	IV	N/A	Wetness	3b
	23 – 35	Gb	10 YR 5/2	Hcl	Cdom				
	35 – 60+	G	5Y 6/1	C	Cdom SPL				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S17	0 – 23	Dgb	10YR 4/2	mcl	Cdom - lighter topsoil here	IV	N/A	Wetness	3b
	23 – 35	Gb	10 YR 5/2	Hcl	Cdom mn				
	35 – 40	G	5Y 6/1	C	Cdom SPL				
	40 – 60+	Dg	5Y 4/1	C	Stiff; plastic; cdom				
S18	0 – 23	Dgb	10YR 4/2	mcl	Cdom	IV	N/A	Wetness	3b
	23 – 38	Gb	10 YR 5/2	Hcl	Cdom mn				
	38 – 50	G	5Y 6/1	C	Cdom SPL				
	50 – 80+	Dg	5Y 4/1	C	Stiff; plastic; cdom				
S19	0 – 29	Db	10YR 3/3	Scl		III	N/A	Wetness	3a
	29 – 40	Yb	10 YR 5/4	scl	2-3% total stone				
	40 – 45	Rb	5 YR 5/4	Scl	Mn and brownish mottles				
	45 – 80	Rb	5 YR 5/4	Scl/sc	Becoming reddish; abundant mn; brownish mottles; SPL				
	80 – 100+	R		Scl	Sandy patches ; mottles not apparent				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S20	0 – 26	Db	10YR 3/3	Scl		III	N/A	Wetness	3a
	26 – 55	Yb	10 YR 5/4	Scl	cdom; mn				
	55 – 80+	Gb	10 YR 5/2	Sc	Cdom; mn SPL; reddish clayey material within sc matrix				
S21	0 – 26	Db	10YR 3/3	Mcl		IV	N/A	Wetness	3b
	26 – 40	Yb	10 YR 5/4	Scl	Cdom; common mn				
	40 – 70+	Rb	5 YR 5/4	C	Brownish mottles; common mn; SPL				
S22	0 – 28	Db	10YR 3/3	Scl		III	N/A	Wetness	3a
	28 – 65	Yb	10 YR 5/4	Scl	Cdom; common mn				
	65 – 90+	Rb	5 YR 5/4	Sc	Cdom; common mn SPL				
S23	0 – 28	Db	10YR 3/3	Szl	2-3 % total stone	III	N/A	Wetness	3a
	28 – 40	B	10 YR 5/3	Scl	Few mottles				
	40 – 50	Yb	10 YR 5/4	Scl	Cdom; mn				
	50 – 50 – 70+	Rb	5 YR 5/4	Sc	Cdom; mn SPL				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S24	0 – 28	Db	10YR 3/3	Szl		III	N/A	Wetness	3a
	28 – 40	Yb	10 YR 5/4	msl	V sl stony – 2-3%				
	40 – 60	Yb	10 YR 5/4	scl	V sl.stony; cdom;mn				
	60 – 80+	Yb	10 YR 5/4	Sc	Cdom; mn				
S25	0 – 20	Dgb	10YR 4/2	C(MOR TS-6)	(Alluvial) cdom	IV	N/A	Wetness	4
	20 – 40	Gb	10YR 5/2	C	Cdom				
	40 – 65+	Gb	10 YR 5/2	C	Cdom; tending to dark grey with depth				
S26	0 – 26	Db	10YR 3/3	msl		III	N/A	Wetness	3a
	26 – 65	Gb	10 YR 5/2	Scl	Cdom; few mn; v.slightly stony				
	65 – 85+	Gb	10 YR 5/2	Sc	Cdom SPL				
S27	0 -25	Db	10YR 3/3	msl		IV	N/A	Wetness	3b
	25 – 38	Rb	5 YR 5/4	Scl					
	38 – 65+	Rb	5 YR 5/4	C	Really thick clay here; brownish mottles – odd profile close to pond. Is pond formation related to this?				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S28	0-27	Db	10YR 3/3	Scl					
	27- 80+	B	10 YR 5/3	Scl	Few distinct ochreous mottles	II	N/A	Wetness	2
S29	0 -23	Dgb	10YR 4/2	Mcl					
	23 – 35	Gb	10 YR 5/2	Hcl	cdom	IV	N/A	Wetness	3b
	35 – 45	G	5Y 6/1	C	Cdom SPL				
	45 – 70+	DG	5Y 4/1	C	Cdom; plastic				
S30	0 -23	Dgb	10YR 4/2	Mcl					
	23 – 35	Gb	10 YR 5/2	Hcl	cdom	IV	N/A	Wetness	3b
	35 – 45	G	5Y 6/1	C	Cdom SPL				
	45 – 70+	DG	5Y 4/1	C	Cdom; plastic				
S32	0 – 28	Db	10YR 3/3	Msl	MOR TS 4	III	N/A	Wetness	3a
	28 – 55	Yb	10 YR 5/4	Scl	Fdom; few mn				
	55 - 65	Rb	5 YR 5/4	Sc	Cdom; few mn				
	65 – 85+	Rb	5 YR 5/4	Sc	Cdom; abundant mn				
S33	0 – 28	Db	10YR 3/3	Msl	Few stones	III	N/A	Wetness	3a
	28 – 55	Yb	10 YR 5/4	Scl	Fdom; few mn				
	55 - 65	Rb	5 YR 5/4	Sc	Cdom; few mn				
	65 – 85+	Rb	5 YR 5/4	Sc	Cdom; abundant mn				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
S34	0 – 28	Db	10YR 3/3	Msl					
	28 – 55	Yb	10 YR 5/4	Scl	Fdom and abundant mn	III	N/A	Wetness	3a
		Rb	5 YR 5/4	Sc	Thick; SPL; brownish mottles; abundant mn				
S35	0 – 22	Dgb	10YR 4/2	Mcl	Alluvial	IV	N/A	Wetness	3b
	22 – 30	Gb	10YR 5/2	Hcl	Cdom				
	30 – 60	Gb	10YR 5/2	c	Cdom; few mn SPL				
	60 – 80+	Dg	5Y 4/1	C	Cdom; few mn; plastic				
S36	0 – 22	Dgb	10YR 4/2	Mcl	Alluvial	IV	N/A	Wetness	3b
	22 – 30	Gb	10YR 5/2	Hcl	Cdom				
	30 – 60	Gb	10YR 5/2	c	Cdom; few mn SPL				
	60 – 80+	Dg	5Y 4/1	C	Cdom; few mn; plastic				
S37	0 – 29	Db	10YR 3/3	Mcl		III	N/A	Wetness	3a
	29 – 40	B	10 YR 5/3	Mcl	Occn. stones				
	40 – 55	Yb	10 YR 5/4	Scl	Cdom; few mn				
	55 – 75	Rb	5 YR 5/4	Hcl	Brownish mottling; few mn; SPL				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	75 – 85+	Rb	5 YR 5/4	C	Brownish mottling.				
S38	0 – 27	Dgb	10YR 4/2	Szl	Fdom; few stones	III	N/A	Wetness	3a
	27 – 55	YB	10 YR 5/4	Scl	cdom				
	55-80+	Yb	10 YR 5/4	Scl/sc	Cdom SPL				
S39	0 – 25	Dgb	10YR 4/2	Hcl	Cdom	IV	N/A	Wetness	4
	25 – 35	Gb	10YR 5/2	C	Cdom SPL				
	35 – 60+	Dg	5Y 4/1	C	Cdom; plastic				
S40	0 – 26	Dgb	10YR 4/2	Szl		III	N/A	Wetness	3a
	26 – 60	Yb	10 YR 5/4	Scl	Cdom; mn concs				
	60- 80+	Gb/rb	10 YR 5/2	sc	Cdom; mn; SPL				
S41	0 – 29	Db	10YR 3/3	Msl (MOR TS-5)		III	N/A	Wetness	3a
	29 – 60	Rb	5 YR 5/4	Scl	Brown mottles; abundant large mn				
	60 – 80+	Rb	5 YR 5/4	Sc	Brownish mottles; mn; SPL				
S42	0-27	Db	10YR 3/3	szl		III/IV	N/A	Wetness	3a/3b
	27 – 45	Yb	10 YR 5/4	scl	Fdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	45 – 70+	Rb (gb)	5 YR 5/4	Sc/c	Cdom; mn SPL				
S43	0 – 28	Db	10YR 3/3	Scl		II	N/A	Wetness	2/3a
	28 – 45	B	10 YR 3/3	Scl					
	45 – 80	Yb	10YR 5/4	Scl	Cdom; mn				
	80+	Gb/rb	10 YR 5/2	C	Brownish mottling				
S44	0 – 29	Db	10 YR 3/3	Mcl		III	N/A	Wetness	3a
	29 – 47	B	10 YR 5/3	Hcl					
	47 – 60	B	10 YR 5/3	Hcl	Cdom; mn				
	60 - 80+	Gb	10 YR 5/2	C	Cdom;mn SPL				
S45	0 – 23	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	23 – 30	Gb	10 YR 5/2	Hcl	Cdom				
	30 – 50	G	5Y 6/1	C	Cdom; SPL				
	50 – 70+	DG		C	Cdom				
S 46	0 – 22	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	22 – 30	Gb	10 YR 5/2	Hcl	Cdom				
	30 – 70	G	5Y 6/1	C	Cdom; SPL				
S47	0 – 23	Dgb	10YR 4/2	Mcl		IV	N/A	Wetness	3b
	23 – 30	Gb	10 YR 5/2	Hcl	Cdom				
	30 – 50	G	5Y 6/1	C	Cdom; SPL				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	50 – 70+	DG	5Y 4/1	C	Cdom				

