13. Agricultural Land

Introduction

13.1 This chapter assesses the effects of the Proposed Development on agricultural land.

13.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site, the potential direct and indirect effects of the development arising from the removal of land from agricultural use, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by Reading Agricultural Consultants Ltd.

13.3 This Chapter is supported by the following figures and appendices:

- Appendix 13.1 Agricultural Land Quality;
- Figure 13.1 Agricultural Land Classification.

Assessment Methodology and Significance Criteria

Planning Policy

13.4 Paragraph 3.58 of Planning Policy Wales[i] (PPW) indicates that agricultural land in Grades 1, 2 and 3a of the ALC system is the best and most versatile (BMV) quality and should be conserved as a finite resource for the future.

13.5 Paragraph 3.59 goes on to say that, in development plan policies and development management decisions, considerable weight should be given to protecting such land from development because of its special importance. BMV land should only be developed if there is an overriding need for the development and either previously developed land or land in lower agricultural grades is unavailable, or available lower grade land has an environmental value recognised by a landscape, wildlife, historic or archaeological designation which outweighs the agricultural considerations. If BMV land needs to be developed, and there is a choice between sites of different grades, development should be directed to land of the lowest grade.

13.6 One of the key environmental issues identified in paragraph 2.2 (11) of the adopted Wrexham County Borough Local Development Plan (LDP) 2013-2028[ii] is that most of the settlements in the County Borough are surrounded by BMV agricultural land.

13.7 Paragraph 2.4 of the LDP explains that there will inevitably be some degree of conflict between the objectives of the LDP, as:

> *"the LDP preparation process involves balancing competing aims, such as protecting high quality agricultural land and providing development opportunities beyond established settlement boundaries. The SA/SEA process has highlighted these potential areas of conflict and sought to reduce their prevalence as far as possible*."

13.8 The Site forms part of a Key Strategic Housing Site, known as KSS2 (Land East of Cefn Road, Wrexham), under Policy SP4. Paragraph 3.31 recognises that the LDP Sustainability Appraisal and Strategic Environmental Assessment identified that the

Key Strategic Housing Sites would affect BMV agricultural land, although the need to provide housing, infrastructure and other community facilities in sustainable locations outweighs the need to protect these resources in this instance.

Identification of the Study Area

13.9 The study area extends to the area of agricultural land that would be directly affected by the Proposed Development.

Surveys and Data Sources

13.10 The baseline data on soils and agricultural land quality was collected during detailed surveys undertaken by the Welsh Government in April 2002 (finalised in 2014) and by Reading Agricultural Consultants in September 2018. The surveys were undertaken in accordance with the ALC guidelines and criteria[iii], as issued by the former Ministry of Agriculture, Fisheries and Food (MAFF), and cover the entire Site.

13.11 The baseline report setting out the findings of the surveys is contained in **Appendix 13.1**.

Construction Phase

13.12 The effects on the agricultural resource are concerned with the permanent loss of agricultural land to the Proposed Development, and the temporary and permanent effects of the Proposed Development on soil resources within the Site.

13.13 The phasing of development, and range and mix of uses within the Site, have no relevance to the assessment of agriculture and soils other than in respect of areas of green and blue infrastructure.

Operational Phase

13.14 The effects on soils and agricultural land occur during the construction of the Proposed Development, and there are no further effects to consider during the operation phase.

Identification of Sensitive Receptors

13.15 Agricultural land in 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 conditions and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.

13.16 Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use.

13.17 Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting.

13.18 Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. It is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land).

13.19 Subgrade 3a land is capable of consistently producing moderate to high yields of a narrow range of arable crops or moderate yields of a wide range of crops. Subgrade 3b land is capable of producing moderate yields of a narrow range of crops 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.

13.20 Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields.

13.21 Grade 5 is very poor quality land, with very severe limitations which restrict use to permanent pasture or rough grazing.

13.22 Soil is a finite resource that fulfils many important functions and services for society in addition to the production of food and fibre. During the construction phase, damage to, and loss of, topsoil could occur if other dissimilar materials such as subsoil or other materials were stockpiled directly on it without a separating layer or possibly by poor work causing mixing of topsoil, subsoil and other materials during stockpile placement or removal.

