
CHAPTER 13

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13.0 AGRICULTURAL LAND USE

13.1 Introduction

13.1.1 This Chapter assesses the likely significant effects of the Proposed Development upon best and most versatile (BMV) agricultural land, describing agricultural land classification, soil type and the potential effect upon these resources.

13.1.2 The assessment provides a description of the existing site conditions and assess the development in relation to land take. Where appropriate the assessment sets out mitigation measures.

13.2 Methodology

13.2.1 The assessment was conducted in accordance with the current guidelines as follows:

- Agricultural Land Classification of England and Wales. Guidance and criteria for grading the quality of agricultural land. MAFF. 1988.
- Agricultural Land Classification of England and Wales. Guidance and criteria for grading the quality of agricultural land. Second Revision MAFF. DRAFT May 1996.

13.2.2 Within these guidelines agricultural land is classified into the grades described in Table 13.1.

Table 13.1 Description of ALC Grades

Grade	Description
1	Excellent quality agricultural land with no or very minor limitations to agricultural use.
2	Very good quality agricultural land with minor limitations which affect crop yield, cultivation or harvesting.
3a	Good quality agricultural land capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops.
3b	Moderate quality agricultural land capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.
4	Poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields.
5	Very poor quality agricultural land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

13.2.3 An Agricultural Land Classification Study (ALC) was been carried out on the Site. This involved undertaking a desktop investigation and a field survey on the 20th

April 2017 to classify the land into one or more of the above grades.

13.2.4 The desktop investigation involved the examination of previously mapped soil types and review of the drift and solid geology at the Site using the following information sources:

- Soil Survey of England and Wales 1:250 000
- British Geological Survey 1:50 000 solid and drift map

13.2.5 The field survey comprised a number of hand auger borings to a depth of 1.2 m (where possible) to examine soil profiles, using standard soil survey methods¹. Pit excavations were conducted to determine sub soil structure where necessary. This data was used to map the principal soil types for determining the ALC. The soil removed during augering and pit excavations was examined in accordance with:

- Soil Survey Field Handbook
- Describing and Sampling Soil Profiles
- Soil Survey of England and Wales, Technical Monograph No. 5, 1976
- Soil Classification for Soil Survey
- Monographs on Soil Survey
- Butler, B E (1980) Clarendon Press, Oxford

13.2.6 Climatological data was used to determine the overriding site limitations and also for interaction with soil parameters. The above information was cross referenced with geological surveys², previous soil surveys and the national 1:250 000 series ALC survey³ relevant for this site to substantiate the findings. The ALC grade was then determined for this Site and for the current survey.

13.2.7 Other factors used for ALC grading, but which give no limitation at this site, are not discussed. These factors include: gradient and flooding.

¹ *Soil Survey Field Handbook. Technical Monograph No.5. Soil Survey of England and Wales. 1976.*

² *British Geological Survey 1:50 000 national map.*

³ *Agricultural Land Classification Map 1:250 000. MAFF 1983.*

Assessment of Significance / Assessment Criteria

13.2.8 The significance of the loss of agricultural land from the national resource is described as either 'high', 'medium', 'low' or 'negligible' as defined in Table 13.2 below.

Table 13.2 Definition of significance of loss of agricultural land.

Significance	Description
High	The loss of 20 hectares or more of Grades 1,2, 3a Agricultural Land which is for the time being used (or was last used) for agricultural purposes.*
Medium	4 – 19.9 hectares of best most versatile land will be lost as a result of the proposed development.
Low	Between 1 and 3.0 hectares of best most versatile land will be lost as a result of the proposed development.
Negligible	The proposed development does not include 1 hectare or more of contiguous best most veritable land.
<p>* The 20 hectare threshold follows the consultation requirements prior to the grant of permission set out in Schedule 4 of the Town and Country (Development Management Procedure) Order 2015 which stipulates that Natural England must be consulted upon when development which is not for agricultural purposes and is not accordance with the provisions of a development plan involves the loss of more than 20 hectares of Grades 1, 2 and 3a Agricultural Land.</p>	
<p>** A threshold of 10 acres (or approximately 4 ha) or more follows the approach of Paragraph 6 of Department of the Environment Circular 71/71 (Welsh Office Circular 152/71) 'Development of Agricultural Land'. This Circular does not feature in the list of documents replaced by the NPPF (Annex 3) or following the publication of the Planning Practice Guidance 2014 (as updated). However, the advice provided in these documents is considered relevant for the purposes of determining the significance ALC effects.</p>	

