Deadline 5 Submission

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This response covers points raised in REP5 -056, 058 and 065 in order to avoid repetitions.

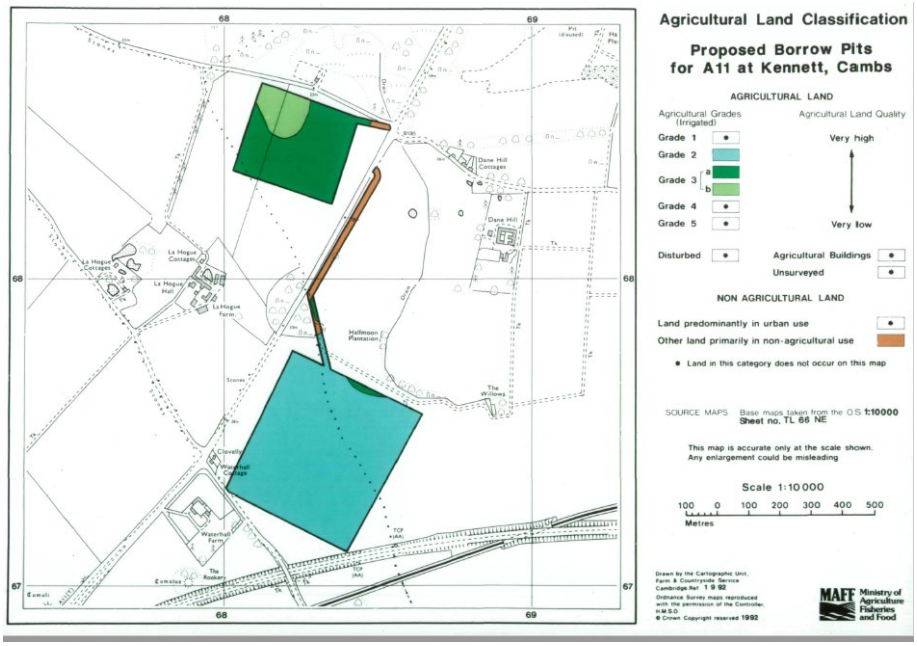
The main points from the Applicant cover The ALC methodology – soil series, pits dug, moisture balance calculations and irrigation.

a. British Society of Soil Science offer courses for professionals undertaking ALC assessments. They also provide a Guidance Note to assist planners assessing ALC reports[1]

b. These guidelines present checklists against which an ALC report can be assessed where reports failing or causing concern on any point should be referred for further assessment These points include: -
    i. where an ALC report contradicts a previous report
    ii. where no map of pits is provided
    iii. where no analysis of sub soils is presented

c. The Applicant continues to assert “Three separate survey providers concur on soil characteristics and the drought limitation to ALC Grade” This is incorrect. Allowing for the removal of the upgrade for irrigated land the MAFF survey at Kennett found 55% of the site was BMV. Furthermore, the Kennett survey also covered a piece of land (shown in dark green at the top of the map) included in the PEIR but then excluded for the DCO. This land was noted as “not irrigated” and classified as 3a contrasting with DBSC assessment of it as grade 4 in the PEIR where the assessment is stated to have been carried out by DBSC

[1] BSSS GUIDELINES Working with Soil Guidance Note on Assessing Agricultural Land Classification Surveys in England and Wales



e SNTS have identified a number of points which would cause “concern” over an assessment or cause it to FAIL according to BSSS guidelines[2].The applicant feels there is nothing to gain by a joint survey- but the significant concerns raised by SNTS, MP’S and local councils need addressing. Sunnica is not answering the queries raised but simply repeating the same assertions. If Sunnica are confident their survey is correct they have everything to gain from a joint survey as the dispute would be resolved.

f. Both myself and NE have requested the moisture balance calculations from Sunnica. We were told they were not available and await the response to NE. RAC were requested to check a number of the calculations given the data provided by Sunnica- sample of these

calculations below which shows completely different gradings, further calculations are given in RAC technical Review [REP2-240d p136 para 5.14]:

Lee Farm

Stone types			Climate Data	
%	TAv	EAv	MDwheat	121
hard	1	0.5	MDpotato	118
chalk	10	7		

Site No.		Depth cm		Texture	stone% hard	stone% chalk		APwheat mm	AP potato mm		DBSC Wheat	DBSC Potato
LF4	T	0	30	mSL	10			46	46			
A		30	50	mSL	10			27	27			
		50	120	Rock				0	0			
							Total	73	73			
							MB	-48	-45	DBSC MB	-28	-24
						Droughtiness grade (DR)		3b	3b		3b	3a
LF4	T	0	30	mSL	10			46	46			
B		30	50	mSL	10			27	27	Assuming similar to depth		
		50	120	mSL	20			62	24			
							Total	136	98			
							MB	15	-20	DBSC MB	-28	-24
						Droughtiness grade (DR)		2	3a		3b	3a
LF4	T	0	30	mSL	10			46	46			
C		30	50	mSL	10			27	27			
		50	70	mSL	30			16	22	Assuming sand and gravel at depth		
		70	120	mS	50			14	0			
							Total	103	95			
							MB	-18	-23	DBSC MB	-28	-24
						Droughtiness grade (DR)		3a	3a		3b	3a

