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1 INTRODUCTION

1.1.1 This addendum was prepared to address the Natural England's consultation comments (Appendix 4a) with respect to inconsistencies between the agricultural land classifications set out in Chapter 11 of the ES (Agriculture and Soil Resources) when compared with the post-1988 MAFF ALC surveys; and the requirement to retain soil functions and services (ecosystem services) through careful soil management. The addendum also addresses the minor amendments made to the masterplan since the submission of the planning application on 17th November 2014.

2 ASSESSMENT METHODOLOGY

2.1.1 In addition to the methodology described in Section 11.2, Chapter 11 of the ES, a verification soil survey was undertaken at the Site on 11th February 2015 to complement the original survey reported in Chapter 11. The verification survey comprised six pit profiles examined to a depth of 0.9 to 1 m to assess the areas that exhibited different ALC grading according to the 1996 MAFF survey (Appendix 4b). The locations of verification trial pits, original auger cores and updated ALC for the Site are shown in Appendix 4c; trial pit descriptions and photographs are shown in Appendix 4d.

2.1.2 Following the verification, a revised ALC¹ was prepared for the Site; and the impacts on soil resources and agricultural drainage were reassessed following the original criteria (see Chapter 11), except for the loss of agricultural land. To make the methodology more robust, the arbitrary thresholds to differentiate between minor, moderate and major effect significance were removed. Only the 20 ha threshold for permanent BMV loss was retained and used to determine whether the land take is significant or not. This threshold was taken from the Statutory Instrument 2015 No. 595, The Town and Country Planning (Development Management Procedure) (England) Order 2015, Schedule 4, part (y), which requires that the local planning authority consults Natural England if the area of a proposed permanent development exceeds 20 ha of BMV agricultural land. The document does not say that this threshold should be used to determine the land take significance for the purpose of EIA, however it is the only legislation which quantifies the loss, and hence, it was deemed appropriate to continue using it.

¹The Agricultural Land Classification (ALC) is a standardised method for classifying agricultural land according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5). ALC is determined using MAFF's 'Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land, 1988"

3 RELEVANT POLICY

- 3.1.1 Statutory Instrument 2010 No.2184, as referenced in Chapter 11, was replaced with Statutory Instrument 2015 No. 595, The Town and Country Planning (Development Management Procedure) (England) Order 2015. However, with respect to permanent developments on agricultural land the requirement of the Statutory Instrument remains the same. The Statutory Instrument requires that the local planning authority consults Natural England if the area of loss of Best and Most Versatile (BMV)² agricultural land to proposed permanent development exceeds 20ha. The document does not state that this threshold should be used to determine the significance of agricultural land take for the purpose of EIA, however it is the only legislation which refers to the area of agricultural land loss. It also has been used, and accepted as best practice, in previous assessments for similar developments and planning applications. Therefore, it has been used as a threshold for defining the impact of the development in this assessment.
- 3.1.2 The Cherwell Local Plan 2011 to2031 Part 1 was formally adopted by Cherwell District Council on 20th July 2015. The Plan sets out the District planning policy until 2031 Within the Local Plan, the Land at Wykham Park Farm is allocated as part of the Strategic Development of South West Banbury. Policy Banbury 17: South of Salt Way – East, lists the key site specific design and place shaping principles. It includes the requirement to provide a detailed ALC survey to identify BMV agricultural land and requirement to prepare a soil management plan.
- 3.1.3 The update to ALC for the Site following verification survey is presented below. Requirements for the soil management plan are addressed in the Mitigation Measures section.

4 BASELINE CONDITIONS

- 4.1.1 Except for the ALC, the other elements of the baseline remain unchanged to that described in Chapter 11. The ALC for the Site was revised as follows:
- Fields F4 and F6 (verification trail pits TP4 and TP5) – Subgrade 3b, and therefore no change to the original survey results (based on the similarities of the trial pit data to the adjacent auger cores undertaken during the original survey (core numbers 13, 14, 16, 17); and to the cores around them (core numbers 8, 9, 10, 11, 15, 18, 21, 20, 19) , see Appendix 4c. ; No Grade 2 land was identified in field F4 (TP5); 2 ha of Grade 2 was identified in field F4 according to the MAFF survey (Appendix 4b).

