


APPENDICES- SOILS PLANNING PROOF OF EVIDENCE BY RUTH METCALFE

Land south of Berrington, Shrewsbury, Shropshire SY5 6HA
on behalf of Ecoenergy International Limited
Against the Refusal of Planning Permission by Shropshire Council for:

'Erection of an up to 30MW Solar PV Array, comprising ground mounted solar PV panels, vehicular access, internal access tracks, landscaping and associated infrastructure, including security fencing, CCTV, client storage containers and grid connection infrastructure, including substation buildings and off-site cabling.'

APP/L3245/W/23/3332543

LPA ref. 22/04355/FUL

LPA Appeal Reference: 23/03207/REF

ADAS Rosemaund, Preston Wynne, Hereford, HR1 3PG

Table of Contents

Appendix Soil 1

From: Reed, Eleanor <Eleanor.Reed@naturalengland.org.uk>
Sent: Friday, January 5, 2024 3:08 PM
To: Ruth Metcalfe <Ruth.Metcalfe@adas.co.uk>
Subject: RE: ALC - IRRIGATION

Hi Ruth,

As you correctly state below, irrigation was removed from the ALC methodology in 1997.

Following a review of the ALC methodology in 1996 the use of irrigation within the ALC system was seen as inconsistent with the general ALC approach which sought to classify land according to the extent to which '*it's physical and chemical characteristics impose long-term limitations on agricultural use for food production*'. The removal of the consideration of irrigation in the ALC methodology was reflected in the 1997 version of PPG7, which has irrigation classed under the 'other consideration' heading – see Annex B, paragraph B11 (See below). The approach taken in the light of this was that irrigation should not be used to upgrade land. Irrigation can have a beneficial effect but it would be considered as another factor for planning authorities to take into account, alongside other non-land quality factors such as location, farm structure etc. Therefore, the PPG indicated to LPAs that irrigation was a benefit to the productive potential of land which might be taken account of (because it was no longer a factor used in ALC grading), however, this level of detail no longer exists in the current National Planning Policy Framework (NPPF).

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www.gov.uk/natural-england

Appendix Soil 2

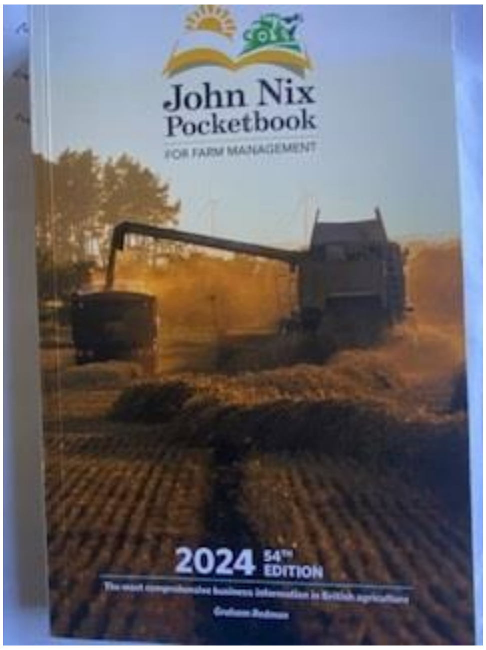
Town and Country Planning Act 1990 S336:

"agriculture" includes horticulture, fruit growing, seed growing, dairy farming, the breeding and keeping of livestock (including any creature kept for the production of food, wool, skins or fur, or for the purpose of its use in the farming of land), the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes, and "agricultural" shall be construed accordingly;

S55 (2)(e) Meaning of Development and New Development

(2) The following operations or uses of land shall not be taken for the purposes of this Act to involve development of the land—

(e) the use of any land for the purposes of agriculture or forestry (including afforestation) and the use for any of those purposes of any building occupied together with land so used;



Appendix Soil 3

II ENTERPRISE DATA

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1. CROPS

WHEAT

Feed Winter Wheat

Production level	Low	Average	High	
Yield: t/ha (t/ac)	7.25 (2.9)	8.60 (3.5)	10.00 (4.1)	
	£	£	£	£/t
Output at £150/t	1,088 (441)	1,290 (522)	1,500 (608)	150
Variable Costs £/ha:				
Seed......................		63 (26)		7
Fertiliser.................		211 (85)		25
Sprays....................		255 (103)		30
Total Variable Costs		529 (214)		62
Gross Margin £/ha (ac)	**559** (226)	**761** (308)	**971** (393)	**88**