It is clear that DBSC has assumed the presence of *some* soil material beneath what has been stated in the profile logs, but there is no explanation of what assumptions have been made in order to arrive at the conclusion. For example, the first profile investigated by RAC is LF4. The DBSC profile notes 30cm medium sandy loam topsoil with 10% hard stone, overlying another 20cm of medium sandy loam with 10% hard stone. The moisture balances are noted as -28mm for wheat and -24mm for potato.

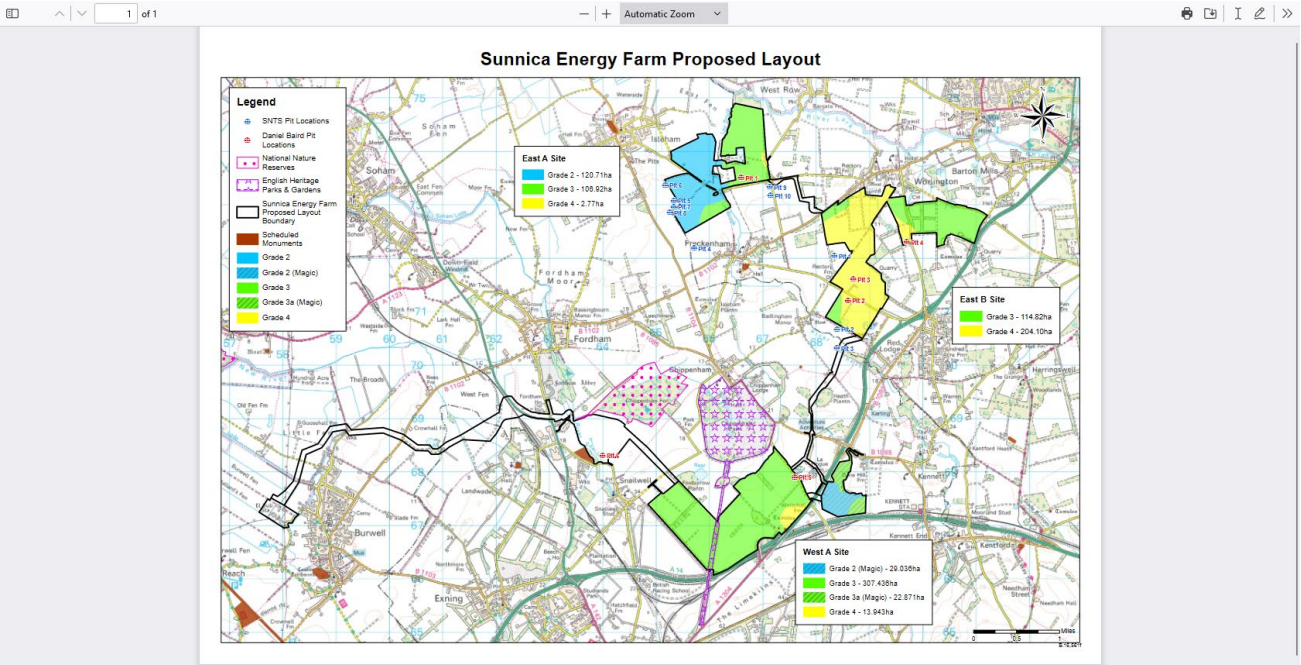
If the profile is assessed as stated with no additional material below 50cm depth, the moisture balances are -48mm for wheat and -45mm for potato (too droughty). If the profile is assessed as stated, with the addition of a logical assumption of the subsoil becoming more stony and passing to sand and gravel at depth, the moisture balances are -18mm for wheat and -23mm for potato (not droughty enough). The DBSC moisture balances have assumed something between these two scenarios with no associated justification. RAC has managed to achieve the same moisture balances as DBSC in profile LF4, by assuming a lower subsoil of medium sandy loam with

35% hard stone overlying rock at the arbitrary depth of 77cm. There is no logical reason why 77cm would be selected.

