

6 AGRICULTURAL LAND

Introduction

- 6.1 This chapter of the ES assesses the likely significant effects of the Development on the environment in respect of agricultural land and soils.

Policy Context

- 6.2 Paragraph 3.58 of Planning Policy Walesⁱ (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.
- 6.3 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. Land in Grades 1, 2 and 3a 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.
- 6.4 Policy PS3 of the Wrexham Unitary Development Planⁱⁱ (1996-2011) states that development should favour previously developed brownfield land or underused land in preference to the use of greenfield land wherever possible, particularly where the greenfield land includes BMV agricultural land.
- 6.5 Policy EC2 goes on to state that development on agricultural land of Grades 1, 2 or 3a will only be permitted if it does not lead to the irreversible loss of that land.
- 6.6 The UDP is significantly out-of-date, having been adopted some 15 years ago and being time expired by 10 years. It however remains the adopted development plan for decision making purposes unless there are material planning considerations which indicate otherwise.
- 6.7 There are no specific policies for development involving agricultural land in the emerging Local Development Planⁱⁱⁱ. However, the Site forms part of a proposed Key Strategic Site for residential development, known as KSS2 (Land East of Cefn Road, Wrexham), under

Policies SP3 and SP5.

- 6.8 Paragraph 5.29 recognises that the LDP Sustainability Appraisal identified that these Key Strategic Sites would impact 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.

Assessment Methodology

Data Collection

- 6.9 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 RAC in September 2018. The surveys were undertaken in accordance with the ALC guidelines and criteria^{iv}, as issued by the former Ministry of Agriculture, Fisheries and Food (MAFF).
- 6.10 In total 30 soil profiles were examined using an Edelman (Dutch) auger at an observation density of one per hectare (ha). One soil pit was dug to examine subsoil structures.
- 6.11 The following characteristics were assessed for each soil horizon up to a maximum depth of 120cm or any impenetrable layer:
- soil texture;
 - stone content;
 - soil colour (including local gley and mottle colours);
 - consistency;
 - structural condition;
 - free carbonate; and
 - depth.
- 6.12 One topsoil sample was submitted for laboratory analysis of particle size distribution, pH, organic matter content and nutrient content.
- 6.13 Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. There are six wetness classes, ranging from well drained Wetness Class (WC) I to permanently wet WC VI. Soil WC is determined from an interpretation of soil profile characteristics, site and climatic factors, particularly:

- the soil matrix colour;
- presence or absence of and depth to ochreous gley and greyish mottling;
- presence or absence of and depth to slowly permeable subsoil layers at least 15cm thick; and
- the number of Field Capacity Days at the Site.

6.14 The ALC report produced in 2018 combined the results of both surveys undertaken at the Site, and is included at Appendix 6.1. This report was validated by the Land Quality Advisory Service of the Welsh Government in 2018, which offers a free service to validate ALC surveys for local planning authorities so that they can have confidence in the information being provided^v.

6.15 Confirmation was also received from the Welsh Government in February 2021 that the survey was undertaken in accordance with the ALC guidelines and can be accepted as an accurate reflection of agricultural land quality on the Site.

Significance Criteria

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

6.17 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.

6.18 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 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.

6.19 Land which is classified as Grades 1, 2 and 3a is defined in PPW as BMV land.

- 6.20 The significance level attributed to each effect has been assessed primarily based on the sensitivity/value of the affected receptor(s) and the magnitude of change arising from the Development.
- 6.21 The sensitivity of agricultural land is assessed according to its grade within the ALC, as set out in Table 6.1. The sensitivity of the soil resource reflects its textural characteristics and its susceptibility to the effects of handling during construction and the reinstatement of land.

Table 6.1: Methodology for Determining Impact Sensitivity

Sensitivity	Agricultural Land	Soil Resources
High	Grade 1 and Grade 2	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams)
Moderate	Subgrade 3a and Subgrade 3b	Silty loams, medium silty clay loams, medium clay loams and sandy clay loams
Low	Grade 4 and Grade 5	Loamy sands, sandy loams, sandy silt loams and sands

- 6.22 The magnitude of change relates to the level at which the receptor will be impacted, using the duration of the impact, timing, scale, size and frequency to determine the magnitude of change to each receptor. Magnitude of change is evaluated in accordance with the definitions set out in Table 6.2. The magnitude of effect on the soil resource takes into account the continued ability of a soil to fulfil its primary ecosystem functions.

