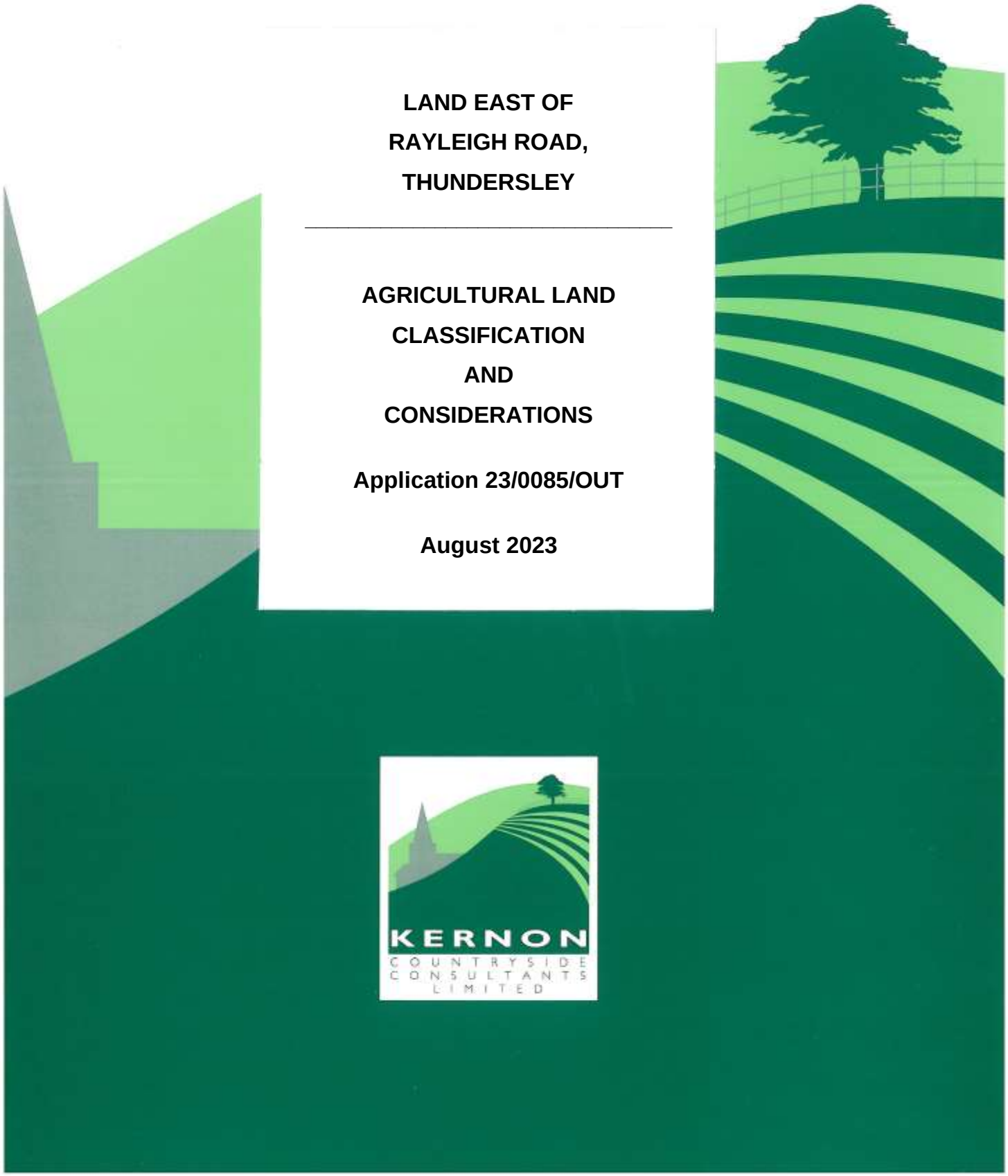
LAND EAST OF RAYLEIGH ROAD, THUNDERSLEY

AGRICULTURAL LAND CLASSIFICATION AND CONSIDERATIONS

Application 23/0085/OUT

August 2023



KERNON
COUNTRYSIDE CONSULTANTS LIMITED

LAND EAST OF
RAYLEIGH ROAD,
THUNDERSLEY

AGRICULTURAL LAND
CLASSIFICATION
AND
CONSIDERATIONS

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August 2023

Authorised By APK 08/23

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CONTENTS

Appendices

Plans

1 INTRODUCTION

1.1 This report considers the agricultural land quality of a parcel of land extending to 27.9 ha east of Rayleigh Road, Thundersley. It follows a request from Natural England (28th March 2023).

1.2 The site is partly in agricultural use, in grassland, and partly in equestrian grazing use. The site includes two sets of buildings and a lake. The agricultural land within the site extends to approximately 19.3 ha.

1.3 The site is shown edged red on the Google Earth image below.

Insert 1: The Site (boundary approx.)

1.4 A detailed Agricultural Land Classification has been carried out over the site. The site has been classified as mostly ALC subgrade 3a, with small patches of Grade 2 and subgrade 3b.

1.5 This report:

(i) reviews the relevant planning policy in section 2;
(ii) describes the site and the ALC survey and findings in section 3;
(iii) considers the ALC results in the policy context in section 4.
(iv) and ends with a summary and conclusions in section 5.

1.6 This report has been prepared by Kernon Countryside Consultants Ltd. We specialise in assessing the effects of development proposals on agricultural land and businesses.

2 RELEVANT PLANNING POLICY AND GUIDANCE

National Planning Policy Framework

2.1 The National Planning Policy Framework (NPPF) (2021), paragraph 174 notes that planning policies and decisions should contribute to and enhance the natural and local environment by, inter alia, recognising "**the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land**".

2.2 The best and most versatile (BMV) agricultural land is defined in Annex 2 of the NPPF as land which is of Grade 1, 2 and subgrade 3a of the Agricultural Land Classification.

2.3 Paragraph 175 of the NPPF discusses plan making. It requires plans to, inter alia, allocate land with the least environmental or amenity value, where consistent with other policies in the Framework. Footnote 58 of the NPPF identifies that "**where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality**".

2.4 There is no definition of what constitutes "significant" development. However, the "Guide to assessing development proposals on agricultural land" (Natural England, February 2021) advises local planning authorities to "**take account of smaller losses (under 20ha) if they're significant when making your decision**", suggesting that 20ha is a suitable threshold for defining "significant" in many cases.

Local Plan

2.5 There are no "saved" policies of relevance in the Castle Point Borough Council Local Plan 1998.

Guidance

2.6 Natural England's "Guide to Assessing Development Proposals on Agricultural Land" (February 2021) describes the ALC process and sets out guidance on managing soils. It advises on the consultation process where more than 20ha of BMV land is involved.

2.7 The Institute of Environmental Management and Assessment (IEMA) produced a Guide "A New Perspective on Land and Soil in Environmental Impact Assessment" in February 2022. Whilst this refers to EA development, it identifies in table 3 (page 49) the magnitude of the impacts on soil resources.

3 AGRICULTURAL LAND QUALITY OF THE SITE

The ALC System

3.1 The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on the agricultural use of the site. The ALC system divides agricultural land into five grades, Grade 1 of the ALC is described as being of excellent quality and Grade 5, at the other end of the scale, is described as being of very poor quality. The current guidelines and criteria for ALC were published by the Ministry of Agriculture, Fisheries and Food (MAFF) in 1988.