² The National Planning Policy Framework (NPPF) (Department for Communities and Local Government, 2012) defines best and most versatile (BMV) land as land of excellent (ALC Grade 1), very good (Grade 2) and good (Grade 3a) agricultural quality.

- Field F5 – ALC Grade 2 and Subgrade 3a in north and central parts of the field, which is in agreement with the MAFF survey. This is therefore a change in classification to the baseline data presented in Chapter 11 of the ES.
- Fields F1, F2, and F3 – ALC Grade 2. The verification survey trial pits (TP1 and TP2) demonstrated that the soils were not as shallow as identified by the auger cores undertaken in the original survey.

- 4.1.2 The main reason for the discrepancy between the MAFF and the original survey results as presented in Chapter 11 of the ES, was downgrading of Grade 2 land due to droughtiness. Droughtiness was identified as a limiting factor to ALC as the original auger cores encountered significant levels of stoniness, which impeded the depth to which the cores could be sampled. This stoniness was therefore considered to be an impediment to root growth and hence a droughtiness limitation using the criteria in the ALC guidelines¹. The verification trial pits TP1 and TP2 showed that, as found in the auger survey, the topsoil and subsoil was stony. However, the trial pits showed that the stones are comprised of shattered sandstone and that, due to their nature, the topsoil and subsoil are still permeable to roots and water; this could not be ascertained by auger core. Therefore, the stoniness of the soil and associated droughtiness is not as limiting as previously assessed.
- 4.1.3 The ALC undertaken using the verification trial pit data showed the classification for both TP1 and TP2 to be Subgrade 3a, therefore the MAFF classification of Grade 2 was upheld to keep the assessment conservative as visual estimates of stoniness may be very inaccurate. Table 1 summarises the ALCs reported by MAFF; in the original ES chapter (Chapter 11); and the revised classification combining the MAFF and verification survey results for the Site.

Table 1 Summary Agricultural Land Classification for the Site

Classification	MAFF (1996)	Original (2014)	Verification (2015)
Grade 1	-	-	-
Grade 2	20.2	-	18.7
Subgrade 3a	4.3	3.4	4.3
Subgrade 3b	26.4	35.3	28.7
Grade 4	-	10.5	-
Grade 5	-	-	-
Non-agricultural	1.5	3.3	0.7
Total	52.4	52.5	52.5

5 POTENTIAL EFFECTS

- 5.1.1 The agricultural land within the Site contains 23 ha of BMV agricultural land which, according to criteria in paragraph 2.1.2, would result in a significant adverse effect. At the same time it has to be noted that other consented developments around Banbury generally contain higher proportion of BMV land than the Site (see Appendix 4e).
- 5.1.2 There are two potential effects that the Proposed Development could have on soil resources: damage and loss. According to the criteria in Table 11.1, in Chapter 11, soil resources present within the Site are a receptor of high sensitivity due to substantial areas of BMV agricultural land. Prior to the mitigation (without the embedded environmental measures) the magnitude of damage would be moderate. This would result in an adverse effect of major significance.
- 5.1.3 It is estimated that approximately 32 ha of land within the Site will be available for the topsoil reuse (approximately 20 ha of unsealed land to be used as green space within the development, see Table 2; plus 12 ha of private gardens, estimated to constitute 50 % of the residential areas). Therefore, prior to additional mitigation (soil reuse off-site), approximately 61 % of soil resources would be reused. According to the criteria in Table 11.1, in Chapter 11, the magnitude of soil loss would be moderate, resulting in an adverse effect of major significance.
- 5.1.4 The revision of ALC does not result in a change to the potential effects of the Proposed Development on the agricultural drainage which, prior to mitigation, remains minor adverse and non-significant.

6 MITIGATION MEASURES**Embedded environmental measures**

- 6.1.1 The embedded environmental measures (good practice mitigation) would include appropriate soil handling and storage during development and re-use of the soils guided by Defra's guidance Construction Code for Practice for the Sustainable Use of Soils on Construction Sites (2009) and MAFF's Good Practice for Handling Soils (2000). In particular, soil stripping and storage would be carried out as outlined in paragraph 11.5.6 of Chapter 11 of the ES. Soil resources would be protected by using methods outlined in section 11.6 (paragraphs 11.6.3 to 5). It was recognised that approximatley 20 ha of the land would be maintained as green space for uses such as sports areas and allotments.