13.23 There is also a risk of long-term damage to soil structure, and the loss of potentially valuable soil, if there is uncontrolled trafficking of land and soil by heavy machinery, especially wheeled machinery.

13.24 Biodegradation of topsoil would occur if it compacted in storage, stockpiled when wet, if stockpiled in the medium-to-long-term, or covered by soil stores for significant periods. Permanent, direct, adverse impacts may arise, therefore, from disposing of soil or re-using it for inappropriate purposes that do not meet the many beneficial functions of soil; by mixing incompatible soil resources; and by poor management of the soil resource.

Significance Criteria

13.25 The assessment is based on the Proposed Development parameter plans assuming that construction movements may occur across the whole of the Site; that the Proposed Development will be brought forward in areas according to the parameters plans; and that no land will remain in agricultural use within the Site on completion of the Proposed Development.

13.26 The assessment methodology is based on defining the sensitivity of the soil and agricultural land receptors and determining the magnitude of change upon each, according to a standard set of significance criteria.

13.27 The sensitivity of the soil and agricultural land receptors is determined using the criteria set out in **Table 13.1**, as contained also in the Scoping Report.

Table 13.1 Agricultural land and soils sensitivity criteria

Sensitivity	Agricultural Land	Soil Resources
High	Grades 1 and 2	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams); peaty soils
Medium	Subgrades 3a and 3b	Silty loams, medium silty clay loams, medium clay loams and sandy clay loams
Low	Grades 4 and 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams)

13.28 The magnitude of change upon these receptors is then determined using the criteria set out in **Table 13.2**.

Table 13.2 Agricultural land and soils magnitude of change criteria

Sensitivity	Agricultural Land	Soil Resources
Major	Development would directly lead to the loss of over 50ha of agricultural land	The soil displaced from development is unable to fulfil one or more of the primary soils functions
Moderate	Development would directly lead to the loss of between 20ha and 50ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions off-site or has a reduced capacity to fulfil the primary functions on site
Minor	Development would directly lead to the loss of between 5ha and 20ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions on-site
Negligible	Development would directly lead to the loss of less than 5ha of agricultural land	The soil retains its existing functions on-site

13.29 The significance of effect is then assessed according to the combination of the sensitivity of the receptor and the magnitude of change, in line with the matrix contained in **Table 13.3**.

Table 13.3 Agricultural land and soils significance matrix

Magnitude of Impact	Sensitivity of Receptor		
	High	Medium	Low
Major	Major	Moderate	Minor
Moderate	Moderate	Moderate	Minor
Minor	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible

13.30 Effects that are moderate or major (adverse or beneficial) are considered as significant in their effect.

Assumptions / Limitations

13.31 No assumptions have been made or limitations encountered in this assessment.

Consultation

13.32 The Welsh Government Soil Policy and Agricultural Land Use Planning Unit was consulted in May 2022. The Welsh Government provided a detailed pre-application consultation response under article 2E of the Town and Country Planning (Development Management Procedure) (Wales) Order 2016 on 26 May 2022.

13.33 The response considered the agricultural land quality assessment that was prepared in March 2022, and advised that any previously unsurveyed parts of the site should be subject to detailed survey but that the results of the surveys undertaken by the Welsh Government and Reading Agricultural Consultants on site are sound and an accurate reflection of agricultural land quality.

13.34 The response requested that any survey report should remove reference to the findings of the Welsh Government's survey undertaken in 1983, as that pre-dated the revision of ALC guidelines, and that it would not be appropriate to include sections on relevant policies or a discussion of impacts in a baseline survey report.

13.35 The response advised that the Department would conditionally object to the proposed development but would withdraw the objection if the (as then) emerging LDP, which allocated the site as part of KSS2, was proved sound and adopted by the local planning authority.

Baseline Conditions

13.36 The Site extends to 40.27ha, of which 31.1ha is agricultural land in arable production. The Site is level in the west to gently sloping toward the east, with altitudes falling from 80m above Ordnance Datum (AOD) in the west to around 65m AOD in the east

where a valley feature begins to form. The valley directs water eastward to Redwither Brook and River Clywedog, beyond the Wrexham Industrial Estate.

