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## **Mead Realisations Limited**

## **Agricultural Land Quality**

at

**Lynchmead Farm, Weston-super-Mare**

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# 1 Introduction

- 1.1 Reading Agricultural Consultants Ltd (RAC) is instructed by Mead Realisations Limited to assess the Agricultural Land Classification (ALC) of land at Lynchmead Farm, Weston-super-Mare, by means of a desk appraisal of soil and site characteristics.
- 1.2 Paragraph 170 of the National Planning Policy Framework (NPPF<sup>1</sup>) indicates that planning policies and decisions should contribute to and enhance the natural and local environment by recognising, amongst other matters, the benefits from natural capital and ecosystem services, including the economic and other benefits of the best and most versatile (BMV) agricultural land.
- 1.3 Paragraph 171 goes on to state that plans should allocate land with the least environmental or amenity value, where consistent with other policies in the NPPF, and footnote 53 explains 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.
- 1.4 Guidance for assessing the quality of agricultural land in England and Wales is set out in the Ministry of Agriculture, Fisheries and Food (MAFF) revised guidelines and criteria for grading the quality of agricultural land (1988)<sup>2</sup>, and summarised in Natural England's Technical Information Note 049<sup>3</sup>.
- 1.5 Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. The principal physical factors influencing grading are climate, site and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.
- 1.6 Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use. Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting. Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into

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<sup>1</sup> **Ministry of Housing, Communities and Local Government (2019)**. *National Planning Policy Framework*.

<sup>2</sup> **MAFF (1988)**. *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications.

<sup>3</sup> **Natural England (2012)**. *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition.

Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. Grade 5 is very poor quality land, with very severe limitations which restrict use to permanent pasture or rough grazing.

- 1.7 Land which is classified as Grades 1, 2 and 3a in the ALC system is defined in Annex 2 of the NPPF as BMV agricultural land.

## 2 Site and climatic conditions

### General features, land form and drainage

- 2.1 The site extends to 5.0ha of agricultural land on the northern edge of the settlement of Weston-super-Mare. Satellite imagery shows the site to have been alternately cropped and under grass in recent years. The site is bounded to the south by Ebdon Road, the Oxhouse Industrial Estate and a small number of residential properties. Other agricultural land is to the west, north and east.
- 2.2 The topography is level at just under 10m above Ordnance Datum (AOD). The land is drained by an extensive network of ditches, within and beyond the site.

### Agro-climatic conditions

- 2.3 Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point data set at a representative altitude of 10m AOD, and are given in Table 1. The climate at the site is warm and wet. Moisture deficits are moderate to moderately large. The number of Field Capacity Days (FCD) is larger than is typical for lowland England (150) and is considered to be unfavourable for agricultural land working.

**Table 1:** Local agro-climatic conditions

Parameter	Value
Average Annual Rainfall	809mm
Accumulated Temperatures >0°C	1,546 day°
Field Capacity Days	178 days
Average Moisture Deficit, wheat	102mm
Average Moisture Deficit, potatoes	94mm

## Soil parent material and soil type

- 2.4 The bedrock geology mapped by the British Geological Survey<sup>4</sup> is the Blue Lias Formation which includes thinly interbedded limestone and calcareous mudstone or siltstone. Superficial tidal flat deposits consisting mainly of unconsolidated mud and/or sand are mapped across the site.
- 2.5 The Soil Survey of England and Wales soil association mapping<sup>5</sup> (1:250,000 scale) shows the Newchurch 2 association across the site, bordering on Evesham 1 soils to the south.
- 2.6 In Somerset, Avon and Gloucestershire, the Newchurch 2 association is dominated by clayey profiles, comprising calcareous silty clay throughout. Newchurch 2 soils occur on low-lying land and are usually waterlogged through winter, particularly where drainage is dependent on gravity. Profiles are commonly of Wetness Class (WC) III or IV.
- 2.7 In Somerset, component soils of the Evesham 1 association comprising the Evesham and Haselor series are common, the latter usually distinguished by more stony topsoils. The Evesham soils are characterised by calcareous clay throughout, whilst the Haselor profiles include non-calcareous clay over interbedded limestone and clay shale. Soils of the Evesham 1 associated are slowly permeable in the subsoil and are mainly of WC III, although they do respond well to drainage<sup>6</sup>.