Limitations

13.2.9 The alignment of the realigned A168 was altered following the field surveys. As such soil samples were not gathered along the final proposed alignment. However, given the extensive sampling undertaken across the remainder of the Site there is considered to be adequate coverage and a large enough sample to confidently characterise the soils likely to be present within the area affected by the road realignment.

13.3 Baseline

ALC Desk Study Results

- 13.3.1 A survey previously undertaken by the Farming and Rural Conservation Agency (FRCA), Leeds in July 1997 (Job number: 33/97) indicated the site was on ALC Grade 2 and 3a land.
- 13.3.2 The climatological data (Table 13.3) indicates the Site is subject to average temperature, slightly below average rainfall and an average number of field capacity days for the region.

Table 13.3 Climatological information (for Site geographic centre: 4383, 4691).

Factor	Units	Value
Altitude AOD	m	29.5
Accumulated temperature	day°C (Jan-June)	1366.7
Average Annual Rainfall	mm	639.6
Field Capacity Days	days	149.4
Moisture Deficit Wheat	mm	104.1
Moisture Deficit Potatoes	mm	94.6

- 13.3.3 On this basis the grading according to climate is ALC Grade 1.
- 13.3.4 The desk study identified the following characteristics of the Site:
- The Site is assessed to not be at any significant flood risk which would affect ALC grade⁴.
 - The Site and surrounding land is relatively level regarding ALC limitations.
 - The Site is mapped as having soils of the Wick 1 Association^{5,6}.
 - Geological survey⁷ has indicated the Site to be underlain by sandstone (Sherwood Sandstone Group). This strata is recorded to be overlain by superficial deposits of clay, sand and gravel (Vale of York Formation).
 - The soils are generally loamy sands over sandy clay loams. These overlay sandstone.

⁴ Risk of Flooding from Rivers and Sea: 1:15 000. Environment Agency

⁵ Soils and Their Use in Northern England. Soil Survey of England and Wales, Harpenden.

⁶ Agricultural Land Classification Map 1:250 000. MAFF 1983.

⁷ British Geological Survey 1:50 000 national map

ALC Field Survey Results

- 13.3.5 The Site currently comprises approximately 14 ha of land currently in arable agricultural production. On the survey date it was cropped with oil seed rape.
- 13.3.6 One general soil type was noted for the purposes of ALC grading. A summary of the features of the dominant soil types are listed in Table 13.4.

Table 13.4 Soil Type descriptions

Profile Description	Type 1
Horizon 1	0-40 cm
(Topsoil)	Dark greyish brown (10YR 4/2) slightly stony loamy sand, no mottles; weakly developed fine subangular blocky structure
Horizon 2	40-65 cm
(Subsoil 1)	Brown (7.5YR 4/4) slightly stony sandy loam, no mottles; well developed medium subangular blocky structure
Horizon 3	65-120 cm
(Subsoil 2)	Brown (7.5YR 4/4) slightly stony sandy clay loam, no mottles; well developed medium subangular blocky structure

- 13.3.7 Soil texture at the Site in combination with the climate results in the ‘most limiting factor’ – **droughtiness** – in determining the ALC grading (Figure ALC/1). Loamy sands over sandy clay loams result in an ALC Grade of 2 across the Site.
- 13.3.8 No areas of Grade 1, 3a or 3b land were identified from the survey.