Pit 1 – Salwick Series Close to Auger Boring S8

1.2.3.15 0 – 26cm dark brown (10 YR 3/3) medium sandy loam; approximately 1-2% rounded pebbles (very slightly stony); grass roots.

1.2.3.16 26 – 40cm brown (10 YR 5/3) friable medium sandy loam tending to sandy clay loam; 1 – 2% rounded stone (very slightly stony); well-developed medium sub-angular blocky structure; few roots.

1.2.3.17 40 – 55cm yellowish/reddish brown (5 YR 3/3) firm sandy clay loam; very slightly stony as above; coarse sub-angular blocky; few distinct brownish mottles; few roots.

1.2.3.18 55 – 80 cm+ reddish brown (5YR 4/4) firm sandy clay; few stones; firm; coarse angular blocky tending to prismatic; common brownish mottles; no roots; slowly permeable layer. Wetness Class III 3a.

Pit 2 – Alluvium – Douglas Complex

1.2.3.19 0 – 23cm very dark grey brown (10 YR 3/2) medium clay loam; grass roots.

1.2.3.20 23 – 30cm greyish/dark greyish brown 10 YR 5/2 4/2 heavy clay loam; firm moderately developed medium to coarse angular blocky; common distinct ochreous mottling; stoneless.

1.2.3.21 30 – 50cm grey (10YR 4/3) clay; weakly developed coarse prismatic structure; plastic; common distinct ochreous mottles; Slowly permeable layer.

1.2.3.22 50 – 70+cm dark grey clay (10 YR 4/1); plastic; massive.

Table 1.8: Soil auger borings - Area 7

Number	Depth	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
701	0 – 23	Db	10 YR 3/3	mcl		IV	N/A	Wetness	3b
	23 – 40	Gb	10 YR 5/2	Hcl	cdom				
	40 – 70+	Dg	5Y 4/1	C	Cdom SPL				
702	0 – 23	Db	10 YR 3/3	mcl		IV	N/A	Wetness	3b
	23 – 40	Gb	10 YR 5/2	Hcl	cdom				
	40 – 70+	Dg	5Y 4/1	C	Cdom SPL				
703	0 – 24	Dgb	10 YR 3/3	hcl	TS 13	IV	N/A	Wetness	4
	24 – 45	Gb	10 YR 5/2	C	Cdom; SPL				
	45 – 60+	Dg	5Y 4/1	C	Cdom				
704	0 – 23	Dgb	10YR 4/2	mcl	Cdom	IV	N/A	Wetness	3b
	23 – 35	Gb	10 YR 5/2	Hcl	Cdom mn				
	35 – 40	G	5Y 6/1	C	Cdom SPL				
	40 – 60+	Dg	5Y 4/1	C	Stiff; plastic; cdom				
705	0 – 24	Dgb	10YR 4/2	mcl	Cdom	IV	N/A	Wetness	3b
	24 – 35	Gb	10 YR 5/2	Hcl	Cdom mn				
	35 – 40	G	5Y 6/1	C	Cdom SPL				
	40 – 60+	Dg	5Y 4/1	C	Stiff; plastic; cdom				
706	0 – 23	Db	10 YR 3/3	mcl		IV	N/A	Wetness	3b