Fertiliser Basis 8.6t/ha

Nutrient	Kg/t	Kg/Ha	£/Ha
N	22	190	£143
P	7.8	67	£45
K	5.6	48	£22

Seed:

£/t C2	£400
Kg/Ha	175
% HSS	35%
£/t HSS	£282

Sprays £/ha:

Herbicides	£103
Fungicides	£121
Insecticides	£8
PGRs	£18
Other	£6

1. *Yields*. The average yield is for all winter feed wheat, i.e. all varieties and 1st and subsequent wheats. See over for more on First and Second Wheats. The overall yield used for feed and milling wheats including spring varieties calculates as 8.53t/ha.
2. *Straw* is costed as incorporated. Average yield and price is approximately 3.5 tonnes per hectare at £67/tonne (£5 more in small bales); variable costs (string) approx. £3.60 per tonne. Unbaled straw (sold for baling): anything from £50/ha (£20/acre) to £180/ha (£73/acre), national average around £85/ha (£34/acre). Account for minerals and organic matter taken from soil if removing straw.
3. *Seed* is costed with a single purpose dressing. Farm-saved percentages as according to pesticide survey 2010 & recent updates. Up to a third of growers have an increasing requirement for additional seed treatments, in particular to supress BYDV. This can add around £140 per tonne of seed (£24.80/ha). This has not been added in the gross margins so should be considered.
4. This schedule does not account for severe *grass weed infestations* such as Black Grass or Sterile Brome. Costs associated with managing such problems can amount to up to £160/hectare additional agrochemical costs. Yield losses increase as infestation rises:

Yield losses from Black Grass Infestations

Grass plants/m²	*Yield loss t/Ha*	*% yield loss*
8-12	*0.2-0.4*	*2-5%*
12-25	*0.4-0.8*	*5-15%*
100	*1-2*	*15-25%*
>300	*+3*	*37%*

References:
Roebuck, J.F. (1987). B.C.P.C. and
Blair A, Cussans J, Lutman P (1999).

II ENTERPRISE DATA

Milling Winter Wheat

Production level	Low	Average	High	
Yield: t/ha (t/ac)	7.00 (2.8)	8.30 (3.4)	9.50 (3.8)	
	£	£	£	£/t
Output at £160/t	1,120 (454)	1,328 (538)	1,520 (616)	160
Variable Costs £/ha:				
Seed......................		67 (27)		8
Fertiliser.................		254 (103)		31
Sprays....................		264 (107)		32
Total Variable Costs		585 (237)		71
Gross Margin £/ha (ac)	**535** (217)	**743** (301)	**935** (379)	**89**

Fertiliser Basis 8.3t/ha

Nutrient	Kg/t	Kg/Ha	£/Ha
N	30	250	£188
P	7.8	65	£44
K	5.6	46	£21

Seed:

£/t C2	£420
Kg/Ha	175
% HSS	30%
£/t HSS	292

Sprays £/ha:

Herbicides	£103
Fungicides	£127
Insecticides	£8
PGRs	£18
Other	£9

5. The average *milling price* is based on a 'full specification' (NABIM Group 1) premium of £14.50 over feed wheat, a 'biscuit' grade (NABIM Group 2) milling specification of £7 and a 20% failure rate of achieving the specification. The average milling wheat premium has fallen in recent years as more is now grown and yields are higher. Full specification is defined as NABIM Group 1 wheat with a minimum Hagberg of 250, 13% protein and a bushel weight of at least 76kg/hl.
6. *Milling v. Feed*. The yield of bread and biscuit wheat (generically known as milling) was historically about 8% below feed wheat but is now less than 3% (source: *AHDB*). The price premium varies according to quality and scarcity. Not all deliveries achieve full specification. Group 2 yields are higher than Group 1. Full specification bread-making premium averaged £22/tonne from 2012 to 2017, but £14.50/tonne over the following 2 years. NABIM wheat group 1 varieties accounted for about 24% of 2019 wheat area.