3.2 The ALC system is further described in Natural England's Technical Information Note 049, which can be found reproduced in **Appendix KCC1**.

Detailed ALC Survey Results

3.3 KCC Ltd carried out a detailed ALC survey on the 24th July 2023. 25 auger point inspection sites were examined on a regular 100m grid, using a spade and soil auger to a maximum depth of 120cm where possible.

3.4 Soil pits were dug to measure stoniness and to better describe the soil profiles.

3.5 The detailed ALC logs are set out in **Appendix KCC2**.

3.6 The site is of generally good, very good or moderate land quality, as identified in **Appendix KCC2**. The soil quality of the site is limited by soil wetness, and in places by soil droughtiness.

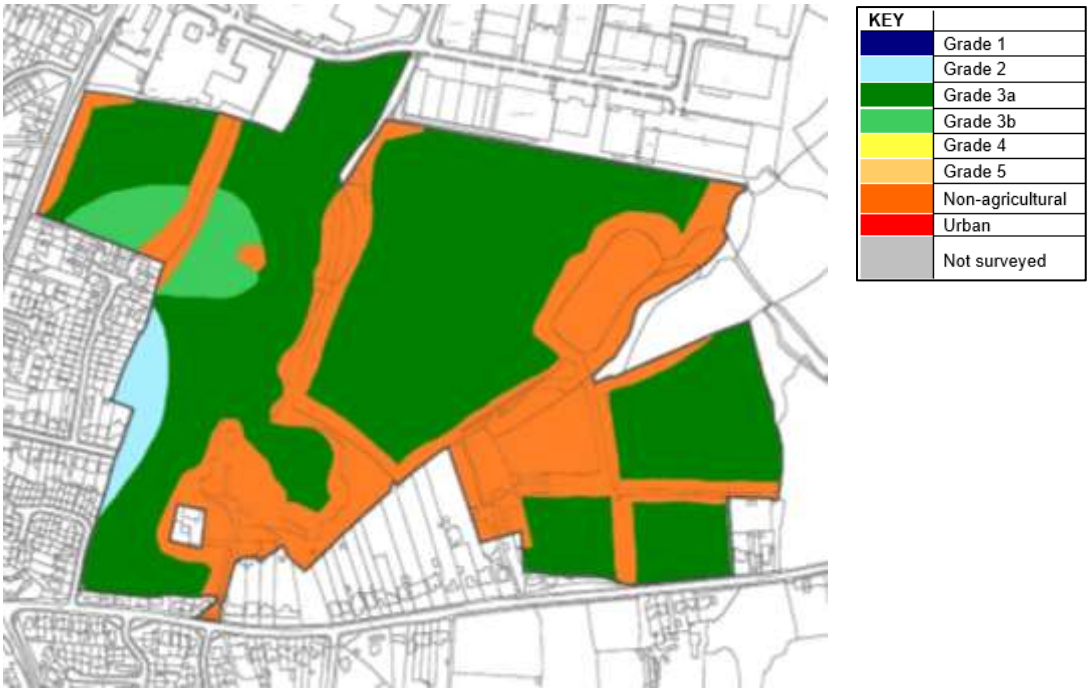
3.7 The results of the survey can be seen in the table below.

Table 1. ALC Results

ALC Grade	Description	Area (ha)	Proportion (%)
Grade 2	Very Good	0.6	2
Subgrade 3a	Good	17.3	62
Subgrade 3b	Moderate	1.4	5
Other (Non – agricultural land)	-	8.6	31
Total	**-**	**27.9**	**100**

3.8 The distribution of grading can be seen on the extract of the ALC plan below. The full plan can be found at the back of this report, referenced **Plan KCC3499/02.**

Insert 2. Extract of the ALC Plan



3.9 Within the site 19.3 ha is agricultural land or land used for grazing horses, the rest is non-agricultural land or urban land.

4 POLICY ASSESSMENT

4.1 The NPPF (2021) identifies land of Grades 1, 2 and 3a as the best and most versatile agricultural land and requires, in the context of plan making, that where significant development of such land is demonstrated to be necessary, poorer quality land is to be used in preference.

4.2 The Castle Point Borough Council Local Plan (1998) has no policy of relevance.

Land Quality in the Area Generally and Whether Poorer Quality Land is Available

4.3 The significance of development involving agricultural land needs to be considered in context. Across England it is estimated that 42% of farmland is of Grade 1, 2 and 3a quality (see TIN049, **Appendix KCC1**).

4.4 The MAFF statistics from the "provisional" ALC from the 1970s graded 11,433,000 ha. 42% of that land would be 4.8 million hectares. However that is an overestimation of the quality of land as a consequence of the 1:250,000 mapping scale.

4.5 The Utilised Agricultural Area (UAA) of England, which is less than the total amount of agricultural land was 8.9 million hectares in 2022 (Agricultural Land Use in England at 1 June 2022, DEFRA, 29 September 2022). This suggests that 3.7 million hectares of BMV land is in active agricultural use.

4.6 Statistically about 40% of Grade 3 land falls within Subgrade 3a. However, in parts of the country the proportion of Subgrade 3a is expected to be much higher.

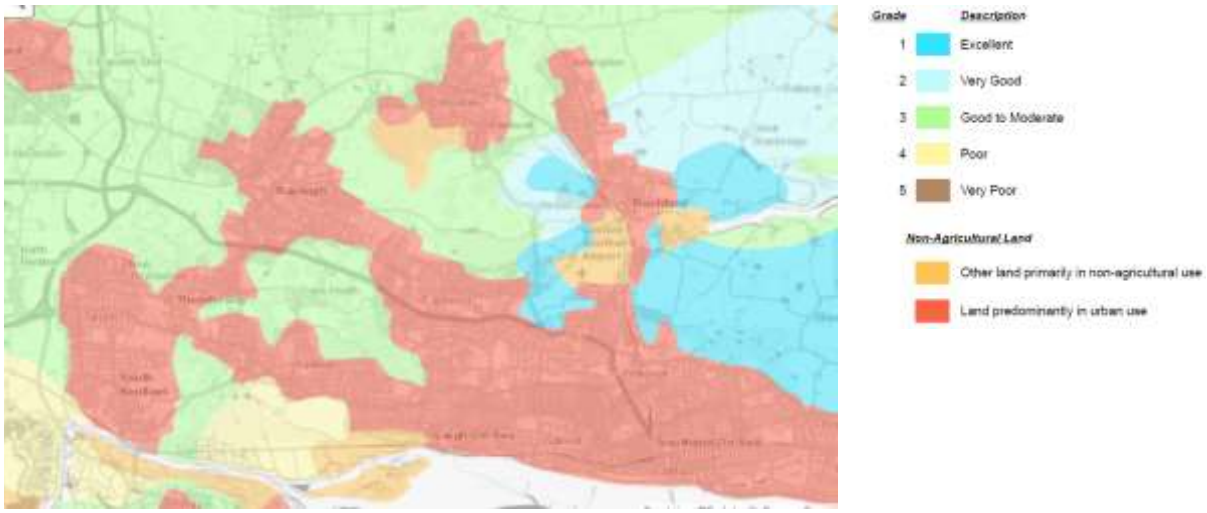
4.7 Therefore, it is not considered that BMV quality land is a rare resource.

4.8 On the published "provisional" ALC maps from the 1970s the land is shown as undifferentiated Grade 3, with land around it predominantly also undifferentiated Grade 3.