Number	Depth	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	Grade
	23 – 40	Gb	10 YR 5/2	Hcl	cdom				
	40 – 70+	Dg	5Y 4/1	C	Cdom SPL				
707	0 – 24	Dgb	10 YR 3/3	hcl		IV	N/A	Wetness	4
	24 – 45	Gb	10 YR 5/2	C	Cdom; SPL				
	45 – 60+	Dg	5Y 4/1	C	Cdom				
708	0 – 23	Dgb	10YR 4/2	mcl	Cdom	IV	N/A	Wetness	3b
	23 – 35	Gb	10 YR 5/2	Hcl	Cdom mn				
	35 – 43	G	5Y 6/1	C	Cdom SPL				
	43 – 60+	Dg	5Y 4/1	C	Stiff; plastic; cdom				
709	0 – 23	Dgb	10YR 4/2	mcl	Cdom	IV	N/A	Wetness	3b
	23 – 35	Gb	10 YR 5/2	Hcl	Cdom mn				
	35 – 43	G	5Y 6/1	C	Cdom SPL				
	43 – 60+	Dg	5Y 4/1	C	Stiff; plastic; cdom				
710	0 – 23	Dgb	10 YR 3/3	hcl		IV	N/A	Wetness	4
	23 – 40	Gb	10 YR 5/2	C	Cdom; SPL				
	45 – 60+	Dg	5Y 4/1	C	Cdom				

1.2.3.23 0 – 22 cm dark greyish brown (10YR 3/3) medium clay loam; grass roots; slightly dry; stoneless.

1.2.3.24 22 – 38 cm grey brown (10 YR 5/2) heavy clay loam; few roots; moist; firm; weakly developed coarse angular blocky structure; common distinct ochreous mottling; no stoneless.

1.2.3.25 38- 60+cm dark grey (10 YR 4/1) clay; some bands of silty material present within the matrix; coarse prismatic structure; common distinct ochreous mottles; slowly permeable layer.

Table 1.9: Soil auger borings - Area 8

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	ALC Grade
801	0 – 32	Db	10 YR 3/3	msl		I	2	Droughtiness	2
	32 – 50	B	10 YR 5/3	lms					
	50 – 100+	Lbg	10 YR 6/2	ms					
802	0 – 32	Db	10 YR 3/3	Msl		I	2	Droughtiness	2
	32 – 70	Lbg	10 YR 6/2	lms					
	70 – 100+	Gb	10 YR 5/2	Ms	Cdom				
803	0 – 30	Db	10 YR 3/3	Msl		I	1/2	Droughtiness	1/2
	30 – 40	B	10 YR 5/3	Msl					
	40 – 70	Lbg	10 YR 6/2	lms					
	70 – 100+	Gb	10 YR 5/2	Ms	Cdom				
804	0 – 32	Db	10 YR 3/3	Msl	TS 4 (msl)	I	2	Droughtiness	2
	32 – 70	B	10 YR 5/3	lms					
	70 – 100+	Gb	10 YR 5/2	Ms	Cdom				
805	0 – 33	Db	10 YR 3/3	Msl		I	1		1

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	ALC Grade
	33 – 50	Pb	10 YR 6/3	msl					
	50 – 80	Lbg	10 YR 6/2	lms					
	80 – 100+	Gb	10 YR 5/2	ms	Few o m				
806	0 – 32	Db	10 YR 3/3	Msl		I	2	Droughtiness	2
	32 – 80	Pb	10 YR 6/3	lms					
	80 – 100+	Gb	10 YR 5/2	ms	Few o m				
807	0 – 31	Db	10 YR 3/3	Msl		I	2	Droughtiness	2
	31 – 80	Lbg	10 YR 6/2	Lms					
	80 – 100+	Gb	10 YR 5/2	ms	Few o m				
808	0 – 33	Db	10 YR 3/3	Msl		I	2	Droughtiness	2
	33 – 65	Lgb	10 YR 6/2	lms	Occn. mottle				
	65 – 100+	Gb	10 YR 5/2	lms	Occn clayey lenses; fdom				
809	0 – 32	Db	10 YR 3/3	Zl		WC II	1	Wetness	3a
	32 – 55	Gb	10 YR 5/2	Zl	Fdom				
	55 – 100+	Gb	10 YR 5/2	lfs	Plus zc lenses; cdom				
810	0 – 32	Db	10 YR 3/3	Msl	TS 4 (Lms borderline)	I	2	Droughtiness	2
	32 – 50	Pb	10 YR 6/3	lms					
	50 – 75	Lgb	10 YR 6/2	Lms	fdom				
	75 – 100+	Gb	10 YR 5/2	Ms	Cdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	ALC Grade
811	0 – 32	Db	10 YR 3/3	Msl	TS 5	I	I		1
	32 – 50	Pb	10 YR 6/3	Msl					
	50 – 75	Lgb	10 YR 6/2	Lms	fdom				
	75 – 100+	Gb	10 YR 5/2	Ms	Cdom				
812	0 – 32	Db	10 YR 3/3	Zl		WC II	N/A	Wetness	3a
	32 – 55	Gb	10 YR 5/2	Zl	Fdom				
	55 – 100+	Gb	10 YR 5/2	lfs	Plus zc lenses; cdom				
813	0 – 32	Db	10 YR 3/3	Msl					
	32 – 70	Pb	10 YR 6/3	Lms					
	70 – 100+	Lgb	10 YR 6/2	Ms	F om	I	2	Droughtiness	2
814	0 -33	Db	10 YR 3/3	Msl		I	2	Droughtiness	2
	33 – 75	Pb	10 YR 6/3	Lms					
	75 – 100+	Lgb	10 YR 6/2	Ms	F om				
815	0 -33	Db	10 YR 3/3	Msl		I	2	Droughtiness	2
	33 – 75	Pb	10 YR 6/3	Lms					
	75 – 100+	Lgb	10 YR 6/2	Ms	F om				
816	0 – 32	Db	10 YR 3/3	Zl		WC II	N/A	Wetness	3a
	32 – 55	Gb	10 YR 5/2	Zl	Fdom				
	55 – 100+	Gb	10 YR 5/2	Zl	Plus zc lenses; cdom				

