

6.0 AGRICULTURAL EFFECTS

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6.1 INTRODUCTION

6.1.1 This chapter of the Environmental Statement (“ES”) has been prepared by Land Research Associates. It considers the impact of the proposed development on agriculture and soils.

6.1.2 The baseline situation is considered before the likely environmental impacts of the development are identified, both during the construction and operational phases of the development. Mitigation measures to reduce any negative environmental impacts are identified as appropriate, before the residual environmental impacts are assessed.

National Policy Context

6.1.3 The Revised National Planning Policy Framework (2018)¹ states that:

‘Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland...’.

6.1.4 A footnote referring to the paragraph states that:

¹ Ministry of Housing, Communities & Local Government, 2018. *Chapter 15: Conserving and enhancing the natural environment, paragraph 170-171, footnote 53. National Planning Policy Framework*

'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'

Local Policy Context

- 6.1.5 Cherwell District Local Plan (2011-2031) makes specific reference to the protection of best and most versatile agricultural land in Policy Villages 2, although this policy does not apply to the Site.

6.2 ASSESSMENT METHODOLOGY

6.2.1 The assessment is designed to assess the impact on two receptors - agricultural land resources and soil resources.

6.2.2 Data was obtained from the sources described below.

- Existing agricultural land quality information: Natural England's MAGIC website.
- Soil resources were reviewed by means of a desk study of published and unpublished soil maps and reports, and more accurately assessed by a detailed survey across the application Site, involving observations of soil and land characteristics at intersects of a 100m grid, giving a sample density of one observation per hectare.
- Agricultural land quality was assessed using information from the soil resources survey and other constraints to agricultural land use, such as climate, flooding and slope.

6.2.3 Full details of the survey methodology are included in the technical report in **Appendix 6.01**.

Significance Criteria

6.2.4 There is no nationally agreed scheme for classifying the impacts of development on agriculture or soils and the approach used in this chapter has been developed over a number of years.

6.2.5 Impacts of a project can be adverse, causing significant negative impacts on a receptor, beneficial, resulting in advantageous or positive impacts on a receptor, or negligible.

6.2.6 The terms defined in Chapter 2 are used to describe the significance of effects, where they are predicted to occur.

- 6.2.7 Effects that are deemed to be significant for the purposes of this assessment are those that are described as being moderate or major positive or negative.
- 6.2.8 The magnitude of effect on best and most versatile land will depend on the amount to be taken by the Development. Town and Country Planning only requires Natural England to be consulted (on behalf of the Secretary of State for the Environment, Food and Rural Affairs) on development that involves the loss of not less than 20 ha of grades 1, 2 or 3a agricultural land². Consequently, the magnitude of losses smaller than this threshold is considered to have a small effect on the national stock of best and most versatile land. Losses of over 80 ha of best and most versatile land are equivalent to the size of a medium to large farm (i.e. an equivalent whole farm enterprise benefitting from the economic advantage of best and most versatile land) and consequently the magnitude of effect is considered to be large. The judgment-based classification is given in Table 6.01.
- 6.2.9 The magnitude of effect on topsoil resources makes the assumption that, as a valuable finite resource, the requirement should be to protect topsoils from damage. However, since built developments often generate large surpluses of topsoil, the primary requirement is considered to be that sufficient topsoil should be protected to complete all on-site landscaping/greenspace requirements (provided the baseline resource is suitable for the proposed uses). Failure to do so is regarded as a large magnitude effect. If all topsoil is protected from damage, the effect is regarded as negligible. As few built developments are likely to require more than 50% of topsoil for reuse, losses below this figure are regarded as minor.
- 6.2.10 Subsoil compaction under greenspace areas increases flood risk (and is not typically accounted for in SUDS design). Severe compaction is also likely to adversely affect the success of landscaping/ecological planting schemes. Magnitude is considered as a percentage of the development

² Town and Country Planning, 2015. *Article 16, Schedule 5 of the Town and Country Planning (Development Management Procedure)*, England.

scheme. Compaction of greater than 10% of the Site is considered as high magnitude as it is likely to result in tangible increases in runoff volumes, of a magnitude which could affect the efficacy of SUDS design capacity.

Table 6.01: Magnitude of impacts on the two receptors

Magnitude	Agricultural land	Soil resources
Large	Irreversible loss of >80 ha of best and most versatile land	Loss of >80% of topsoil resources and insufficient topsoil protected for on-site uses. Subsoil compaction of >10% of Site ¹
Moderate	Irreversible loss of 20-80 ha of best and most versatile land	Loss or irreversible damage to 50-80% of topsoil resources. Compaction of 5-10% of subsoils
Small	Irreversible loss of 5-20 ha of best and most versatile land	Loss or irreversible damage to <50% of topsoil resources. Compaction of <5% of subsoils
Negligible	Irreversible loss of <5 ha of best and most versatile land	Only minor disturbance of soils within the Site.