Insert 3: Provisional ALC Map

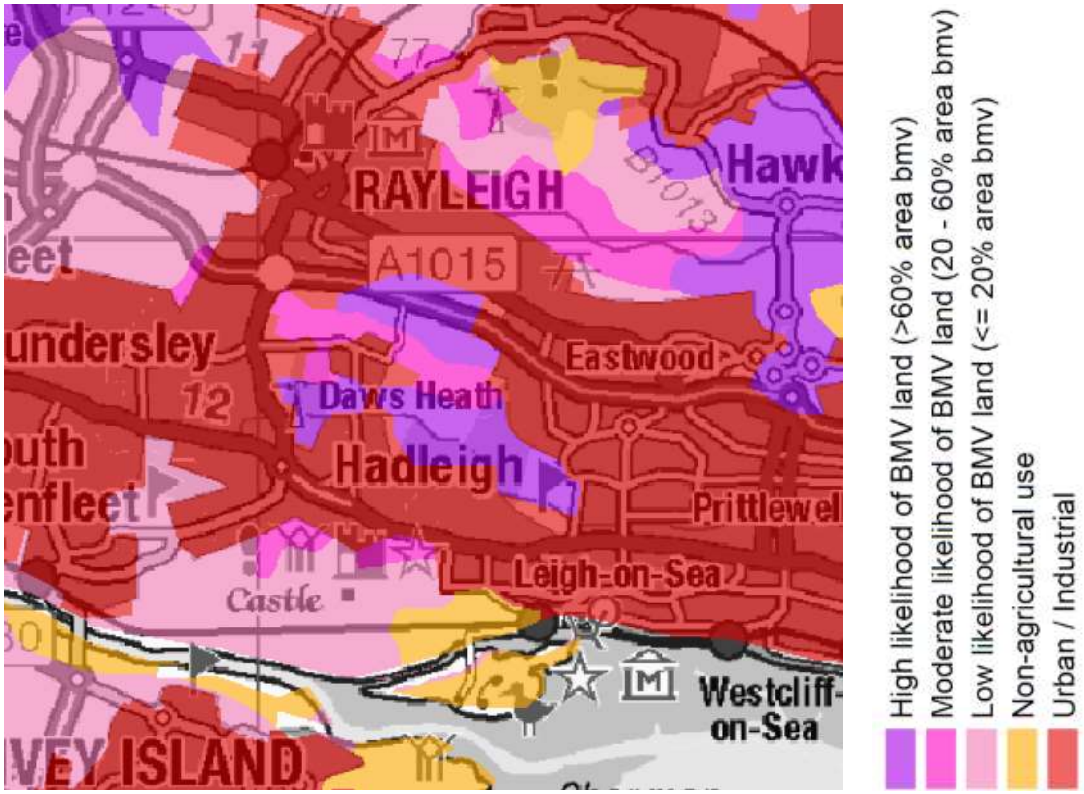
4.9 Taking a wider view it can be seen that most of the land is undifferentiated Grade 3, with better quality not identified until north of Southend-on-Sea.

Insert 4: Provisional ALC, Wider Area



4.10 In 2017 Natural England produced predictive likelihood of best and most versatile maps. These estimate the proportion of land within an area that is of BMV quality. There are three categories which are low (<20% area BMV), moderate (20-60% area BMV), and high (>60% area BMV). For this area the map shows the site as being a moderate likelihood of BMV.

Insert 5: Predictive Best and Most Versatile Map



4.11 There is no detailed ALC data for this site and no agricultural land classifications have been found to have been completed close to the site. The wider position is shown below.

Insert 6: Available ALC Data

4.12 Based on this, it can be concluded, in terms of land quality in the local area, that the land surrounding the site is considered to be of similar quality based on the provisional and predictive likelihood of BMV maps.

Economic Benefits

4.13 There is no research available that we are aware of that seeks to analyse the productive economic advantages of BMV to non-BMV land. Grade 2 land is described in the ALC as capable of growing moderate to high yields of a narrow range of crops, or a moderate yield from a wider range of crops. Subgrade 3a is described as producing a moderate yield from a wider range of crops, principally cereals or grass, or lower yields of a wider range of crops.

4.14 In the absence of any empirical data, any economic assessment is inevitably crude. Taking standard budgeting textbooks, such as John Nix Pocketbook for Farm Management (extracts which have been reproduced in **Appendix KCC3**), it is possible to show the difference between moderate and high yields, as an illustration between crop grown in BMV land and non-BMV.

4.15 Taking that crude measure and notwithstanding that the land is in grassland at present, applying it to winter wheat and oilseed rape, the differences are shown below.

Table 2. Assessment of Economics of Farmed Land

Item	**Winter Wheat**		**Oilseed Rape**	
	Average	**High**	**Average**	**High**
Yield (t/ha)	8.6t/ha	10.0t/ha	3.5t/ha	4.0t/ha
Output (£)	£2,108/ha	£2,423/ha	£1,803/ha	£2,060/ha
Gross Margin (£)	£1,200/ha	£1,515/ha	£1,066/ha	£1,363/ha
Uplift (£)	-	£315/ha	-	£257/ha

John Nix Pocketbook for Farm Management, September 2022

4.16 The site is in arable use. The economic benefits of the 17.9 ha of BMV land to non-BMV land would be less than £6,000 per annum. Hence the economic benefits of these land parcels are fairly limited.

4.17 The Proposed Development will not have a significant adverse impact on a full-time farm business, nor will it result in any other agricultural land being affected.

4.18 The land is in a mix of different uses:

- agricultural grass for mowing;
- grassland for grazing/keeping horses;
- former farm buildings in commercial use;
- fishing lakes.

4.19 The agricultural business impacts are minor. Non-agricultural business impacts fall outside the scope of this assessment.

Whether this is "Significant" Development

4.20 Paragraphs 174 and 175 of the NPPF consider whether poorer quality land is available with the trigger for an assessment being that the proposal involves "**significant development of agricultural land**". "**Significant Development**" is not defined within the NPPF. One threshold for determination of what is significant is the threshold for consultation with Natural England, which is set at the loss of 20 ha or more of BMV land (as can be seen in the TIN049 in **Appendix KCC1**). This has been the threshold for consultation with MAFF since 1987.

4.21 The quantum of BMV agricultural land within the site is under the 20 ha threshold for consultation with Natural England. Therefore the development is not significant development of agricultural land against that threshold.

4.22 In plan making terms Footnote 58 of the NPPF "**Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality**".

4.23 Whether there is poorer quality land within the area has been assessed through predictive and provisional maps alongside a search within the area for previously graded land. This found that there is no poorer quality land available.

Conclusion

4.24 The site was surveyed in July 2023. This identified that the site is a mixture of Grades, mostly subgrade 3a.

4.25 The quantum of BMV land at the site equates to 17.9 ha, thus below the threshold for consultation with Natural England (which is set at 20 ha).

4.26 There are no other obvious areas of poorer quality land available within the locality. Provisional maps, indicate that the site and land surrounding it as undifferentiated Grade 3, but all the land nearby is shown as having a moderate likelihood of BMV, as is the site.

4.27 When considering the economic benefits of the agricultural land, it is estimated that the economic benefits of the site are less than £6,000 per annum. For a site of this size, this is limited.

4.28 This site is made up a number of fields in agricultural or equestrian use. There are to be no significant adverse effects to farming businesses.

5 SUMMARY AND CONCLUSION

5.1 The proposed site extends to 27.9 ha. Within that 19.3 ha is agricultural land. The rest is trees, building or equestrian facilities.