Number	Depth (m)	Colour	Munsell	Texture	Description	Wetness Class	Droughtiness	Final ALC Limitation	ALC Grade
817	0 – 30	Db	10 YR 3/3	Zl		WC II	N/A	Wetness	3a
	30 – 55	Gb	10 YR 5/2	Zl	Fdom				
	55 – 100+	Gb	10 YR 5/2	Zl	Plus zc lenses; cdom				
818	0 – 32	Db	10 YR 3/3	Msl		I	1		1
	32 – 50	Pb	10 YR 6/3	Msl					
	50 – 75	Lgb	10 YR 6/2	Lms	fdom				
	75 – 100+	Gb	10 YR 5/2	Ms	Cdom				
819	0 – 30	Db	10 YR 3/3	Zl		WC II	N/A	Wetness	3a
	30 – 55	Gb	10 YR 5/2	Zl	Fdom				
	55 – 100+	Gb	10 YR 5/2	Zl	Plus zc lenses; cdom				
820	0 – 30	Db	10 YR 3/3	Zl		WC II	N/A	Wetness	3a
	30 – 55	Gb	10 YR 5/2	Zl	Fdom				
	55 – 100+	Gb	10 YR 5/2	Lfs	Plus zc lenses; cdom				
821	0 – 30	Db	10 YR 3/3	Zl		WC II	N/A	Wetness	3a
	30 – 53	Gb	10 YR 5/2	Zl	Fdom				
	53 – 100+	Gb	10 YR 5/2	Zl	Plus zc lenses; cdom				

Soil Pit – Hesketh

1.2.3.26 0 – 32cm dark brown (10 YR 3/3) medium sandy loam (TS samples); cereal roots; slightly dry; friable.

1.2.3.27 32 – 75cm Pale brown (10 YR 6/3) loamy medium sand; weakly developed medium blocky structure (assume moderate structure).

1.2.3.28 75 – 85 cm+ Light greyish brown (10 YR 6/2) medium sand; few ochreous mottles (poor structure).

1.2.3.29 Moisture Balance: Wheat +27, Potatoes +22; Grade according to droughtiness limitation Grade 2.

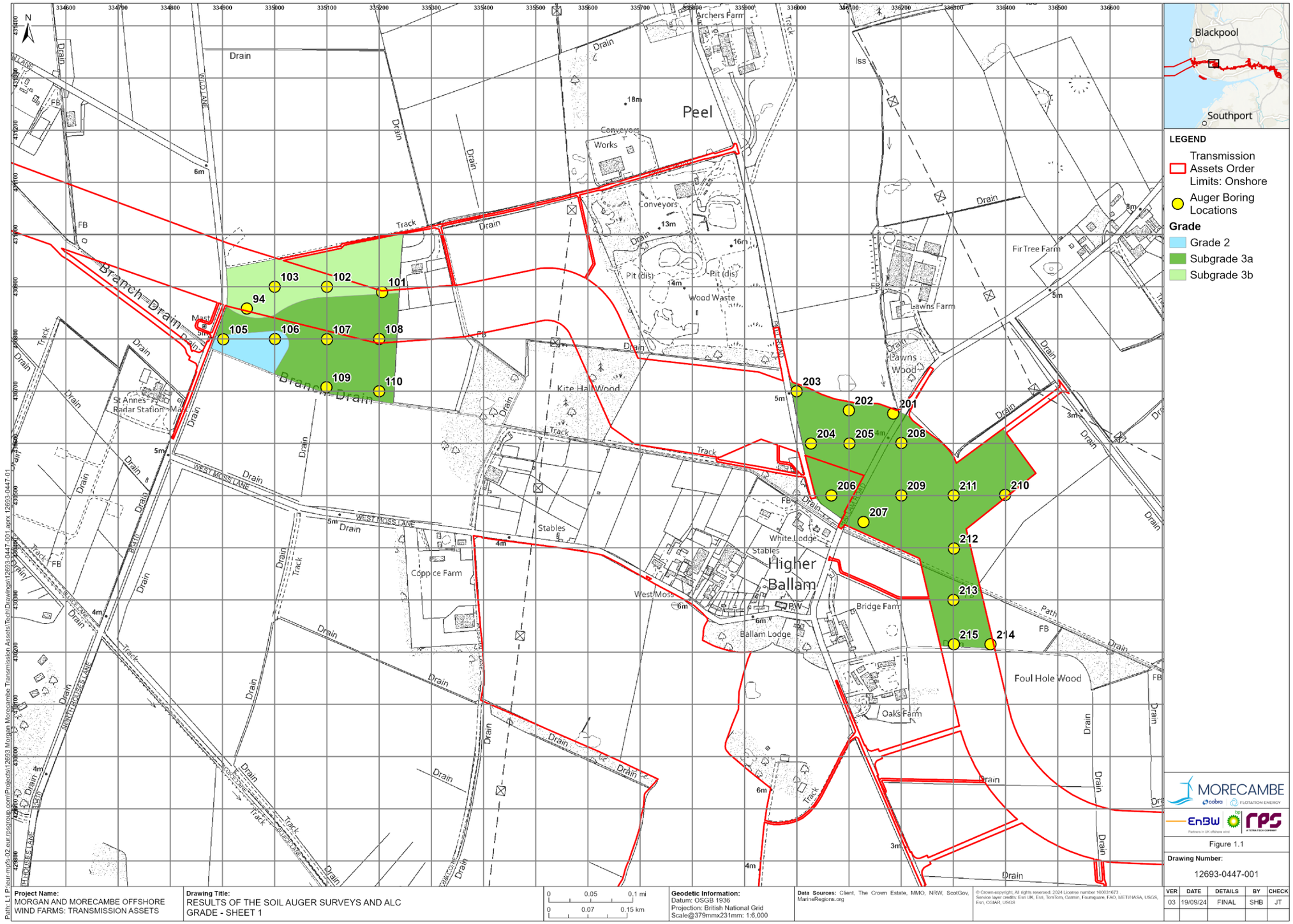

Figure 1.1: Results of the soil auger surveys and ALC grade (sheet 1)