13.4 Assessment of Effects

- 13.4.1 As a finite resource natural soils are plentiful but valuable. They are sensitive to degradation resulting from compaction, contamination or dilution (mixing with underlying substrate). However, medium textured soils are relatively resilient to these processes and continue to maintain some function (e.g. as a carbon sink or growing medium for plants) even in a degraded state and/or where removed from the Site.
- 13.4.2 It has been determined that there would be an irreversible loss of circa 9.8 ha of Grade 2 agricultural land and a circa 4.3 ha of reversible loss of Grade 2 agricultural land. It should be noted that this includes all development within the redline, including works undertaken within highways land.

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- 13.4.3 In addition to the above there would be some temporary loss of agricultural land associated with the provision of a construction compound on land to the east of the A1(M). However, through the implementation of the measures described in the following section these effects would be entirely reversible, with effects only lasting for the period of construction i.e. up to one year.
- 13.4.4 Table 13.3 indicates that this would result in an effect of Medium significance.
- 13.4.5 It is noted that the Planning Inspector (August 2011 report) which considered an earlier proposal for an MSA at the Site concluded that the effects on agricultural land was not an overriding reason that lead to the refusal of the scheme. The Proposed Development would result in a smaller irreversible loss of agricultural land than the scheme considered in the 2011 Inspectors report (the scheme considered in the 2011 report resulted in a total loss of 18ha of Best and Most Versatile agricultural land).
- 13.4.6 Whilst the Proposed Development would result in an irreversible loss of circa 9.8 ha of Best and Most Versatile land, it is noted that the surrounding area has a high proportion of good quality (Grade 1, 2 and 3) agricultural land⁸.

13.5 Mitigation

- 13.5.1 The potential damage to soil resources during excavation requires that appropriate soil handling strategies are employed in mitigation.
- 13.5.2 The quality and quantity of soil within the Site should be maintained by implementing appropriate techniques for stripping, storing and re-use. This approach should be adopted in a Soil Management Strategy (SMS) to be prepared as part of the Proposed Development. This is consistent with the findings and recommendations of recent research carried out on behalf of DEFRA⁹, including the development of a code of practice.
- 13.5.3 The soils used for the landscaping scheme should be managed and placed in accordance with the aforementioned DEFRA guidance, doing so would preserve the structure and function of the soils in this area of the site.
- 13.5.4 The soil over the Site is likely to be of 'multi-purpose' grade in terms of

⁸ *Agricultural Land Classification: protecting the best and most versatile agricultural land. Natural England, December 2012*

⁹ *Code of Practice for the Sustainable Management and Use of Soil on Construction Sites. DEFRA, September 2009*

BS3882¹⁰(subject to appropriate laboratory certification). As such it could be suitable for re-use in new residential gardens or for a landscaping scheme at another site, provided it is handled, stored and transported in accordance with the aforementioned DEFRA guidance.

13.6 Residual Effects and Conclusions

- 13.6.1 It has been determined that there would be an irreversible loss of circa 9.8 ha and a reversible loss of circa 4.3 ha of Grade 2 agricultural land. It is noted that the Planning Inspector (August 2011 report) which considered an earlier proposal for an MSA at the Site concluded that the effects on agricultural land was not an overriding reason that lead to the refusal of the scheme. The Proposed Development would result in a smaller irreversible loss of agricultural land than the scheme considered in the 2011 Planning Inspectors report.
- 13.6.2 Implementation of the proposed mitigation measures would reduce the impact on the soil resource and would ensure that the vast majority of the topsoil effected by the Proposed Development would retain its functional properties.
- 13.6.3 Whilst there would be a loss in agricultural land, when this is considered in the context of: the wider agricultural resource in the region; the preservation of the function of the topsoil affected by the scheme; and the conclusions of the Inspector at the 2012 Inquiry, this is not considered to be significant.

¹⁰ *BS3882: 2007 Specification for Topsoil and Requirements for Use*