5.2 The land has been classified as comprising of 0.6 ha (2%) of Grade 2, 17.3 ha (62%) of Subgrade 3a, 1.4 ha (5%) of Subgrade 3b, with a remaining 8.6 ha (31%) of land that has not been classified due to not being agricultural (listed as non-agricultural).

5.3 The NPPF requires the economic benefits and other benefits of BMV land to be considered. The land is in a mix of agricultural and non-agricultural uses. Theoretically, if all the land was put to an intensive arable farming use, the economic benefits of the site would be limited, at under £6,000 per annum.

5.4 With regards to the NPPF, in plan making terms "**Significant Development**" of agricultural land is necessary, poorer quality land in the area should be considered in preference. The land in the area is all expected to be of a similar quality and there is no land nearby that is expected to be of poorer quality.

5.5 The land is a mix of agricultural and equestrian use. Poorer quality land is not generally available. The quantum of land is below the threshold for consultation with Natural England. Only limited weight should be accorded the loss of the BMV land in this instance.

Appendix KCC1

Natural England's Technical Information Note TIN049

Natural England Technical Information Note TIN049

Agricultural Land Classification: protecting the best and most versatile agricultural land

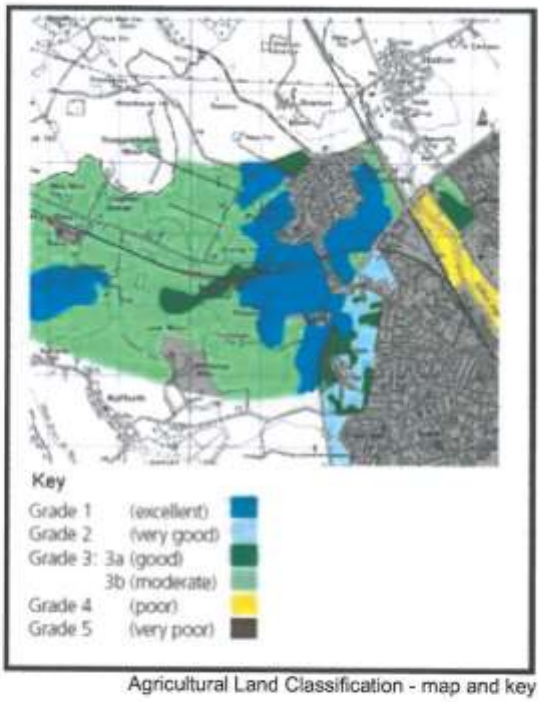
Most of our land area is in agricultural use. How this important natural resource is used is vital to sustainable development. This includes taking the right decisions about protecting it from inappropriate development.

Policy to protect agricultural land

Government policy for England is set out in the National Planning Policy Framework (NPPF) published in March 2012 (paragraph 112). Decisions rest with the relevant planning authorities who should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of higher quality. The Government has also re-affirmed the importance of protecting our soils and the services they provide in the Natural Environment White Paper The Natural Choice:securing the value of nature (June 2011), including the protection of best and most versatile agricultural land (paragraph 2.35).

The ALC system: purpose & uses

Land quality varies from place to place. The Agricultural Land Classification (ALC) provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system. It helps underpin the principles of sustainable development.



Agricultural Land Classification - map and key

Second edition 19 December 2012
www.naturalengland.org.uk

NATURAL ENGLAND

Agricultural Land Classification: protecting the best and most versatile agricultural land

The ALC system classifies land into five grades, with Grade 3 subdivided into Subgrades 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a by policy guidance (see Annex 2 of NPPF). This is the land which is most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non food uses such as biomass, fibres and pharmaceuticals. Current estimates are that Grades 1 and 2 together form about 21% of all farmland in England; Subgrade 3a also covers about 21%.

The ALC system is used by Natural England and others to give advice to planning authorities, developers and the public if development is proposed on agricultural land or other greenfield sites that could potentially grow crops. The Town and Country Planning (Development Management Procedure) (England) Order 2010 (as amended) refers to the best and most versatile land policy in requiring statutory consultations with Natural England. Natural England is also responsible for Minerals and Waste Consultations where reclamation to agriculture is proposed under Schedule 5 of the Town and Country Planning Act 1990 (as amended). The ALC grading system is also used by commercial consultants to advise clients on land uses and planning issues.

Criteria and guidelines

The Classification is based on the long term physical limitations of land for agricultural use. Factors affecting the grade are climate, site and soil characteristics, and the important interactions between them. Detailed guidance for classifying land can be found in: *Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988):

- **Climate:** temperature and rainfall, aspect, exposure and frost risk.
- **Site:** gradient, micro-relief and flood risk.
- **Soil:** texture, structure, depth and stoniness, chemical properties which cannot be corrected.

The combination of climate and soil factors determines soil wetness and droughtiness. Wetness and droughtiness influence the choice of crops grown and the level and consistency of yields, as well as use of land for grazing livestock. The Classification is concerned with the inherent potential of land under a range of farming systems. The current agricultural use, or intensity of use, does not affect the ALC grade.

Versatility and yield

The physical limitations of land have four main effects on the way land is farmed. These are:

- the range of crops which can be grown;
- the level of yield;
- the consistency of yield; and
- the cost of obtaining the crop.

The ALC gives a high grading to land which allows more flexibility in the range of crops that can be grown (its 'versatility') and which requires lower inputs, but also takes into account ability to produce consistently high yields of a narrower range of crops.

Availability of ALC information

After the introduction of the ALC system in 1966 the whole of England and Wales was mapped from reconnaissance field surveys, to provide general strategic guidance on land quality for planners. This Provisional Series of maps was published on an Ordnance Survey base at a scale of One Inch to One Mile in the period 1967 to 1974. These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended and can be downloaded from the Natural England **website**. This data is also available on 'Magic', an interactive, geographical information website **http://magic.defra.gov.uk/**.

Since 1976, selected areas have been re-surveyed in greater detail and to revised

guidelines and criteria. Information based on detailed ALC field surveys in accordance with current guidelines (MAFF, 1988) is the most definitive source. Data from the former Ministry of Agriculture, Fisheries and Food (MAFF) archive of more detailed ALC survey information (from 1988) is also available on **http://magic.defra.gov.uk/**. Revisions to the ALC guidelines and criteria have been limited and kept to the original principles, but some assessments made prior to the most recent revision in 1988 need to be checked against current criteria. More recently, strategic scale maps showing the likely occurrence of best and most versatile land have been prepared. Mapped information of all types is available from Natural England (see *Further information* below).

New field survey

Digital mapping and geographical information systems have been introduced to facilitate the provision of up-to-date information. ALC surveys are undertaken, according to the published Guidelines, by field surveyors using handheld augers to examine soils to a depth of 1.2 metres, at a frequency of one boring per hectare for a detailed assessment. This is usually supplemented by digging occasional small pits (usually by hand) to inspect the soil profile. Information obtained by these methods is combined with climatic and other data to produce an ALC map and report. ALC maps are normally produced on an Ordnance Survey base at varying scales from 1:10,000 for detailed work to 1:50 000 for reconnaissance survey

There is no comprehensive programme to survey all areas in detail. Private consultants may survey land where it is under consideration for development, especially around the edge of towns, to allow comparisons between areas and to inform environmental assessments. ALC field surveys are usually time consuming and should be initiated well in advance of planning decisions. Planning authorities should ensure that sufficient detailed site specific ALC survey data is available to inform decision making.