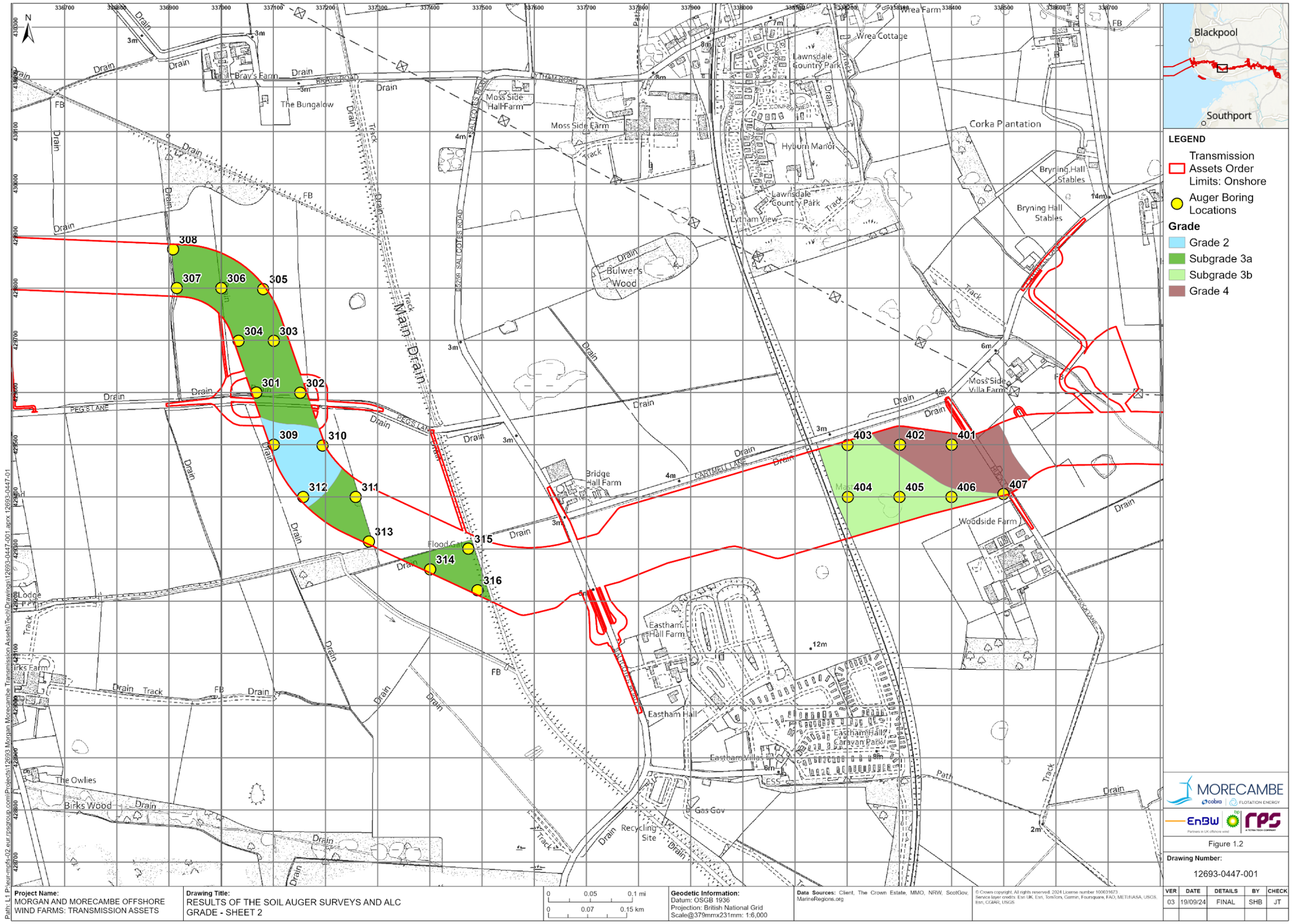

Figure 1.2: Results of the soil auger surveys and ALC grade (sheet 2)