Comparison between First and Second Feed Wheat Crops

Production level	Average		High	
Year (after break)	First	Second	First	Second
Yield: t/ha (t/ac)	8.75 (3.5)	8.14 (3.3)	10.5 (4.3)	9.66 (3.9)
	£	£	£	£
Output	1,313 (532)	1,221 (494)	1,575 (638)	1,449 (587)
Variable Costs £/ha:				
Seed......................	61 (25)	106 (43)	61 (25)	106 (43)
Fertiliser.................	207 (84)	193 (78)	249 (101)	229 (93)
Sprays....................	250 (101)	272 (110)	250 (101)	272 (110)
Variable Costs	518 (210)	571 (231)	560 (227)	607 (246)
Gross Margin £/ha (ac)	**795** (322)	**650** (263)	**1015** (411)	**842** (341)

Appendix Soil 4

Human and industrial demand up but animal feed down: Grain market daily

Thursday, 26 January 2023

How much grain are we expecting to export?

With such a large surplus of domestic grain this year, a big watchpoint is how much we export this season. Wheat exports have initially been forecast at 1.15Mt, up 639Kt on the year. To reach this level, we would need to export at least 100Kt on average per month for the rest of the season (Dec-Jun) given the 432Kt that has been exported to end-November.

Appendix Soil 5

Decision notice 22/03068/FUL Proposed Solar Farm to the South of Holyhead Road, Albrighton, Shropshire

Final decommissioning

22. All photovoltaic panels and other structures constructed in connection with the approved development shall be physically removed from the Site within 40 years of the date of first export of electricity from the Site and the Site shall be reinstated to agricultural fields. The Local Planning Authority shall be provided with not less than one week's notice in writing of the intended date for commencement of decommissioning works under the terms of this permission.

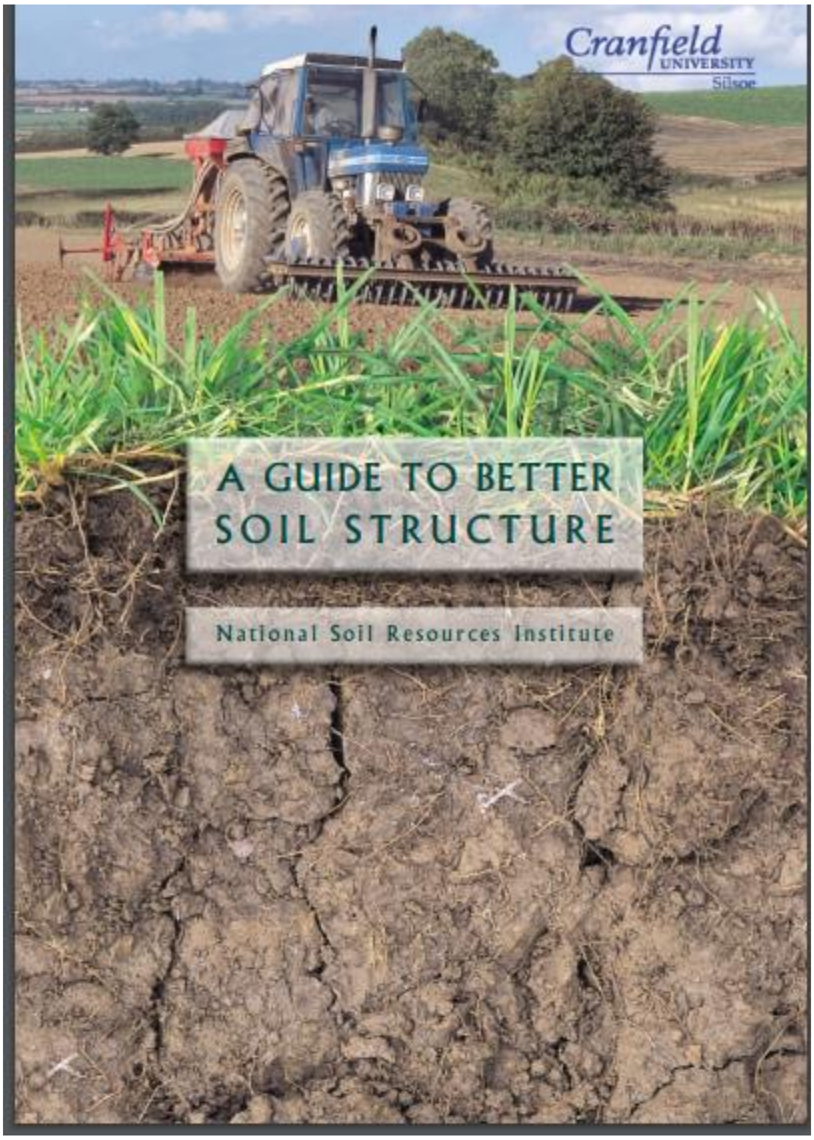
Reason: To allow the site to be reinstated to an agricultural field capable of full productivity at the end of the planned design life of the development and to afford the Local Planning Authority the opportunity to record and monitor decommissioning.