6.1.2 To achieve the soil handling standard as described Chapter 11, Soil Management Plan (which will be a part of the Construction Environment Management Plan (CEMP), or equivalent) will be prepared at the detailed design stage and will include (specific to each category of land use):

- Soil handling, storage and restoration plan.
- Specific conditions and guidance for soil handling for the day-to-day works.
- Soil cultivation and vegetation management for specific areas, such as sports grounds, allotments and soft landscaping.
- Reducing compaction of soils by minimising vehicle traffic on wet soil (especially), lawns and other green spaces.

6.1.3 Furthermore, to maintain and enhance functions provided by the soils present at the Site, specific mitigation measures for maintaining the ecosystems service function of soil through the construction phase will be in place. These will include maintaining soil and vegetation in its current state within the development until it is included in the development footprint, on a phased basis.

6.1.4 Although it is coincidental, a large proportion of Grade 2 land would remain unsealed under uses such as outdoor sports areas, play areas and formal landscaping (see Development Framework Plan, Drawing no. JJG043-035). In total the Site comprises approximately 20 ha of unsealed land (excluding private gardens in residential areas), as summarised in Table 2. As a result, the Site design maximises maintenance of the ecosystem services (benefits and natural advantages) provided by the soils present in those areas. Even though these land uses, apart from allotments, will not replace the food provisioning function of the agricultural land, they will be effectively performing many other functions, such as carbon sequestration, flood attenuation, supporting biodiversity and recreation.

6.1.5 This would, to some extent, offset the loss of soil functions in sealed areas under the buildings and roads. Some of these functions may be enhanced compared to the current soil management, which is arable agriculture. For example, as a result of permanent plant cover and lack of frequent cultivation, the carbon storage capacity of the unsealed soils within the development is likely to increase over current levels. Additionally, these higher grade, uncapped soils are freely draining and have high capacity to store additional water from rainfall, therefore they would support flood attenuation function much more effectively than land where soils are saturated with water for longer periods of time, for example where the agricultural land quality is limited by wetness, such as the Subgrade 3b land in fields F4 and F6, which would predominantly be under built development.

Table 2: Summary of land uses within the Proposed Development which would be unsealed

Land use category	Area (ha)	ALC
SuDS	1.9	Subgrade 3b
Strategic Landscape	2.4	Grade 2
Outdoor Sports	2.8	Grade 2
Allotments	0.9	Grade 2
Play Space	1.9	Grade 2
General Green Space	9.7	Varies
Total	19.7	-

Additional mitigation

6.1.6 To preserve and enhance non-agricultural functions of the soils within the Proposed Development the following additional mitigation measures will be implemented and included in the Soil Management Plan:

- Consideration of the areas of green space for amenity and for its function to store carbon, including the use of perennial plants for landscaping and the annual management of this vegetation.
- Use permeable areas through inclusion of porous paving in parking areas and on footpaths and tracks (subject to detailed design).
- Use of organic soil amendments such as composts to minimise the use of synthetic fertilisers.

6.1.7 The main potential mitigation measure in addition those described in Chapter 11 will be local reuse of surplus topsoil and good quality subsoil. Depending on the final use of the surplus soil, it may to some extent offset the permanent loss of agricultural land within the Proposed Development, for example if it is used to restore land back to agricultural use. However, quantification of the effect this mitigation measure would have is not possible at this time, as the local demand for soil resources is unknown; and will vary over time. Whether this measure can be implemented, will be specified at detailed design stage. The potential uses of surplus soil resources include:

- quality topsoil manufacturers;
- soil recycling contractors;
- mineral extraction sites lacking soil resources for restoration; and
- restoration of brownfield land.

Implementation and monitoring

- 6.1.8 In addition to the mitigation described in Chapter 11, it is further specified that the implementation of the Soil Management Plan will be secured through monitoring of the construction process and its compliance with the CEMP. Additional mitigation measures will be specified at detailed design (detailed planning application) stage; and included within the CEMP. Table 3 summarises how the mitigation measures will be secured.