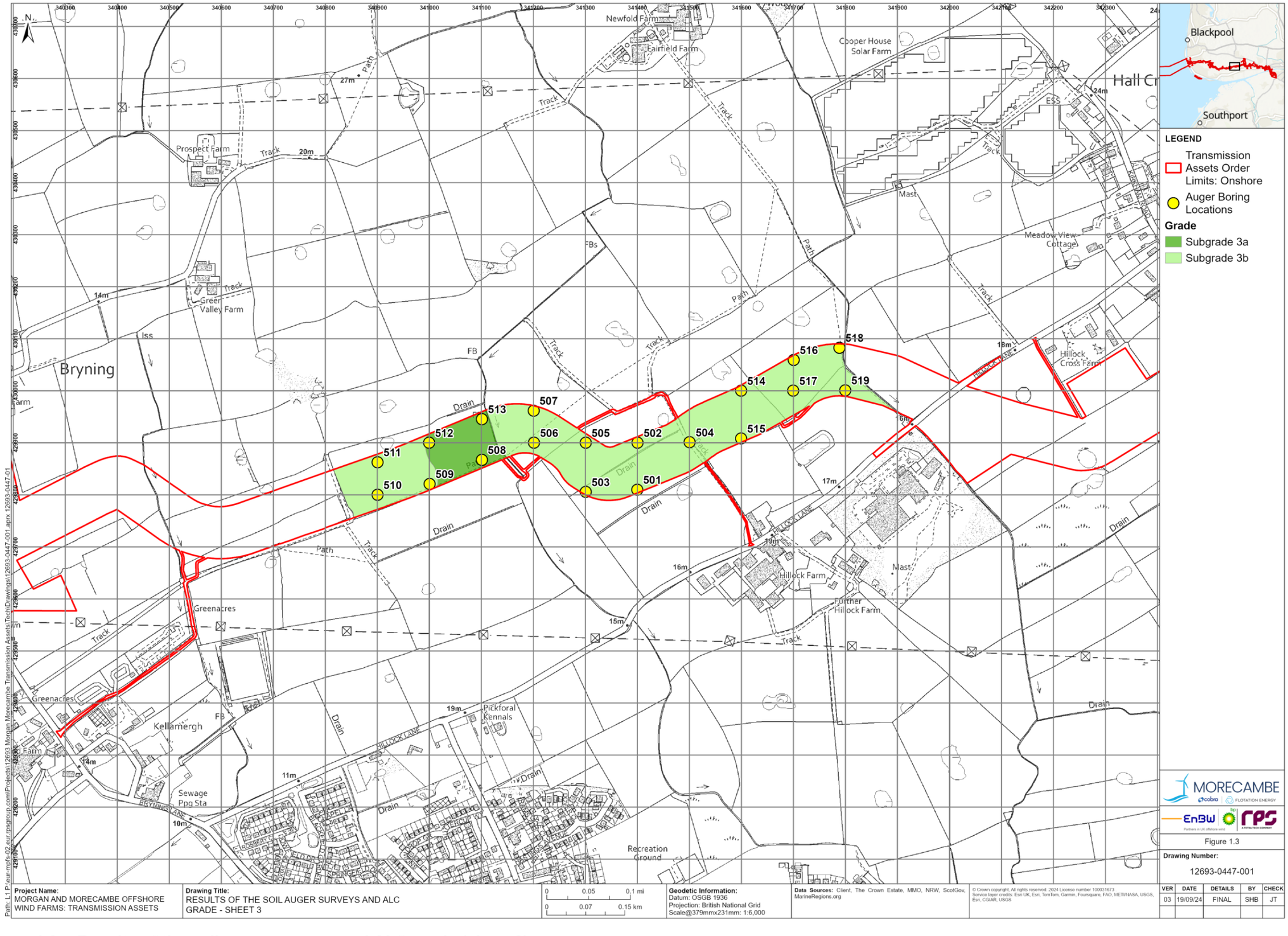

Figure 1.3: Results of the soil auger surveys and ALC grade (sheet 3)

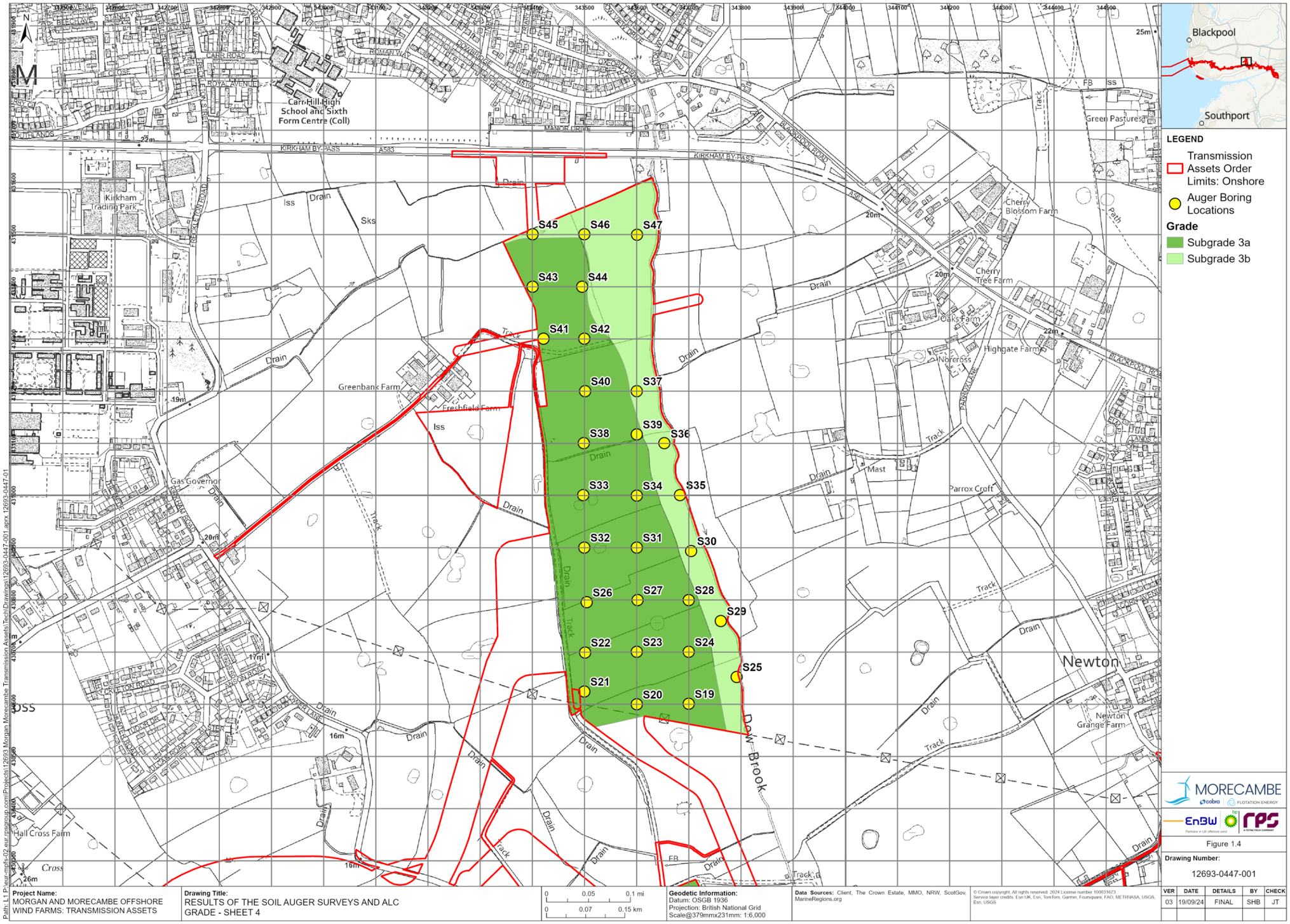

Figure 1.4: Results of the soil auger surveys and ALC grade (sheet 4)