13.37 Climate at the Site is moist and moderately cool with moderate moisture deficits. The number of days when soils are at field capacity is relatively large.

13.38 The bedrock geology is the Salop Formation, which comprises reddish brown mudstone with sandstone. Across most of the Site the bedrock is overlain by glaciofluvial sheet deposits of sand and gravel, locally with lenses of silt, clay or organic material. Deposits of diamicton overlie the bedrock in the west.

13.39 Newport 1 association soils are mapped across the site. The Newport series, which is extensive around Wrexham, is characterised by sandy loam or loamy sand topsoil and becomes progressively sandier with depth. Soil profiles are permeable and well drained, in Wetness Class (WC) I.

13.40 The soils identified in the detailed surveys undertaken include topsoil of medium sandy loam or loamy medium sand. The topsoil is very slightly to slightly stony, non-calcareous and brown in colour.

13.41 Upper subsoil horizons comprise similar textures or sand, with sand becoming predominant in lower subsoil horizons. Stone content in the upper subsoil continues to be very slight to slight throughout the profiles, which are all well-drained, of WC I.

13.42 Due to the coarse nature of the soils, the ability of the profiles to retain water is ordinarily slightly affected, resulting in a droughtiness limitation across most of the Site to Grade 2. Where the subsoil contains higher volumes of stone with depth, the extent of droughtiness is increased, which limits land to Subgrade 3a or Subgrade 3b, depending upon the specific volumes of subsoil stone.

13.43 The ALC of the Site is shown in **Table 13.4** and on **Figure 13.1**.

Table 13.4 – Agricultural Land Classification

Grade	Description	Area (ha)	%
Grade 2	Very good quality	22.7	56
Subgrade 3a	Good quality	6.5	16
Subgrade 3b	Moderate quality	1.9	5
Non-agricultural		9.2	23
Total		40.3	100

Future Baseline

13.44 Should the Development not proceed, the baseline conditions are anticipated to remain the same in the short to medium term, although there is the potential that climate change could have longer term impacts on soil conditions, cropping patterns and land management.

13.45 Climate change is likely to result in both positive and negative influences on soils and agricultural land. While warmer temperatures and increased CO_2 concentrations may result in improvements in crop and vegetation yields, it is also likely that crops and vegetation will suffer from adverse effects of climate change, particularly related to water stress, crop heat stress and increased severity and frequency of flood events.

13.46 In terms of ALC factors, the likely shift to wetter winters and drier summers is likely to lead to a reduction in the water available to crops during key growth periods and the increase in the risk to crop yields from drought is likely to be the main determining factor in the future quality of agricultural land.

13.47 Given that soil droughtiness is the principal limitation to agricultural land quality at this site, it is likely that the site would be lower quality in the longer-term if the development did not proceed.

13.48 As well as the uncertainties arising from a changing climate, there are also a myriad of potential responses and adaptations to climate change to consider, in terms of the management of land, soils and critical inputs, particularly water resources, that complicate a description of the future baseline.

Embedded Mitigation

13.49 There is generally no mitigation available for the direct loss of agricultural land to development.

Assessment of Likely Significant Effects

Construction

13.50 Construction effects on agricultural land relate primarily to the permanent loss of the agricultural land resource within the Site. The Development would result in the loss of 31.1ha of agricultural land. of which 29.2ha is BMV land in Grades 2 and Subgrade 3a.

13.51 This is a resource of medium to high sensitivity in Table 13.1. The magnitude of change on agricultural land is assessed as moderate from Table 13.2. Therefore, the Proposed Development would result in a direct, permanent, moderate to major adverse effect on agricultural land at the District level, which is **significant**.

13.52 The soil resources on the Site are of low sensitivity in Table 13.1. Prior to additional mitigation measures, the magnitude of change on the soil resource is potentially major, leading to a direct, long-term, moderate adverse effect on soils at the local level, which is **not significant**.

The Completed and Operational Development

13.53 The effects on agricultural land and soils occur during the construction of the Proposed Development, and there are no further effects to consider resulting from the operation of the Proposed Development.