Table 3 Securing of the mitigation measures

Mitigation measure	Description	How secured
Good practice in handling soils	2009 Defra's guidance Construction Code for Practice for the Sustainable Use of Soils on Construction Sites and 2000 MAFF Good Practice for Handling Soils.	Planning condition: Soil Management Plan to be prepared at detailed planning application stage and included in the CEMP.
Enhancement of soil functions	Consideration of measures that go beyond standard good practice to maximise ecosystem services provided by the soils.	Design (landscaping, further minimisation of sealed land), CEMP and post-construction management.
Potential reuse of surplus soil resources off-site	Alternative to disposal, requires detailed characterisation of soil resources and estimates of surplus volumes, and a local reuse feasibility study.	To be included in Soil Management Plan.
Avoiding disturbance to agricultural drainage	SUDs and source controls; the use of cut-off trenches and temporary field drains during construction.	Design, CEMP.

7 RESIDUAL EFFECTS

- 7.1.1 Table 4 shows the summary of Proposed Development effects for the sensitive receptors considered in Chapter 11 of the ES. The permanent loss of agricultural land within the Site cannot be fully mitigated and therefore remains significant. The reuse of soil resources off-site could potentially offset this loss to an extent, but this will depend on whether soils are reused for the restoration of agricultural land elsewhere in the locale. Therefore, after mitigation the effect remains significant.
- 7.1.2 The implementation of embedded environmental measures (good practice mitigation), secured through the Soil Management Plan, will ensure that damage to soil resources due to handling, storage and reinstatement is minimal and fully reversible. Therefore, after mitigation the effect is reduced to minor adverse and non-significant.
- 7.1.3 The loss of surplus soil resources will be mitigated by their reuse off-site (an additional mitigation measure). Specific purpose for the surplus soil resources will depend on the availability of suitable receptor land in the locale. Recycling through appropriate contractor will

be arranged as a minimum, while the restoration of an off-site agricultural land will be subject to further feasibility analysis. The significance of the effect with respect to loss of soil resources is therefore reduced to minor adverse and non-significant.

- 7.1.4 The disruption to agricultural drainage can be readily controlled by good practice and design measures, such as SuDS. With these measures in place the effect is reduced to negligible.

Table 4 Summary of effects

Potential effect	Significance (pre-mitigation)	Mitigation measure	Significance of residual effect
Construction stage			
Loss off BMV agricultural land	Significant*	Cannot be fully mitigated. Offsetting through reuse of soil resources in restoration of off-site agricultural land locally is technically possible, but is subject to further analysis.	Significant*
Damage to soil resources	Major adverse	Preparation of Soil Management Plan (part of CEMP). Following best practice guidelines: handling of soil resources only when sufficiently dry; separation of different types of topsoil and subsoil; appropriate seeding of soil storage mounds; minimising the number of machine movements across topsoil; defining of all Site haul roads and soil storage areas.	Minor adverse
Loss of soil resources	Major adverse	Reuse of surplus soil resources (subject to local demand), the Soil Management Plan.	Minor adverse
Disruption/severance of agricultural drainage systems	Minor adverse	SUDs and source controls; the use of cut-off trenches and temporary field drains during construction.	Negligible
Post-completion stage			
None identified			
*Note that the loss of BMV land can only be quantified as significant or non-significant using the 20 ha permanent loss threshold (see paragraph 2.1.2).			

8 CUMULATIVE EFFECTS

- 8.1.1 Incremental effect (i.e. effect of more than one development upon a single environmental receptor) is not considered relevant to the assessment of impacts on soil resources and agricultural drainage, as these receptors can only be directly affected by any given development. This is because different developments do not overlap spatially, so cannot both affect the soil resource or part of the agricultural drainage system (e.g. a field drain or a drainage ditch) in the same location. Therefore, cumulative effect on these receptors was scoped out from the cumulative impact assessment.

- 8.1.2 If the agricultural land receptor is defined as all agricultural land within a local area, e.g. council administrative boundaries, then the impact of cumulative land take can be quantified and assessed. Since the Site itself comprises over 20 ha of BMV agricultural land, and other consented developments around Banbury generally contain higher proportion of BMV land (see Appendix 4e) than the Land at Wykham Park Farm, these developments together with the Proposed Development would cumulatively result in a significant effect on agricultural land.