Consultations

Natural England is consulted by planning authorities on the preparation of all development plans as part of its remit for the natural environment. For planning applications, specific consultations with Natural England are required under the Development Management Procedure Order in relation to best and most versatile agricultural land. These are for non agricultural development proposals that are not consistent with an adopted local plan and involve the loss of twenty hectares or more of the best and most versatile land. The land protection policy is relevant to all planning applications, including those on smaller areas, but it is for the planning authority to decide how significant the agricultural land issues are, and the need for field information. The planning authority may contact Natural England if it needs technical information or advice.

Consultations with Natural England are required on all applications for mineral working or waste disposal if the proposed afteruse is for agriculture or where the loss of best and most versatile agricultural land agricultural land will be 20 ha or more. Non-agricultural afteruse, for example for nature conservation or amenity, can be acceptable even on better quality land if soil resources are conserved and the long term potential of best and most versatile land is safeguarded by careful land restoration and aftercare.

Other factors

The ALC is a basis for assessing how development proposals affect agricultural land within the planning system, but it is not the sole consideration. Planning authorities are guided by the National Planning Policy Framework to protect and enhance soils more widely. This could include, for example, conserving soil resources during mineral working or construction, not granting permission for peat extraction from new or extended mineral sites, or preventing soil from being adversely affected by pollution. For information on the application of ALC in Wales, please see below.

Further information

Details of the system of grading can be found in: *Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

Please note that planning authorities should send all planning related consultations and enquiries to Natural England by e-mail to **consultations@naturalengland.org.uk**. If it is not possible to consult us electronically then consultations should be sent to the following postal address:

Natural England
Consultation Service
Hornbeam House
Electra Way
Crewe Business Park
CREWE
Cheshire
CW1 6GJ

ALC information for Wales is held by Welsh Government. Detailed information and advice is available on request from Ian Rugg (**ian.rugg@wales.gsi.gov.uk**) or David Martyn (**david.martyn@wales.gsi.gov.uk**). If it is not possible to consult us electronically then consultations should be sent to the following postal address:

Welsh Government
Rhodfa Padarn
Llanbadarn Fawr
Aberystwyth
Ceredigion
SY23 3UR

Natural England publications are available to download from the Natural England website: **www.naturalengland.org.uk**.

For further information contact the Natural England Enquiry Service on 0300 060 0863 or e-mail **enquiries@naturalengland.org.uk**.

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Appendix KCC2

Agricultural Land Classification Records

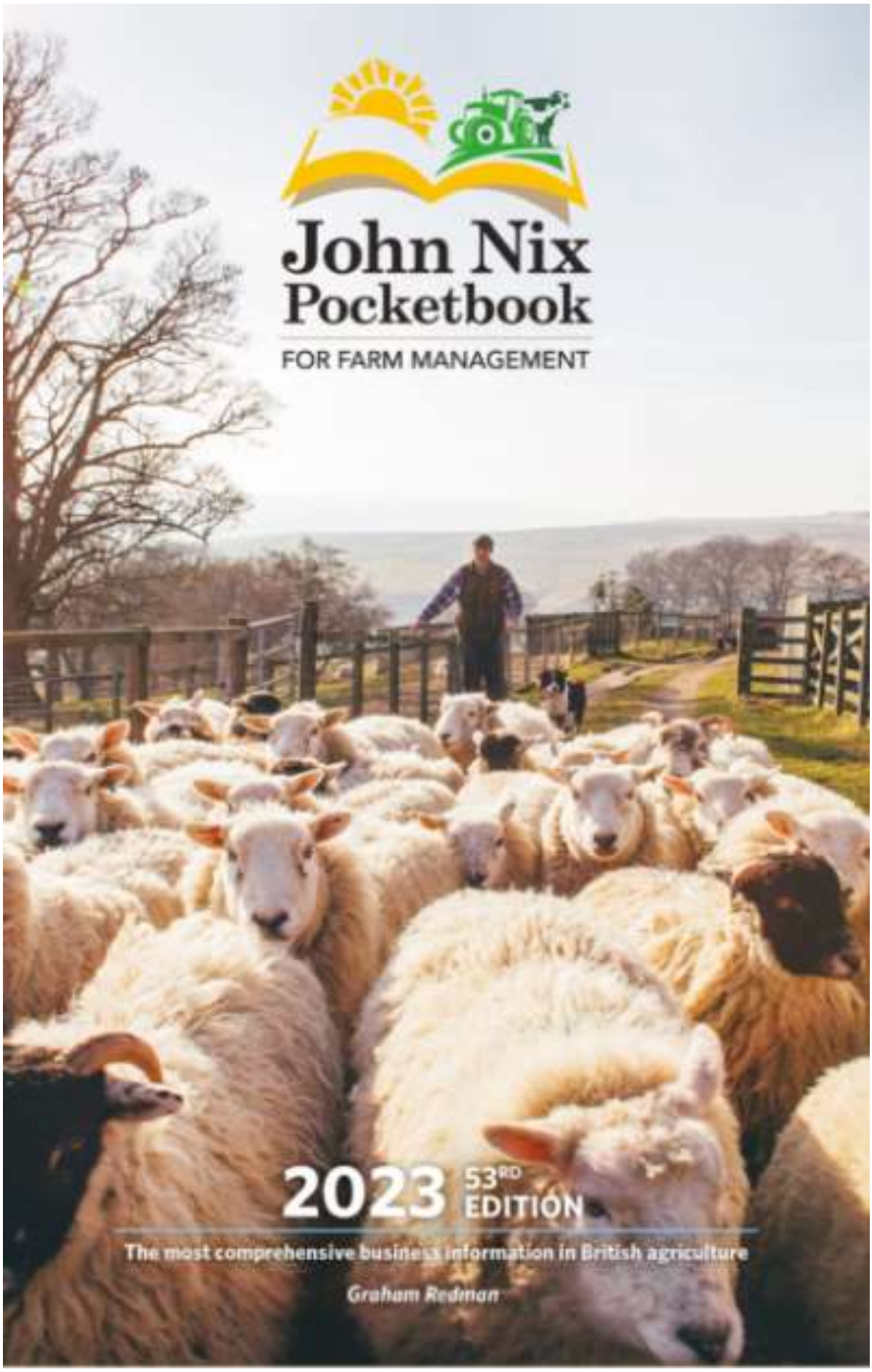
Point	Grid ref.			Alt (m)	Slope °	Aspect	Land use	Depth (cm)			Matrix	Ochreous Mottles		Grey Mottles		Gley	Texture	Stones - type 1				Stones - type 2				Ped			SUBS STR	CaCO3	Mn C	SPL	Drought			Wet		Final ALC			
	NGR	X	Y					Top	Bttm	Thick	Munsell colour	Form	Munsell colour	Form	Munsell colour			%	> 2cm	> 6cm	Type	%	> 2cm	> 6cm	Type	Strength	Size	Shape					MBw	MBp	Gd	WC	Gw	Limitation 1	Limitation 2	Limitation 3	Grade
1	TQ 80100 89300	580100	189300	70	≤7	North	CER	0	15	15	10YR4/3						MSZL - Medium sandy silt loam	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			56	3	2	WC I	1	Droughtiness			2
								15	35	20	10YR4/4					No	MSZL - Medium sandy silt loam	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								35	50	15	10YR5/4					No	MSL - Medium sandy loam	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								50	85	35	10YR5/6					No	LFS - Loamy fine sand	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								85	120	35	10YR6/4					No	FS - Fine Sand	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
2	TQ 80200 89300	580200	189300	70	≤7	North	CER	0	15	15	10YR4/2						MCL - Clay loam (medium)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			7	-10	3a	WC III	3a	Droughtiness	Wetness		3a
								15	35	20	10YR5/2	CD - Common Distinct	10YR5/6			Yes	MCL - Clay loam (medium)	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								35	120	85	2.5Y6/1	MP - Many Prominent	7.5YR5/6			Yes	C - Clay	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	Yes	Yes									
3	TQ 80300 89300	580300	189300	70	≤7	North	CER	0	15	15	10YR4/2						MZCL - Silty clay loam (medium)	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			11	-7	2	WC III	3a	Wetness			3a
								15	34	19	10YR5/3	CP - Common Prominent	7.5YR4/6			Yes	MZCL - Silty clay loam (medium)	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								34	120	86	2.5Y6/2	MP - Many Prominent	7.5YR5/8			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
4	TQ 80400 89300	580400	189300	70	≤7	North	CER	0	15	15	10YR4/2						MCL - Clay loam (medium)	3			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			2	-15	3a	WC III	3a	Droughtiness	Wetness		3a
								15	30	15	10YR5/3	CP - Common Prominent	7.5YR4/6			Yes	MCL - Clay loam (medium)	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								30	45	15	10YR5/2	CP - Common Prominent	7.5YR5/8			Yes	C - Clay	30			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								45	120	75	2.5Y6/2	CP - Common Prominent	7.5YR5/8			Yes	C - Clay	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
5	TQ 80100 89200	580100	189200	78	≤7	North	CER	0	10	10	10YR4/2						HCL - Clay loam (heavy)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			5	-13	3a	WC III	3b	Wetness			3b
								10	30	20	10YR4/3					No	HCL - Clay loam (heavy)	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								30	120	90	2.5Y6/2	CP - Common Prominent	10YR5/6			Yes	C - Clay	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	Yes	Yes									
6	TQ 80200 89200	580200	189200	78	≤7	North	CER	0	10	10	10YR4/2						LFS - Loamy fine sand	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			10	-31	3b	WC I	1	Droughtiness			3b
								10	30	20	10YR4/3					No	LFS - Loamy fine sand	10			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								30	40	10	10YR5/4					No	LFS - Loamy fine sand	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								40	70	30	10YR5/6					No	LMS - Loamy medium sand	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								70	120	50	2.5Y6/2					Yes	HCL - Clay loam (heavy)	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
7	TQ 80335 89196	580335	189196	70	≤7	North	CER	0	10	10	10YR4/2						SCL - Sandy clay loam	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			3	-15	3a	WC III	3a	Droughtiness	Wetness		3a
								10	30	20	10YR5/3	CD - Common Distinct	10YR5/6			Yes	SCL - Sandy clay loam	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								30	120	90	2.5Y6/2	CP - Common Prominent	10YR5/8			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
8	TQ 80400 89200	580400	189200	70	≤7	North	CER	0	10	10	10YR4/2						MCL - Clay loam (medium)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			16	-2	2	WC III	3a	Wetness			3a
								10	30	20	10YR5/2	CD - Common Distinct	10YR5/6			Yes	MZCL - Silty clay loam (medium)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								30	50	20	10YR6/2	CD - Common Distinct	10YR5/6			Yes	HZCL - Silty clay loam (heavy)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								50	120	70	2.5Y6/2	MP - Many Prominent	7.5YR5/8			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
9	TQ 80500 89200	580500	189200	63	≤7	North	CER	0	10	10	10YR4/2						MSZL - Medium sandy silt loam	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			9	-11	3a	WC III	3a	Droughtiness	Wetness		3a
								10	35	25	10YR5/3	CD - Common Distinct	10YR5/6			Yes	MZCL - Silty clay loam (medium)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	Yes	No									
								35	120	85	2.5Y6/2	MP - Many Prominent	7.5YR5/8			Yes	ZC - Silty clay	1			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	Yes	Yes									
10	TQ 80651 89240	580651	189240	62	≤7	North	CER	0	10	10	10YR4/2						MZCL - Silty clay loam (medium)	2			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			9	-11	3a	WC III	3a	Droughtiness	Wetness		3a
								10	30	20	2.5Y6/2	CP - Common Prominent	7.5YR4/6			Yes	MZCL - Silty clay loam (medium)	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Moderate	NON - Non-calcareous (<0.5% CaCO3)	Yes	No									
								30	120	90	10YR6/2	MP - Many Prominent	7.5YR5/8			Yes	ZC - Silty clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)							Poor	NON - Non-calcareous (<0.5% CaCO3)	Yes	Yes									