Decision Notice 22/01816/FUL Land to the west of County Lane, Albrighton, Shropshire

19. Notwithstanding the DNO Substation, all photovoltaic panels and other structures constructed in connection with the approved development shall be physically removed from the Site within 40 years of the date the first export of energy from the site and the site shall be reinstated to agricultural fields. The Local Planning Authority shall be provided with not less than one week's notice in writing of the intended date for commencement of decommissioning works under the terms of this permission.

Reason: To allow the site to be reinstated to an agricultural field capable of full productivity at the end of the planned design life of the development and to afford the Local Planning Authority the opportunity to record and monitor decommissioning and to accord with Policy CS1 , CS5 and CS6 of the Core Strategy.

Appendix Soil 6



Appendix Soil 7

From: SM-NE-Consultations (NE) [redacted]>
Sent: 07 October 2022 13:23
To: planning.comments
Subject: Shropshire Council Planning Application Consultation 22/01866/FUL - The Old Airfield Site
Attachments: ufm2_Consult_-_Standardn.pdf; Annex A.pdf

detailed surveys are required. Soil is a finite resource which plays an essential role within sustainable ecosystems, performing an array of functions supporting a range of ecosystem services, including storage of carbon, the infiltration and transport of water, nutrient cycling, and provision of food. It is recognised that a proportion of the agricultural land will experience temporary land loss. In order to both retain the long term potential of this land and to safeguard all soil resources as part of the overall sustainability of the whole development, it is important that the soil is able to retain as many of its many important functions and services (ecosystem services) as possible through careful soil management and appropriate soil use, with consideration on how any adverse impacts on soils can be avoided or minimised. Code of Practice for the Sustainable Use of Soils on Construction Sites. Consequently, Natural England would advise that any grant of planning permission should be made subject to conditions to safeguard soil resources and agricultural land, including a required commitment for the preparation of reinstatement, restoration and aftercare plans; normally this will include the return to the former land quality (ALC grade).

SCIENCE NOTE: SOIL CARBON

BRITISH SOCIETY OF SOIL SCIENCE

Soils contain more carbon than the atmosphere and plants combined.

Under certain conditions, with careful management, soils can absorb more carbon and act as an important *carbon sink*. This Science Note explores the importance of carbon in soils, how it behaves, and how soil carbon might be increased to help address the climate crisis.

Key points, based on current scientific evidence:

- Modern farming has reduced the amount of carbon held in some soils. These trends can be reversed over many years by switching to sustainable soil management (or 'regenerative agricultural/agroecological') practices such as minimum tillage (including reducing the amount of ploughing which takes place) use of 'cover' crops to protect bare soils between the main commercial crops, and application of bulky organic manures/composts.
- Improving soil carbon can improve soil health, making soils more resilient to climate change. These stocks naturally reach a balance where the amount of carbon 'going in' matches those 'going out'.
- Carbon enters soils as living, dead and decaying plant, microbial and animal material. This material is broken down by microorganisms with some carbon left behind as stable organic matter. Where the rate of decomposition is greater than the rate of addition, then soils will lose carbon over time. The reverse is also true.
- To hold more carbon in the soil than would naturally be present, less degradable forms of carbon such as biochar can be added. These should not be seen as a quick fix for climate change, as they can damage soils if used inappropriately.
- Where financial incentives are developed to encourage sustainable soil management or specific carbon input practices, it is essential that funders provide ongoing support to these schemes - with periodic testing of soil carbon. It can take many years to increase soil carbon, and although modelling can be used to estimate future carbon stocks in specific soils, this must be checked through localised testing over the long-term.
- It is also vital to protect the existing carbon stores in well-functioning permanent grasslands, moorlands, wetlands and woodlands by preventing ploughing/ cultivation or other carbon emitting land use change in these habitats.
- Sequestering carbon in soils and vegetation (by adding more carbon than is lost), is important for long term soil resilience and health, but becomes irrelevant as a response to climate change if governments do not also transition to eliminating the burning of fossil fuels.