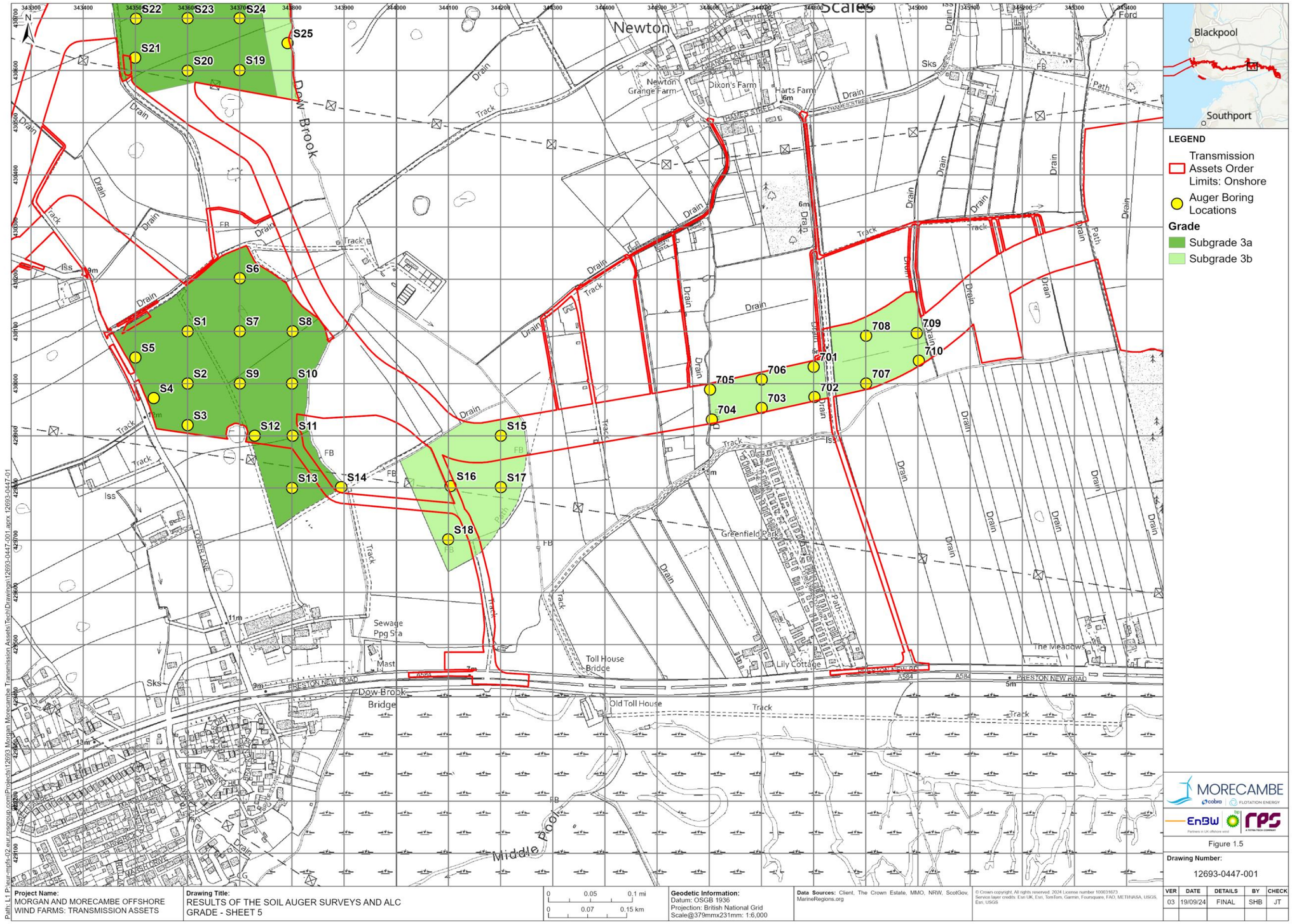

Figure 1.5: Results of the soil auger surveys and ALC grade (sheet 5)