11	TQ 80113 89104	580113	189104	78	≤7	North	CER	0	10	10	10YR4/2				MSZL - Medium sandy silt loam		2	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			19	-1	2	WC II	1	Droughtiness		2
								10	30	20	10YR4/3			No	MSZL - Medium sandy silt loam		2	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								30	50	20	10YR5/4			No	MZCL - Silty clay loam (medium)		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								50	120	70	2.5Y6/2	MP - Many Prominent	7.5YR5/8	Yes	ZC - Silty clay		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Poor	NON - Non-calcareous (<0.5% CaCO3)	Yes	Yes								
12	TQ 80200 89100	580200	189100	78	≤7	North	CER	0	15	15	10YR4/2				FSZL - Fine sandy silt loam	20	12	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			38	6	2	WC I	1	Stoniness		3a
								15	40	25	10YR5/2	CD - Common Distinct	10YR5/6	Yes	FSZL - Fine sandy silt loam	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								40	60	20					MZCL - Silty clay loam (medium)	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)		No								
								60	120	60					HZCL - Silty clay loam (heavy)	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)		No								
13	TQ 80300 89100	580300	189100	70	≤7	North	CER	0	15	15	10YR4/2				FSZL - Fine sandy silt loam	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			20	3	2	WC III	3a	Wetness		3a
								15	30	15	10YR5/2	CD - Common Distinct	10YR5/6	Yes	FSZL - Fine sandy silt loam	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								30	60	30	10YR5/3	CP - Common Prominent	7.5YR5/6	Yes	MZCL - Silty clay loam (medium)	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								60	120	60	2.5Y6/2	CP - Common Prominent	7.5YR5/6	Yes	ZC - Silty clay	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	Yes	No								
14	TQ 80400 89100	580400	189100	70	≤7	North	CER	0	15	15	10YR4/2				FSZL - Fine sandy silt loam		2	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			44	22	1	WC III	3a	Wetness		3a
								15	40	25	10YR5/2	CD - Common Distinct	10YR5/6	Yes	FSZL - Fine sandy silt loam		2	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	Yes	No								
								40	60	20	10YR5/3	CP - Common Prominent	7.5YR5/6	Yes	MZCL - Silty clay loam (medium)		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								60	120	60	2.5Y6/2	CP - Common Prominent	7.5YR5/6	Yes	ZC - Silty clay		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	Yes	No								
15	TQ 80500 89100	580500	189100	63	≤7	North	CER	0	12	12	10YR3/2				MSZL - Medium sandy silt loam	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			4	-15	3a	WC III	3a	Droughtiness	Wetness	3a
								12	30	18	10YR5/3	CP - Common Prominent	7.5YR5/6	Yes	MZCL - Silty clay loam (medium)	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								30	120	90	2.5Y6/2	CP - Common Prominent	7.5YR5/6	Yes	ZC - Silty clay	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Poor	NON - Non-calcareous (<0.5% CaCO3)	Yes	Yes								
16	TQ 80100 89000	580100	189000	78	≤7	North	CER	0	10	10	10YR4/2				MSZL - Medium sandy silt loam		5	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			41	9	2	WC I	1	Droughtiness		2
								10	30	20	10YR4/3			No	MSZL - Medium sandy silt loam		10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								30	60	30					MSZL - Medium sandy silt loam		20	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								60	120	60					HZCL - Silty clay loam (heavy)		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
17	TQ 80200 89000	580200	189000	78	≤7	North	CER	0	15	15	10YR4/2				FSZL - Fine sandy silt loam	20	16	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			35	3	2	WC I	1	Stoniness		3b
								15	40	25					FSZL - Fine sandy silt loam	20		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)		No								
								40	60	20					MZCL - Silty clay loam (medium)	15		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)		No								
								60	120	60					HZCL - Silty clay loam (heavy)	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)		No								
18	TQ 80324 89004	580324	189004	70	≤7	North	CER	0	10	10	10YR4/2				MCL - Clay loam (medium)	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			6	-12	3a	WC III	3a	Droughtiness	Wetness	3a
								10	30	20	10YR5/2	CD - Common Distinct	10YR5/6	Yes	MCL - Clay loam (medium)	5		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								30	120	90	2.5Y6/2	CP - Common Prominent	10YR5/8	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes								
19	TQ 80400 89000	580400	189000	70	≤7	North	CER	0	10	10	10YR4/2				FSZL - Fine sandy silt loam		2	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			26	6	2	WC III	2	Droughtiness	Wetness	2
								10	25	15	10YR4/3			No	FSZL - Fine sandy silt loam		2	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								25	45	20	10YR6/2	CP - Common Prominent	7.5YR5/6	Yes	MZCL - Silty clay loam (medium)		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								45	120	75	10YR7/2	CP - Common Prominent	7.5YR5/6	Yes	ZC - Silty clay		0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes								
20	TQ 80500 89000	580500	189000	63	≤7	North	CER	0	10	10	10YR4/2				MZCL - Silty clay loam (medium)	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)		NON - Non-calcareous (<0.5% CaCO3)			9	-9	2	WC III	3a	Wetness		3a
								10	26	16	10YR5/3	CD - Common Distinct	10YR5/6	Yes	MZCL - Silty clay loam (medium)	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No								
								26	120	94	2.5Y6/1	CP - Common Prominent	7.5YR5/8	Yes	C - Clay	0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)	Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes								