Table 6.2 Methodology for Assessing Magnitude

Magnitude of Impact	Criteria for assessing impact	
	Agricultural Land	Soil Resources
Major	Development would directly lead to the loss of over 50ha of agricultural land	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	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	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	Soil retains its existing functions on-site

- 6.23 The overall significance of effect for each receptor has been assessed by combining the magnitude of the likely effect with the sensitivity of the receptor, as shown below in Table 6.3. Where the matrix shows a range of effects, professional judgement is made to determine the scale of effect. Major and moderate effects are considered to be likely significant effects for the purpose of the assessment.

Table 6. 3 Effect Significance Matrix

Magnitude	Sensitivity		
	High	Moderate	Low
Major	Major Adverse/Beneficial	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial
Moderate	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial
Minor	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor Adverse/Beneficial - Negligible
Negligible	Negligible	Negligible	Negligible

Limitations and Assumptions

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

Baseline Conditions

- 6.25 The Site extends to 28.52ha, of which 27.7ha is agricultural land in arable production. The Site is located on a broadly level slope, with the highest point at an elevation of approximately 78m above Ordnance Datum (AOD) in the north-west. The lowest elevation occurs in the north-east corner at approximately 70m AOD.
- 6.26 There are no surface water bodies or river courses on the Site.
- 6.27 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.
- 6.28 The mapped soils information^{vi} shows the Site to have well-drained medium sandy soils of the Newport 1 association.
- 6.29 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.
- 6.30 Upper subsoil horizons comprise similar textures or sand, with sand becoming predominant in lower subsoil horizons. Stone content continues to be very slight to slight throughout the profiles, which are all well-drained, of WC I. The main limitation to agricultural land quality is soil droughtiness which limits most of the Site to Subgrade 3a. Localised slopes of between 7 and 11° in the north and north-west of the Site limit three small areas to Subgrade 3b.

Future Baseline

- 6.31 Should the Development not proceed, the baseline conditions are anticipated to remain the same in the future.

Likely Significant Effects

Construction Phase

Agricultural Land

- 6.32 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 26.3ha of agricultural land of Subgrade 3a quality and 1.4ha of land of Subgrade 3b. This is a resource of moderate sensitivity in Table 6.1. The magnitude of change on agricultural land is assessed as moderate from Table 6.2. Therefore, from Table 6.3, the Development would result in a direct, permanent moderate adverse impact on agricultural land.

Soil Resources

- 6.33 As soil is a finite resource that fulfils many important functions and services for society in addition to the production of food and fibre, it is important that soils resources are protected and used sustainably. 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.
- 6.34 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.
- 6.35 Biodegradation of topsoil would occur if it were compacted in storage, stockpiled when wet, if stockpiled in the medium-to-long-term, or covered by soil stores for significant periods.
- 6.36 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.
- 6.37 The soils on the Site are sandy loams, loamy sands and sands which are of low sensitivity to movements and handling (Table 6.1) and which, prior to mitigation would be subject

to a moderate magnitude of change in Table 6.2. The effect of the Development on the soil resource prior to mitigation is therefore assessed as being minor adverse.

Completed Development

- 6.38 As the permanent removal of land from agriculture and disturbance of the soil resources would occur during the construction phase of the Development, it is not considered that any further effects would occur following the completion of construction.

Mitigation Measures

Construction Phase

- 6.39 There are no universally applicable measures available to mitigate the direct loss of agricultural land. The use of BMV land for development needs to be considered in the context of the need for the development and the quality of agricultural land in the locality. In this instance, Wrexham is the principal location for growth in the emerging LDP as it is the most sustainable location in the County Borough and, as there is insufficient land within existing settlement boundaries to accommodate the necessary levels of housing growth, greenfield land on the edge of the existing settlement must be developed. Wrexham is almost entirely surrounded by BMV land and the use of land in Subgrade 3a represents the lowest grade available for development, consistent with paragraph 3.59 of PPW.
- 6.40 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 secured by a planning condition. 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.
- 6.41 The aim of the SRMP will be to re-use as much of the surplus soil resources on the Site in the detailed design of open spaces and green infrastructure. The quality of soils retained would be maintained by following good practice guidance on soils handling and storage, such as those set out in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites^{vii}, particularly to avoid compaction and biodegradation of soils.
- 6.42 With the adoption of appropriate mitigation for the handling and restoration of soils, as part of a Construction Environment Management Plan (CEMP), most soils will be able to continue their various ecosystem functions on or off the Site, principally as a medium for

producing food and biomass; for storage and cycling of water and carbon; and for supporting habitats, biodiversity and landscape planting.