Sensitivity of receptors

6.2.11 Best and most versatile agricultural land (i.e. Grades 1, 2 & 3a on MAFFs 1988 Agricultural Land Classification system) is considered to be a finite national resource, is given special consideration in national policy, and can be considered to be of higher sensitivity than land in Grades 3b, 4 and 5. In areas of the country where best and most versatile land is widespread the best land (Grades 1 and 2) are considered of higher sensitivity than Sub-grade 3a.

6.2.12 All natural soils are finite resources, but where sites are to be developed, their quality as a resource for reuse varies. Although all topsoils are re-useable to some extent, medium and coarse loamy topsoils are of higher value for reuse than sandy or clayey topsoils since they are more suitable for demanding uses (such as in landscaping planting schemes).

6.2.13 Permeable coarse or medium textured subsoils are reusable for planting schemes (e.g. to support tree growth) and have a greater function in mitigating the effects of flooding than heavy and slowly permeable subsoils.

6.2.14 In some instances soils have important properties which make them able to support rare habitats (e.g. species diverse calcareous grassland or lowland heath habitats).

Table 6.02: Sensitivity of the two receptors

Sensitivity	Agricultural land in the Cherwell area	Soil resource
High	Grades 1 & 2	Permeable coarse loamy ¹ and medium loamy soils, or other soils capable of supporting valuable habitats
Medium	Sub-grade 3a	Fine textured or sandy topsoils not capable of supporting valuable habitats Mixed permeable and slowly permeable subsoils.
Low	Sub-grade 3b and grades 4 & 5	Damaged or contaminated soils Slowly permeable subsoils

¹Includes coarse loamy topsoils over sandy subsoils.

Significance of impacts

6.2.15 The significance of any beneficial or adverse impact can be assessed as either ‘major’ or ‘moderate’ (i.e. significant), ‘minor’ or ‘negligible’ according to the magnitude of the impact of the proposed development and the sensitivity of the receptor, as set out in Table 6.03 below.

Table 6.03: Significance of impacts

MAGNITUDE	SENSITIVITY			
	High	Medium	Low	Negligible
Large	Major	Major	Moderate	Minor
Moderate	Major	Moderate	Minor	Negligible
Small	Moderate	Minor	Minor	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

6.3 BASELINE CONDITIONS

Land use

- 6.3.1 The land investigated comprises one large field and the southern section of a second field to the west. The land is in arable use and at the time of survey. The land is registered under an Entry Level Environmental Stewardship Agreement as part of a 366.6 ha holding.

Soils

- 6.3.2 The Site has a mixture of natural (undamaged and uncontaminated) soil types. Full descriptions are found in an accompanying technical report to this chapter (**Appendix 6.01**). Their distribution is shown in Map 1 of **Appendix 6.01**
- 6.3.3 Most of the Site (approximately 70%) has medium-textured topsoils of high value for reuse in gardens and landscaping. Fine-textured topsoils of lower resource quality underlie the remaining agricultural land.
- 6.3.4 Heavy-textured slowly permeable subsoils, which have limited capacity to absorb excess winter rainfall underlie approximately 50% of the Site. The remainder of the undisturbed land (excluding minor areas of farm tracks etc.) has permeable stony subsoil, with high capacity to absorb excess rainfall.
- 6.3.5 As productive arable soils, they do not support valuable habitats, and the resultant high fertility means they are unlikely to be suitable to support such habitats.

Land Quality

6.3.6 The Site has mixed agricultural land quality, with the majority (77%) in the best and most versatile category (see Table 6.04). The distribution of land quality is shown in Map 2 of **Appendix 6.01**.

Table 6.04: Areas occupied by the different land grades

<i>Grade/sub-grade</i>	<i>Area (ha)</i>	<i>% of the land</i>
Grade 2	18.4	51
Sub-grade 3a	9.5	26
Sub-grade 3b	7.5	21
Non-agricultural land	0.6	2
Total	36.0	100

6.4 POTENTIAL IMPACTS

Introduction

- 6.4.1 This section details the potential impacts of the Proposed Development on soils and agricultural land during both the construction phase and after completion of the development.