21	TQ 80600 89000	580600	189000	65	≤7	North	CER	0	25	25	10YR5/3	CD - Common Distinct	10YR5/6			Yes	HZCL - Silty clay loam (heavy)	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			12	-6	2	WC III	3b	Wetness			3b
								25	120	95	2.5Y6/2	MP - Many Prominent	7.5YR5/8			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
22	TQ 80700 89000	580700	189000	65	≤7	North	CER	0	15	15	10YR4/2						MZCL - Silty clay loam (medium)		0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			26	10	2	WC II	2	Droughtiness	Wetness		2
								15	30	15	10YR4/3					No	MZCL - Silty clay loam (medium)		0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								30	70	40	10YR5/5					No	MZCL - Silty clay loam (medium)		0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								70	120	50	2.5Y6/2	CP - Common Prominent	7.5YR5/8			Yes	C - Clay		0		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
23	TQ 80100 88900	580100	188900	77	≤7	North	CER	0	10	10	10YR4/2						MSL - Medium sandy loam	20	12		HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			8	-25	3a	WC I	1	Droughtiness			3a
								10	120	110	10YR4/3					No	MSL - Medium sandy loam	20			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non-calcareous (<0.5% CaCO3)		No									
24	TQ 80508 88905	580508	188905	72	≤7	North	CER	0	24	24	10YR4/3						MZCL - Silty clay loam (medium)	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			11	-7	2	WC III	3a	Wetness			3a
								24	120	96	2.5Y6/2	CP - Common Prominent	7.5YR5/8			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
25	TQ 80600 88900	580600	188900	75	≤7	North	CER	0	28	28	10YR4/2						FSZL - Fine sandy silt loam	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			22	4	2	WC III	2	Droughtiness	Wetness		2
								28	120	92	2.5Y6/2	CP - Common Prominent	7.5YR5/8			Yes	C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Poor	NON - Non-calcareous (<0.5% CaCO3)	No	Yes									
26	TQ 80675 88902	580675	188902	75	≤7	North	CER	0	20	20	10YR4/2						MSL - Medium sandy loam	5			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)									NON - Non-calcareous (<0.5% CaCO3)			3	-18	3a	WC II	1	Droughtiness			3a
								20	60	40	10YR4/4					No	MSL - Medium sandy loam	20			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Moderate	NON - Non-calcareous (<0.5% CaCO3)	No	No									
								60	120	60							C - Clay	0			HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)								Poor			Yes									
	END																																								

Appendix KCC3

Extracts from the Pocketbook for Farm Management


John Nix
Pocketbook
FOR FARM MANAGEMENT
2023
53RD EDITION
The most comprehensive business information in British agriculture
Graham Redman

II. ENTERPRISE DATA

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
Grain at £225/t	1,631	1,935 (784)	2,250 (911)	
Straw in Swath	173 (70)	173 (70)	173 (70)	
Total Output	**1,804 (731)**	**2,108 (854)**	**2,423 (981)**	***245***
Variable Costs £/ha *(£/ac)* :				
Seed		97 (39)		*11*
Fertiliser		533 (216)		*62*
Sprays		278 (113)		*32*
Total Variable Costs		908 (368)		*106*
Gross Margin £/ha (ac)	**896** (363)	**1200** (486)	**1,515** (613)	***140***

Fertiliser Basis 8.6t/ha				Seed:		Sprays £/ha:	
Nutrient	Kg/t	Kg/Ha	£/Ha	£/t C2	£605	Herbicides	£121
N	22	190	£358	Kg/Ha	175	Fungicides	£110
P	7.0	60	£85	% HSS	30%	Insecticides	£3
K	10.5	90	£90	£/t HSS	£435	PGRs	£17
						Other	£28

1. *Yields*. The average yield is for all winter feed wheat, i.e. all varieties and 1st and subsequent wheats. See over for First and Second Wheats. The yield used for feed and milling wheats including spring varieties is 8.4t/ha.

   The table below offers a weighted estimate of yield variations according to wheat type based on a national yield of 8.41t/ha. Percentages compare yield categories with 'all wheat'. These yields are used in the gross margins.