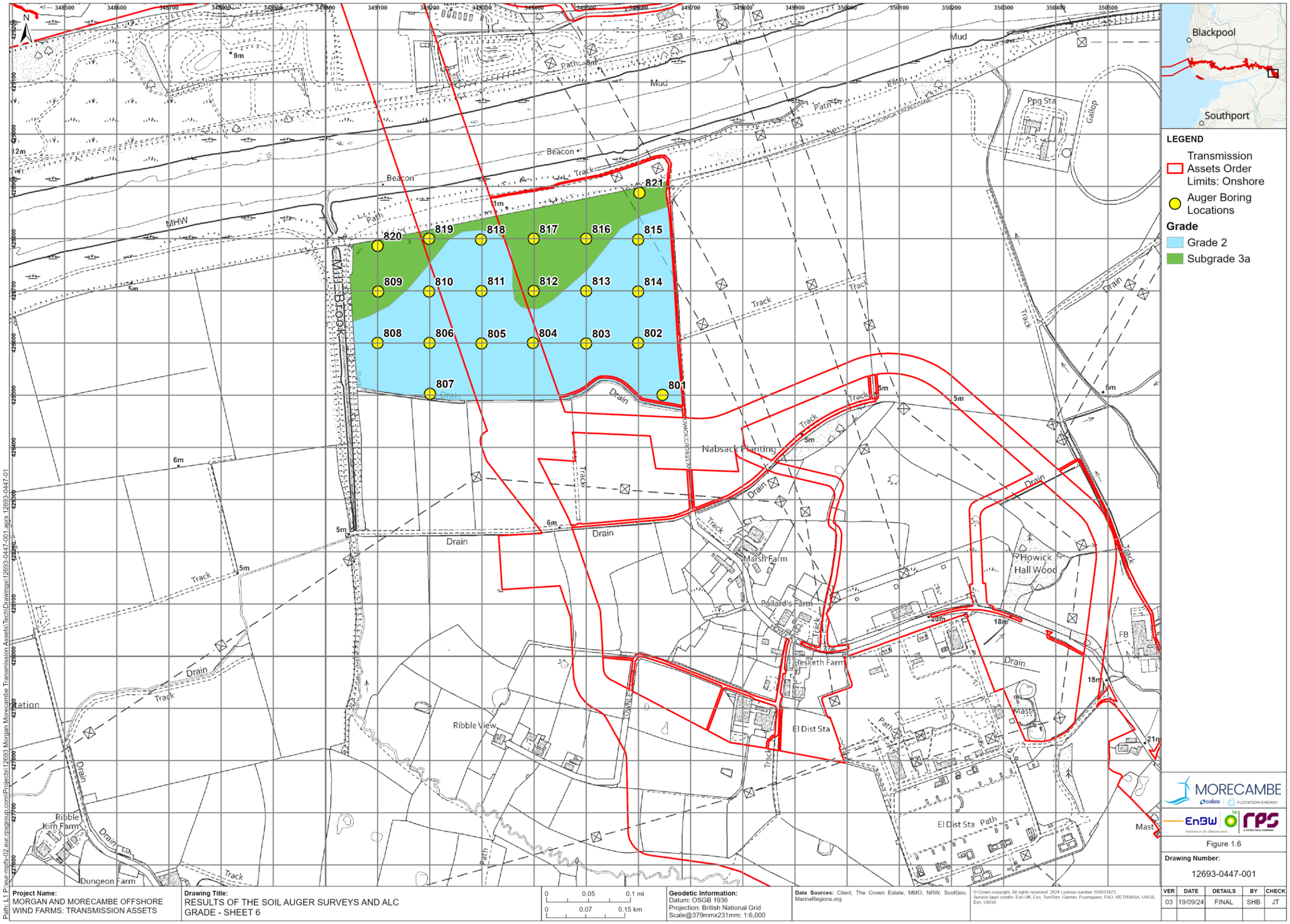

Figure 1.6: Results of the soil auger surveys and ALC grade (sheet 6)

1.3 References

MAFF (1988) Ministry of Agriculture, Fisheries and Food, Agricultural Land Classification of England and Wales, Revised guidelines and criteria for grading the quality of agricultural land.

Appendix A: Soil sample textural analysis report

MICRO NUTRIENT REPORT

DATE **31st May 2024**

SAMPLES FROM [redacted]

Reference: **68715/368436/24**	Field Name: **TS1 TRAN5**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		21	
Silt (0.063 - 0.002mm) %		37	
Clay (< 0.002mm) %		42	
Textural Classification		Organic Clay	1

Reference: **68715/368437/24**	Field Name: **TS2 TRAN5**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		21	
Silt (0.063 - 0.002mm) %		51	
Clay (< 0.002mm) %		28	
Textural Classification		Organic Clay Loam	1

Reference: **68715/368438/24**	Field Name: **TS3 TRAN5**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		15	
Silt (0.063 - 0.002mm) %		50	
Clay (< 0.002mm) %		35	
Textural Classification		Peat	1

Reference: **68715/368439/24**	Field Name: **TS4 TRAN5**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		64	
Silt (0.063 - 0.002mm) %		22	
Clay (< 0.002mm) %		14	
Textural Classification		Sandy Loam	1

[redacted]

Reference: **68715/368441/24**	Field Name: **TS5 TRAN5**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		67	
Silt (0.063 - 0.002mm) %		20	
Clay (< 0.002mm) %		13	
Textural Classification		Sandy Loam	1

Notes (*)

(1) 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.

MICRO NUTRIENT REPORT

DATE **25th June 2024**

SAMPLES FROM **TRANS**

[redacted]

Reference: **69483/371681/24**	Field Name: **TRANS 10**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		20	
Silt (0.063 - 0.002mm) %		52	
Clay (< 0.002mm) %		28	
Textural Classification		Silty Clay Loam	1

Reference: **69483/371682/24**	Field Name: **TRANS 11**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		17	
Silt (0.063 - 0.002mm) %		42	
Clay (< 0.002mm) %		41	
Textural Classification		Clay	1

Reference: **69483/371683/24**	Field Name: **TRANS 12**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		16	
Silt (0.063 - 0.002mm) %		38	
Clay (< 0.002mm) %		46	
Textural Classification		Clay	1

Reference: **69483/371684/24**	Field Name: **TRANS 13**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		23	
Silt (0.063 - 0.002mm) %		42	
Clay (< 0.002mm) %		35	
Textural Classification		Clay Loam	1

Reference: **69483/371685/24**	Field Name: **TRANS 20**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		23	
Silt (0.063 - 0.002mm) %		43	
Clay (< 0.002mm) %		34	
Textural Classification		Clay Loam	1

Reference: **69483/371686/24**	Field Name: **TRANS 21**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		30	
Silt (0.063 - 0.002mm) %		37	
Clay (< 0.002mm) %		33	
Textural Classification		Clay Loam	1

Reference: **69483/371687/24**	Field Name: **TRANS 22**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		37	
Silt (0.063 - 0.002mm) %		34	
Clay (< 0.002mm) %		29	
Textural Classification		Clay Loam	1

Report continued.....

MICRO NUTRIENT REPORT

DATE **25th June 2024**

SAMPLES FROM **TRANS**

[redacted]

Notes (Continued)

Notes (*)

(1) 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.

MICRO NUTRIENT REPORT

DATE **23rd August 2024**

SAMPLES FROM [redacted]

[redacted]

Reference: **71023/378020/24**	Field Name: **MOR TS 1**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		53	
Silt (0.063 - 0.002mm) %		28	
Clay (< 0.002mm) %		19	
Textural Classification		Sandy Clay Loam	1

Reference: **71023/378021/24**	Field Name: **MOR TS 2**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		54	
Silt (0.063 - 0.002mm) %		26	
Clay (< 0.002mm) %		20	
Textural Classification		Sandy Clay Loam	1

Reference: **71023/378022/24**	Field Name: **MOR TS 3**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		61	
Silt (0.063 - 0.002mm) %		23	
Clay (< 0.002mm) %		16	
Textural Classification		Sandy Loam	1

Reference: **71023/378023/24**	Field Name: **MOR TS 4**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		59	
Silt (0.063 - 0.002mm) %		23	
Clay (< 0.002mm) %		18	
Textural Classification		Sandy Loam	1

Reference: **71023/378024/24**	Field Name: **MOR TS 5**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %		58	
Silt (0.063 - 0.002mm) %		25	
Clay (< 0.002mm) %		17	
Textural Classification		Sandy Loam	1

Reference: **71023/378025/24**	Field Name: **MOR TS 6**	**Result**	**(*)**

Report continued.....

MICRO NUTRIENT REPORT

DATE **23rd August 2024**

SAMPLES FROM

[redacted]

Reference: **71023/378025/24** Field Name: **MOR TS 6**	**Result**	**(*)**
Sand (2.00 - 0.063mm) %	21	
Silt (0.063 - 0.002mm) %	39	
Clay (< 0.002mm) %	40	
Textural Classification	Clay	1

Notes (*)

(1) 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.