Residual Effects

Construction Phase

- 6.43 The Development would result in the loss of 27.7ha of agricultural land, most of which is BMV quality in Subgrade 3a. This remains a direct, permanent moderate adverse effect which is significant.
- 6.44 Following good practice guidance on soil handling and storage and reusing the soils in an appropriate manner will enable the displaced soil to fulfil its primary functions and services on the Site, and reduce the magnitude of change to minor. This will reduce the residual effect on the soil resource to minor adverse/negligible. This is not significant.

Cumulative Effects

- 6.45 Three schemes in the locality have been identified as potentially resulting in significant cumulative effects when considered in conjunction with the Development:
- P/2020/0475 – Borrass Park School. The application is for the extension and refurbishment of an existing school. Two small fields are proposed for the siting of sports pitches and tennis courts, collectively extending to 1.2ha, of which less than 0.5ha would be lost to built development (i.e. the permanent tennis courts). The land is mapped as non-agricultural.
 - P/2013/0671 – North Wales Prison, Wrexham. The application site covers 26.1ha of a site formerly used industrially. The land is now characterised by rough grass and scrub, and is not in agricultural use.
 - P/2003/0579 – Borrass Quarry. Permission to extend the sand and gravel workings was granted in 2003. Streetview imagery from 2011 shows the north of the quarry to be under grass and grazed by sheep suggesting the land has already been worked and restored to agricultural use. It is likely that other working areas and future extraction areas would also represent a temporary loss to agriculture.

Construction Phase

- 6.46 If all of these developments were to proceed, there is the potential for an additional permanent loss of ~0.5ha of agricultural land at Borrass Park School. The cumulative effect on agricultural land continues to be a moderate adverse effect.

- 6.47 Effects on soil resources do not occur cumulatively.

Summary

- 6.48 This chapter considers the effects of the Development on agricultural land and soils. The Development will require 27.7ha of agricultural land.
- 6.49 The data used to inform this assessment was taken from detailed ALC surveys carried out across the Site in April 2004 and September 2018. The surveys were carried out in accordance with the established ALC guidelines and criteria.
- 6.50 Most of the Site is classified as BMV agricultural land in Subgrade 3a. The effect on agricultural land is assessed as a direct, permanent moderate adverse effect, which is significant.
- 6.51 The surveys identified soil profiles comprising medium sandy loam and loamy medium sand upper horizons, passing to sand at variable depths. These soils are of low sensitivity to handling and movement. Mitigation will ensure that the magnitude of change on the soil resource is low. There is likely to be a direct, permanent minor adverse to negligible effect on the soil resource which is not significant.
- 6.52 Assessing the effects of the Development alongside those of other schemes in the locality results in cumulative effects of the same significance as those of the Development alone.
- 6.53 Table 6.4 contains a summary of the likely significant effects of the Development.

Table 6.4: Table of Significance – Agricultural Land

Potential Effect	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)	
				I	UK	E	R	C	B	L		
Construction												
Loss of agricultural land, including that of BMV quality	Permanent	Moderate Adverse	None available								L	Moderate Adverse
Loss of or damage to soil resources	Permanent	Minor Adverse	Implementation of and adherence to a Soil Resources Management Plan and Construction Environmental Management Plan								L	Minor Adverse/Negligible
Completed Development												
Not applicable												
Cumulative Effects												
Construction												
Loss of agricultural land, including that of BMV quality	Permanent	Moderate Adverse	None available								L	Moderate Adverse
Completed Development												
Not applicable												

*** Geographical Level of Importance**

I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

REFERENCES

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- ⁱ Welsh Government (2021). Planning Policy Wales, Edition 11, February 2021
- ⁱⁱ Wrexham County Borough Council (2005). Wrexham Unitary Development Plan (1996-2011)
- ⁱⁱⁱ Wrexham County Borough Council (2018). Wrexham Local Development Plan 2013-2028, Deposit Plan.
- ^{iv} Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales - Revised guidelines and criteria for the grading of the quality of agricultural land
- ^v <https://gov.wales/sites/default/files/publications/2020-03/agricultural-land-classification-predictive-map-guidance.pdf>
- ^{vi} Soil Survey of England and Wales (1984). Soils of Wales (1:250,000), Sheet 2
- ^{vii} Department for Environment, Food and Rural Affairs (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.