## 3 Agricultural land quality and land use

### Existing data

- 3.1 Provisional ALC mapping shows the site as undifferentiated Grade 3, immediately bordering on Grade 2 to the south. Grade 3 is defined as:

*“Grade 3 – good to moderate quality agricultural land*

*Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.”*

- 3.2 Grade 3 is further subdivided into Subgrades 3a and 3b, defined as:

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<sup>4</sup> **British Geological Survey (2020)**. *Geology of Britain viewer*, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>.

<sup>5</sup> **Soil Survey of England and Wales (1984)**. *Soils of South West England (1:250,000), Sheet 5*.

<sup>6</sup> **Findlay et al (1984)**. *Soils and Their Use in South West England. Soil Survey of England and Wales Bulletin 14, Harpenden*.

*“Subgrade 3a - good quality agricultural land*

*Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.*

*Subgrade 3b - moderate quality agricultural land*

*Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.”*

3.3 Grade 2 is defined as:

*“Grade 2 – very good quality agricultural land*

*Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.”*

3.4 The provisional maps are not suitable for assessing the quality of individual sites, as explained in Natural England's TIN049:

*"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 ..."*

3.5 TIN049 goes on to say:

*“Since 1976, selected areas have been resurveyed 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/>.”*

3.6 There is no detailed ALC data available for the site, although an area of more than 50 ha approximately 2.5km to the south-east with comparable topography and drainage, within the

same mapped soil type and the same superficial geology, has been surveyed in detail<sup>7</sup>. The land is classified as mostly Grade 4 with a smaller area of Subgrade 3b.

- 3.7 The land surveyed was also in mixed arable and grassland use. The soils described largely accord with the Newchurch 2 association. Topsoil horizons are medium silty clay loam or heavy silty clay loam. The depth ranges from 15cm to 30cm, with an average of 24cm, the shallowest generally found further south. Most of the topsoil is dark greyish brown (10YR4/2 in the Munsell soil colour charts<sup>8</sup>).
- 3.8 Subsoil horizons are clay which typically transition from brownish (e.g. 10YR5/3) to grey (e.g. 10YR6/2) with depth. The subsoils are mottled throughout, being gleyed above 40cm. Profiles in which the slowly permeable layer occurs within 50cm depth are assessed as WC IV and where the slowly permeable layer occurs at greater depth, the profiles are WC III.
- 3.9 Most of the profiles are WC IV with heavy silty clay loam topsoil. There is a resulting wetness and workability limitation to Grade 4. Profiles of WC IV with medium silty clay loam topsoil and those of WC III with heavy silty clay loam topsoil are limited less severely, to Subgrade 3b.
- 3.10 Based on the similarities between the surveyed land and the site at Lynchmead Farm with respect to climate, topography, drainage, superficial geology and mapped soil type, it is very likely that a similar distribution of agricultural land quality will be present at Lynchmead Farm, which is not likely to contain any BMV land.
- 3.11 The provisionally-mapped Grade 2 south of the site is aligned with the mapping of the Evesham 2 association. However, under the climatic conditions of the site (178 FCD) the presence of Grade 2 is unlikely: soil profiles would need to be well drained in WC I with medium textured topsoils or moderately well drained (WC II) with sandy topsoils to be within this grade. These parameters are not consistent with the mapped soil type or with local findings.