During construction

- 6.4.2 The Proposed Development could potentially result in the loss of all topsoils during stripping and stockpiling if not carefully managed, meaning insufficient resources were available to complete landscaping. In accordance with the criteria set out in Section in 6.2, this large magnitude effect on a mainly high sensitivity resource is regarded as a major permanent adverse effect.
- 6.4.3 The proportion of proposed built development within the Site is approximately 75%, of which 35% is assumed to comprise unsealed surfaces in the form of gardens and landscaped areas (an average figure for residential development). The remaining 25% of the Proposed Development comprises greenspace (retained habitat, planting, sports pitches and SUDS basins). Overall therefore, a maximum of approximately 60% of the Site area (intended for greenspace and gardens) could be compacted). Such compaction would adversely affect drainage, and would lead to increased surface water flood risk (beyond that mitigated by proposed SUDS schemes). It would also restrict rooting depth and affect the success of proposed planting schemes. In accordance with the criteria set out in Section in 6.2, this large magnitude effect on a medium sensitivity receptor is regarded as a major adverse effect, although it is likely to be at least partially reversible following completion of construction.
- 6.4.4 The loss of the agricultural land resource will be progressive through phased construction. The

significance of this impact is considered post-completion however, at which point all land will be removed from agricultural use.

After Completion

Soil Resources

- 6.4.5 Some recovery of soil function under re-established vegetation in landscaped parts of the Site will occur over time, although the adverse impacts caused during construction are likely to persist where compaction is severe. Damage or loss of soil resources caused during construction are largely permanent potential adverse impacts which will persist post completion, including all impacts in developed areas of the Site. Overall, this represents a major adverse impact.

Agricultural Land

- 6.4.6 There will be a loss of 18.4 ha of grade 2 land and 9.5 ha of sub-grade 3a land, grades which are categorised as best and most versatile agricultural land. Such land is not uncommon in the Banbury area. This small loss of high sensitivity resource (grade 2) and small loss of medium sensitivity resource (sub-grade 3a) represent a moderate adverse impact on the agricultural land resource.

6.5 MITIGATION MEASURES

Introduction

6.5.1 This section details the mitigation measures which would be put in place to reduce the adverse impacts of the Proposed Development.

During construction

6.5.2 Mitigation for loss or damage of soil resources requires the adoption of a Soil Management Plan, undertaken by a suitably qualified practitioner in accordance with the principals outlined the Construction Code of Practice for Sustainable Use of Soils on Construction Sites, which will detail:

- Depth and method of topsoil stripping and stockpiling.
- Identification of landscaping topsoil requirements and assessment of suitability and availability of on-site resources.
- Means of protection of subsoil from compaction damage and remedial measures (ripping/subsoiling) to remove damage.

6.5.3 Mitigation for the effect of loss of agricultural land to built development is not possible.

Residual Effects

6.5.4 Following the application of mitigation in the form of a Soil Management Plan, the effect of development on soil resources is regarded as negligible, since full compliance will facilitate protection of the entire topsoil resource and prevent any significant subsoil compaction.

After Completion

- 6.5.5 Construction damage resulting in soil compaction may be partially mitigated by subsoiling/ripping to loosen soils before planting, which will improve permeability and increase rooting depth. It is unlikely to be necessary if an effective Soil Management Plan is adhered to.

6.6 RESIDUAL IMPACTS

Introduction

- 6.6.1. This section details the assessment of the residual impacts of the Proposed Development on soils and agricultural land following the application of the mitigation measures described in the previous section.

During construction

- 6.6.2. The residual impacts during construction do not differ from those after completion (see below).

After Completion

Soil Resources

- 6.6.3. With adherence to a detailed site-specific Soil Management Plan the effects of the Proposed Development on soil resources is regarded as negligible.

Agricultural Land

- 6.6.4. The permanent loss of best and most versatile land cannot be mitigated and is determined a moderate adverse impact.
- 6.6.5. The residual impacts identified are summarised in Table 6.05.

Table 6.05: Summary of residual impacts

Potential impact	Significance (pre-mitigation)	Mitigation measure	Significance of residual impact
Progressive loss of soil or land functions	Major adverse	Implementation of Soil Management Plan	Negligible
Progressive loss of best and most versatile land	Moderate adverse	None possible.	Moderate adverse

6.7 CONCLUSIONS

6.7.1 This chapter has considered the potential impacts of the Proposed Development on the agricultural land resource and on soil resources. The assessment has involved a detailed site survey during which soil types, land quality and land use were recorded.

6.7.2 The survey found the Site to have a mixture of soil types (medium sensitivity) and good to moderate quality agricultural land, mainly in the best and most versatile category.

Impacts during construction and after completion

6.7.3 The potential impacts on soils and land resources will be caused during construction and will persist after completion. They should therefore be considered together.

6.7.4 Sealing and loss or damage to soil resources during construction has the potential to cause a major adverse impact. However, following mitigation involving a site-specific Soil Management Plan involving protection and reuse of topsoils and prevention/mitigation of soil compaction, the residual adverse impact on soil resources is considered negligible.

6.7.5 The loss of the agricultural land resource to construction cannot be mitigated and is considered a moderate adverse impact which should be weighed against other sustainability criteria in assessing the proposal.