This pattern is repeated across almost every profile investigated, with DBSC's moisture balances only being achievable by making assumptions on depths and stone contents that are seemingly random. Without the explanation or access to DBSC's raw data, it has to be assumed that the DBSC droughtiness limitations have been derived without any sensible or consistent methodology being applied.

g Pits

1 Locations not representative of the blocks of land – see points in red



2 Pits not dug at same time - pits should be concurrent to inform auger borings Pits dug Sept 21, auger borings 2015-2021

3 No map or photographs of pits provided

4 No assessment of subsoil by laboratory-

5 Pits dug by SNTS close to the Lee Farm fields tested as Clay loam, Sandy Silt loam and Sandy loam. Only pit dug by DBSC on that land tested as Loamy med sand (LmS)

6 Very little variability in auger boring results – test pits dug on County Council land adjacent to DCO varied from Clay loam (3 pits) to Sandy

Silt loam (1 pit) and on a field across the road from DCO varied from Sandy Silt Loam to Clay loam.

7 The pits dug are not as stated representative of the soil series across the site- only 1 pit was dug on Lee Farm where Sunnica identify three soil associations mapped across the site (the Swaffham Prior, Newport 4 and Moulton associations) and fail to identify an additional four. Although not extensive, the Reach, Methwold, Newmarket 2 and Wantage 2 associations are also mapped at the site. The Adventurers' 1 association is additionally mapped at the site boundary at the northern end of Lee Farm. 4.3 Paragraph 5.3.2 of the report (APP-115)

Work by SNTS around the boundary of the DCO site clearly showed much greater variability in soil types (as expected owing to the number of soil series) compared to the very consistent findings by DBSC

Irrigation

1 The Applicant quotes data from the DEFRA "Agricultural facts – East of England", 2019, (submitted as Appendix D) figures to show the actual loss of land is small. The NFU report Irrigation water strategy for UK agriculture and horticulture identifies 150,000ha of irrigated land in England and Wales. The 981ha Sunnica site is nearly 1% of the whole area.

2 Applicant repeats the assertion that irrigation does not impact ALC grade, however PPG 7 Annex B [3]cites irrigation amongst other factors which influence how the land is farmed.

3 This also includes the accessibility to markets and processing plants – British Sugar is 20 miles away- and the extent of buildings and fixed equipment.

4 However the Applicant fails to point out that 62% of the Sugar Beet grown in England is grown in the East of England – the fact that 3 of the 4 beet processing factories are based in the East shows how important this is. Of 108000 ha sugar beet grown 67000ha is grown in the East

5 The applicant also fails to take into account the fact that potatoes and other high quality vegetable crops are not grown on the same land every year but on a minimum 6-year rotation. Removing this land potentially increases the pressure on farmers in the locality to look at reduced rotations leading to increased pests and disease resulting in increased pesticide usage.

6 34% of the potatoes grown in England are grown in the East, the availability of irrigation allows these potatoes to meet the exacting standards set by supermarkets for packing potatoes. Taking this land out of production will move the growing of these potatoes to other areas where winter reservoirs are not common and the pressure on water abstraction may be even greater

[3] PPG 7 Annex B

The LRA peer review of Patrick Stephenson's work

1 This noted a limited amount of field data submitted. APP115 likewise had significant numbers of data points missing with not all observations being supported by pH, structure of individual horizons and detail of stone types found. There are insufficient representative pit observations and associated laboratory and field analyses of soil texture, stone type and volume, and soil structure to support auger observations that were carried out before any pits were excavated. LRA's para 2.5 states, "It is normal when undertaking (ALC) assessments to use data from soil pits to determine the properties above (Soils Stone %age, subsoil structure and depth and effective rooting depth) … …it would also be normal to show the depth to bedrock where this occurs within normal auger sample depth (120cm). Mr Baird only remarks that augering was stopped by stones or rock, these observations were not supported by observations from pits.

2 The DBSC calculations of land grades were unsupported by observations from soil pits **[para 4.2]**, this is emphasised by LRA in the statement "*There are no investigation pits recorded in this field. It is therefore difficult o understand how these gradings were obtained*". LRA quote the Gargetts pit "*does not appear to be representative of any recorded detailed auger sample logs*"., this seems equally to apply to Pit 6 in the DBSC work which has no corresponding auger point.

3 LRA comment in their Peer review of Patrick Stephensons work that "*While a detailed investigation appears to have been undertaken of the land… …there are significant data omissions in the report , the absence of which makes grading according to droughtiness difficult…*"
"*there are inconsistences between soil pit descriptions and the earlier detailed auger sampling logs, which make extrapolation of the pit data to other sample points problematic".* And "*in the absence of droughtiness calculations undertaken, it is not possible to determine how the data omissions/inconsistencies have been overcome to reach the grading conclusions.*"

4 In summary the criticisms levelled at Patrick Stephenson could equally be applied to the report by DBSC.

5 The size of Sunnica as potentially the largest solar farm in the UK makes it even more important that it should be an exemplar for future applications. The doubts raised by the ALC need clarifying before taking out of production 980ha of land growing high quality vegetables which have irrigation from winter fill reservoirs instead of abstracted water which is the case in other areas which are suitable for growing these crops