Additional Mitigation / Enhancement Measures

Construction

13.54 Measures to mitigate the impacts on soil resources will ensure that the soil will be able to fulfil its various functions, including the production of biomass, which will help to offset the direct loss of agricultural land.

13.55 The primary measures to mitigate the impacts on soil resources would be set out in a Soil Resource Management Plan (SRMP), to be prepared at the detailed design

stage and forming part of the Construction Environment Management Plan (CEMP), which would be secured via planning condition.

13.56 The plan would confirm the different soil types (based on the soil surveys already undertaken); the most appropriate re-use for the different types of soils; and the proposed methods for handling, storing and replacing soils on-site.

13.57 The aim of the SRMP will be to re-use displaced soil resources on-Site in the detailed design of open spaces and green infrastructure. The quality of soils retained on-Site would be maintained by following good practice guidance on soils handling and storage, particularly to avoid compaction and biodegradation of soils.

The Completed and Operational Development

13.58 No additional mitigation is required for the Completed and Operational Development.

Residual Effects

13.59 With the adoption of appropriate mitigation for the handling and restoration of soils within a SRMP, most soils will be able to continue their various ecosystem functions on the Site, principally as a medium for producing biomass; for storage and cycling of water and carbon; and for supporting habitats, biodiversity and landscape planting.

13.60 The residual magnitude of change will therefore be minor, resulting in a minor adverse effect on soil resources in the long-term at the local level following mitigation, which is **not significant**.

Table 13.5 Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Loss of BMV agricultural land	Green infrastructure within areas of BMV land	Moderate to major adverse	None available	Moderate to major adverse, which is **significant**.
Loss of or damage to soil resources	Undisturbed soils in areas of green infrastructure	Moderate adverse	Soil Resource Management Plan	Minor adverse, which is **not significant**
Operation				
N/A	N/A	N/A	N/A	N/A

Conclusions

13.61 The Site extends to 40.27ha, including 31.1ha of agricultural land, which has been classified as mostly BMV land in Grades 2 and 3a.

13.62 The Proposed Development will involve the loss of 29.2ha of BMV agricultural land, which is assessed as a **moderate to major**, permanent adverse effect at the District level, which is **significant**. There are no measures available to mitigate this loss.

13.63 The effects on the soil resource can be mitigated by a Soil Resource Management Plan, which would reduce the effect on soil resources to a minor adverse effect in the long-term at the local level.

13.64 The Site forms part of the strategic housing site KSS2, which has been allocated in the adopted LDP in the full knowledge and understanding that a substantial area of BMV agricultural land would be lost from agricultural production, following a comprehensive assessment of agricultural land quality in the preparation of the LDP. The LDP has concluded that the harm caused by the loss of agricultural land is outweighed by the need to provide housing, infrastructure and other community facilities in sustainable locations.

Assessment of Cumulative Effects

Construction Phase

13.65 One site is considered to give rise to likely significant cumulative effects on BMV agricultural land, as set out in **Table 13.6**.

13.66 The remainder of the KSS2 site would require an additional 26ha of BMV land in Subgrade 3a, which would lead to a major magnitude of change on a resource of medium to high sensitivity, and to a **moderate to major cumulative effect** on BMV agricultural land.

13.67 Effects on soil resources would be specific to each site and would not occur cumulatively.

Table 13.6 Cumulative Sites

Site Ref.	Application No.	Distance and Direction	Proposal	Scoped-in / Scoped-out	Justification
1.	P/2021/0436 (original application reference) currently subject to a pending appeal (P/2021/0436)	Approx 250m north	Land South of Holt Road, Wrexham (KSS2 North) 'Outline application for construction of up to 600 dwellings, with social landscaping, public open space and on-site establishment, with all matters retained except for north site access'	Scoped in	Cumulative loss of BMV agricultural land

References

[i] Welsh Government (2024). Planning Policy Wales Edition 12 https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf

[ii] Wrexham County Borough (2023). Local Development Plan 2013-2028, adopted 20th December 2023

[iii] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales: Revised criteria for grading the quality of agricultural land (ALC011) http://publications.naturalengland.org.uk/publication/6257050620264448