   Calculation of spread of 'average yields depending on wheat type –

		Winter	1st WW	2nd WW	spring	Total
t/ha		101%	102%	93%	85%	
Total	100%	8.49	8.63	7.82		**8.41**
Feed	101%	8.58	8.71	7.90		8.49
Bread	93%	7.90	8.02	7.27	6.18	7.82
Biscuit	99%	8.41	8.54	7.74		8.32

2. *Straw* is sold in the swath. Fertiliser accounts for mineral depletion.
3. *Seed* is costed with a single purpose dressing. Up to a third of growers require additional seed treatments, specifically to supress BYDV. This can add £150/t of seed (£26.50/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 £170/hectare additional agrochemical costs. Yield losses increase as infestation rises:

OILSEED RAPE

Winter Oilseed Rape

Production level	Low	Average	High	
Yield: t/ha (t/ac)	3.00 (1.2)	3.50 (1.4)	4.00 (1.6)	
	£	£	£	£/t
Output at £515/t	1545 (626)	1,803 (730)	2,060 (834)	*515*
Variable Costs £/ha *(£/ac)* :				
Seed.....		74 (30)		*21*
Fertiliser.....		410 (166)		*117*
Sprays.....		253 (102)		*72*
Total Variable Costs		737 (298)		*210*
Gross Margin £/ha (ac)	**808** (327)	**1066** (432)	**1,323** (536)	***305***

Fertiliser Basis 3.5t/ha				**Seed:**		**Sprays:**	
Nutrient	Kg/t	Kg/Ha	£/Ha	£/Ha C	45	Herbicides	£125
N	*46*	160	£301	£/Ha Hy	90	Fungicides	£68
P	14	49	£69	£/Ha HSS	30	Insecticides	£16
K	11	39	£39	C:Hy:HSS	20:20:60	PGRs	£0
	Seed write-off		7%	Kg/Ha	5.5	Other	£44

1. *Prices*. The price used for the 2023 crop is £484/t plus oil bonuses at 44% oil content. The bonus is paid on the percentage of oil over 40%, at 1.5 times the sale value of the crop and an equal but opposite penalty below 40%. For example, in this case, the bonus is on 4% oil x £484 x 1.5 = £29. (Figures are rounded to the nearest £5.00 in the margin)

Spring Oilseed Rape

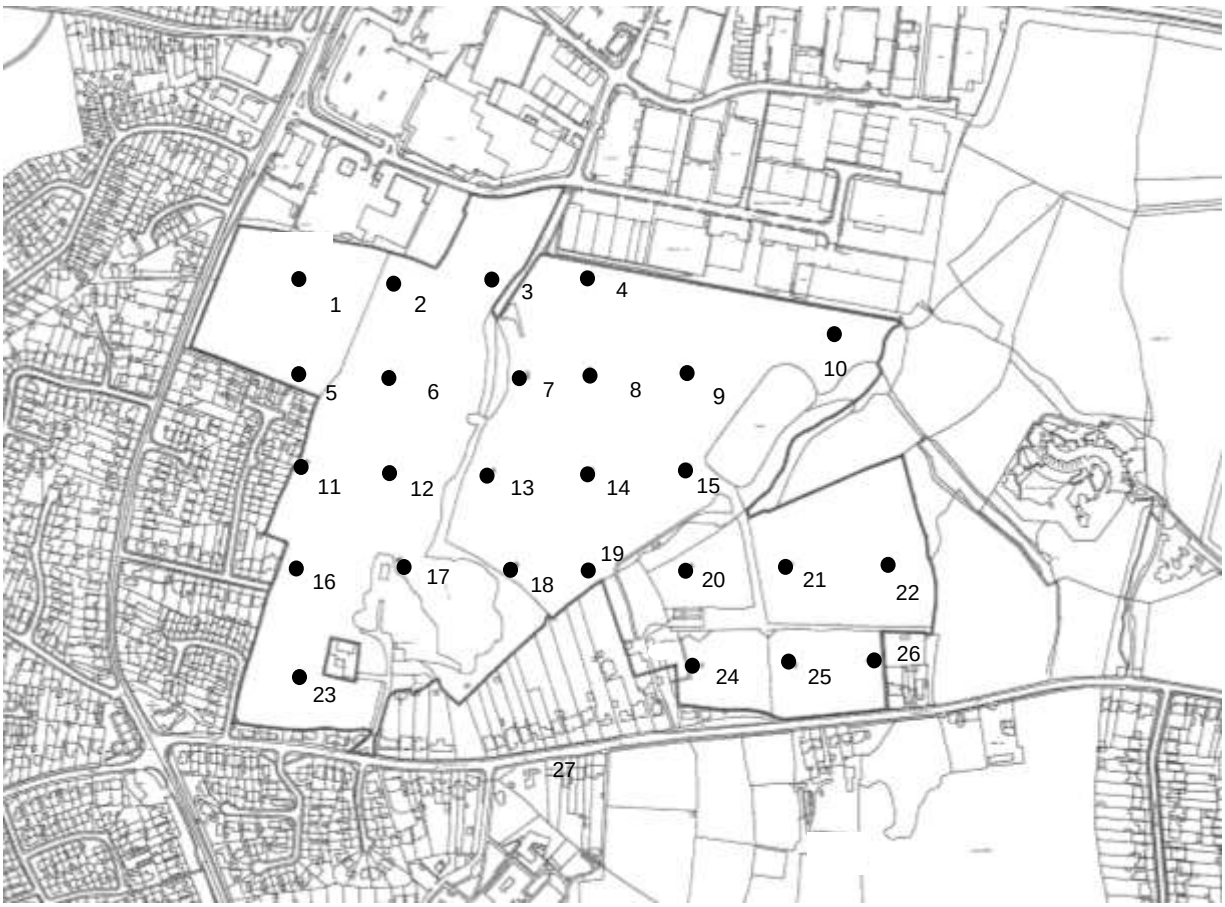
Production level	Low	Average	High	
Yield: t/ha (t/ac)	2.00 (0.8)	2.28 (0.9)	2.50 (1.0)	
	£	£	£	£/t
Output at £515/t	1030 (417)	1,172 (475)	1,288 (522)	*515*
Variable Costs £/ha *(£/ac)* :				
Seed.....		71 (29)		*31*
Fertiliser.....		202 (82)		*89*
Sprays.....		132 (53)		*58*
Total Variable Costs		405 (164)		*178*
Gross Margin £/ha (ac)	**625** (253)	**767** (311)	**883** (358)	***337***

2. *Inputs: Seed* as per WOSR, but 45% conventional, 5% HSS, 50% hybrid. *Fertiliser:* N/P/K at 80/32/25 kg/ha. *Sprays,* Herbicides. £51, Fungicides, £41, Insecticides £13, and Others £28/ha

3. *Winter Versus Spring*: As little as 8,000 hectares of spring OSR are grown in the UK which is 2.5% of the entire crop. As can be seen, the financial reward is slim compared with other combinable crops.

Plan KCC3499/01

Auger Point Plan



KEY

- Auger sample location

PLAN	**KCC3499/01**		
TITLE	**Auger Points Plan**		
SITE	Land Easat of Rayleigh Road, Thundersley		
CLIENT	This Land Development Ltd		
NUMBER	**KCC3499/01 08/23**		
DATE	August 2023	**SCALE**	NTS

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WILTSHIRE SN5 4LL
Tel 01793 771 333 Email: info@kernon.co.uk

Plan KCC3499/02

Agricultural Land Classification Plan

KEY		Ha	%	PLAN	KCC3499/02		
	Grade 1			TITLE	Agricultural Land Classification Plan		
	Grade 2	0.6	2	SITE	Land East of Rayleigh Road, Thundersley		
	Grade 3a	17.3	62	CLIENT	This Land Development Ltd		
	Grade 3b	1.4	5	NUMBER	KCC3499/02 08/23hr		
	Grade 4			DATE	August 2023	SCALE	NTS
	Grade 5						
	Non-agricultural	8.6	31				
	Urban						
	Not surveyed						

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