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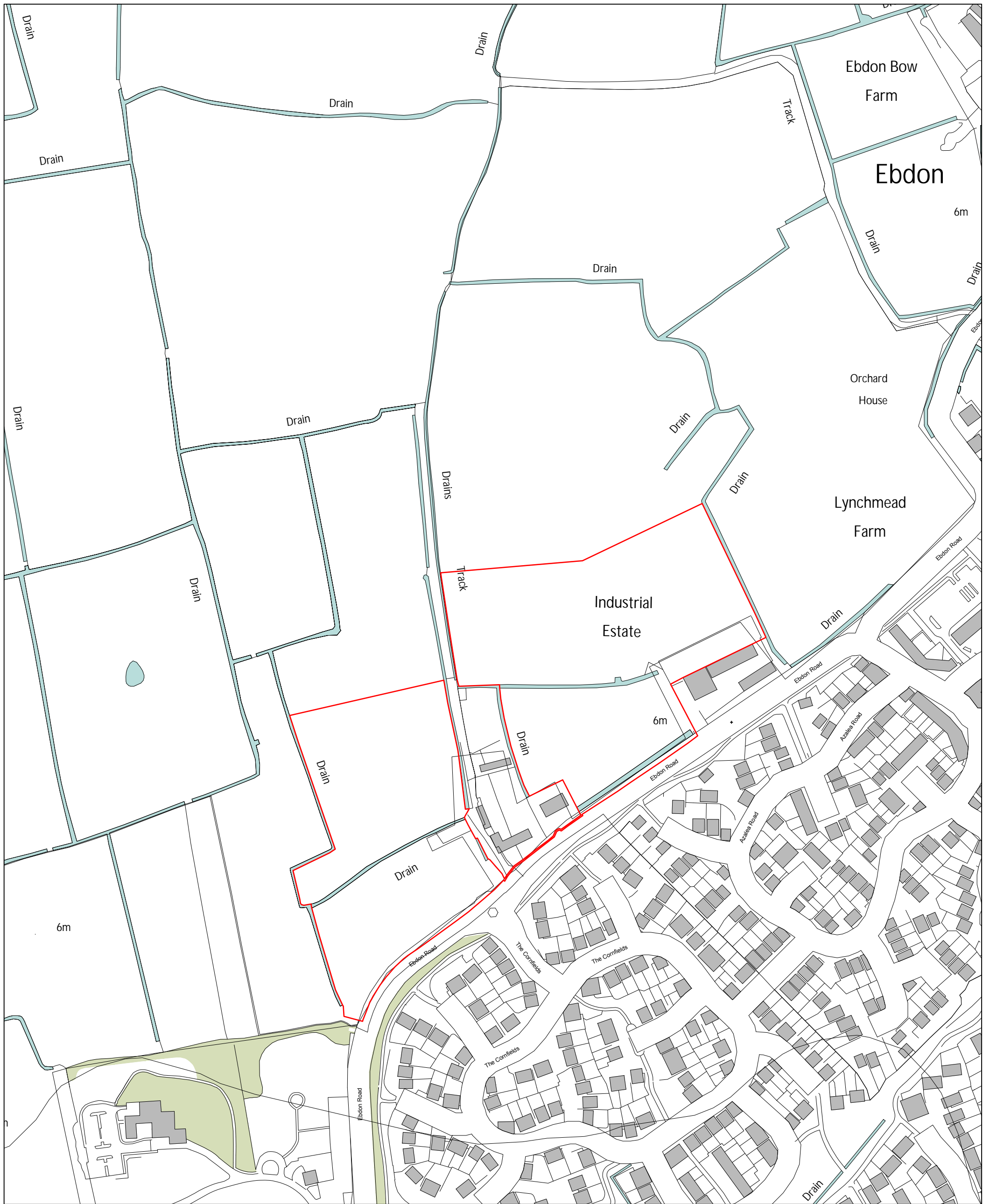
<sup>7</sup> **ADAS (1995)**. *Woodspring Local Plan, Objector Sites, Agricultural Land Classification, Ref No 36/95*


<sup>8</sup> **Munsell Color (2009)**. *Munsell Soil Color Book*. Grand Rapids, MI, USA


## **4 Summary**

- 4.1 The site at Lynchmead Farm, Weston-super-Mare, extends to 5ha of agricultural land.
- 4.2 The site is provisionally mapped as Grade 3, bordering on Grade 2 to the immediate south. There is no detailed ALC survey data available for the site. However, similar land in the locality has been subject to detailed survey and classified as mostly Grade 4 with some Subgrade 3b.
- 4.3 The surveyed area is comparable with the site at Lynchmead Farm as regards climate, topography, drainage, mapped soil type and superficial geology. The survey data describes profiles as having medium silty clay loam or heavy silty clay loam topsoil, overlying clay. The depth to a slowly permeable layer results in most profiles being WC IV, with some WCIII where the slowly permeable layer is at greater depth. There is a wetness and workability limitation across the surveyed area.
- 4.4 It is considered very likely that the agricultural land quality at Lynchmead Farm will be similar to that of the surveyed land, and will not include any BMV land.





 Application Boundary (4.99ha)

Land at Lynchmead Farm		F
Site Location Plan		DH
180809 L 01 01	1:2500 @ A3	March 2019

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