

**CONTENTS**

<b>11.1 INTRODUCTION .....</b>	<b>2</b>
<b>11.2 ASSESSMENT METHODOLOGY .....</b>	<b>3</b>
<i>Scope .....</i>	<i>3</i>
<i>Summary of proposals .....</i>	<i>3</i>
<i>Data sources .....</i>	<i>3</i>
<i>Assessment approach.....</i>	<i>4</i>
<i>Significance criteria.....</i>	<i>5</i>
<i>Uncertainties and limitations.....</i>	<i>7</i>
<b>11.3 RELEVANT POLICY .....</b>	<b>8</b>
<i>National Planning Policy Framework (March 2012) .....</i>	<i>8</i>
<i>Cherwell District Local Plan (1996).....</i>	<i>9</i>
<i>The Non-Statutory Cherwell District Local Plan (2004) .....</i>	<i>9</i>
<i>Draft Cherwell Local Plan (2014).....</i>	<i>10</i>
<b>11.4 BASELINE CONDITIONS .....</b>	<b>11</b>
<i>Soils.....</i>	<i>11</i>
<i>Soil survey.....</i>	<i>12</i>
<i>Agricultural Drainage .....</i>	<i>14</i>
<i>Agricultural Land Classification.....</i>	<i>14</i>
<i>Baseline Summary.....</i>	<i>16</i>
<i>The projected future baseline.....</i>	<i>17</i>
<b>11.5 POTENTIAL EFFECTS .....</b>	<b>18</b>
<i>Construction stage .....</i>	<i>18</i>
<i>Post-completion stage .....</i>	<i>20</i>
<b>11.6 MITIGATION MEASURES .....</b>	<b>21</b>
<i>Construction stage .....</i>	<i>21</i>
<i>Post-completion stage .....</i>	<i>22</i>
<b>11.7 RESIDUAL EFFECTS .....</b>	<b>23</b>
<i>Construction stage .....</i>	<i>23</i>
<i>Post-completion stage .....</i>	<i>23</i>
<i>Summary of effects.....</i>	<i>23</i>
<b>11.8 CUMULATIVE EFFECTS .....</b>	<b>24</b>
<b>11.9 CONCLUSION.....</b>	<b>25</b>

**Outline Planning Application**

---

**11.1 INTRODUCTION**

11.1.1 This chapter has been prepared by Wardell Armstrong LLP, to assess the baseline characteristics of the soil resources, agricultural productivity, land use and agricultural drainage at the Site using published information sources and data collected during a baseline soil survey. This has then been used to identify significant effects to these receptors, in order to provide appropriate mitigation measures to minimise the impacts.

**Outline Planning Application**

---

**11.2 ASSESSMENT METHODOLOGY**

**Scope**

11.2.1 The Study Area considered for this assessment includes all of that within the red line boundary (Appendix 11.1).

11.2.2 Aspects of agricultural and soil characteristics are considered including climate, topography, drainage, depth of soil resources and soil qualities such as texture (Appendix 11.2).

11.2.3 The potential impacts of the Proposed Development upon soil resources, agriculture and land use have been described. Quantitative and qualitative significance criteria are detailed, against which the potential impacts of the proposed scheme have been measured and where appropriate, details of mitigation measures required to address those impacts have been identified.

11.2.4 Residual impacts are then identified under such circumstances where potential impacts cannot be fully mitigated.

**Summary of proposals**

11.2.5 In terms of potential impact of the proposed scheme upon soil resources and land use, the main areas of interest relate to:

- permanent loss of agricultural land primarily to built development;
- loss of soil structure as a consequence of soil handling and storage of soils during the development;
- potential disruption to agricultural drainage within the Site and on adjacent land as a consequence of the development; and
- soil rehabilitation, restoration and aftercare management.

**Data sources**

11.2.6 Information regarding the Site was obtained from the following sources:

- 'Soils and their Use in South East England' (Soil Survey of England & Wales, 1984) and accompanying 1:250,000 Sheet 6 South East England;
- 'Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land' (MAFF, 1988);

**Outline Planning Application**

---

- 'Climatological Data for Agricultural Land Classification: Gridpoint datasets of climatic variables at 5km intervals for England and Wales' (Met. Office, 1989); and
- 1:250,000 Provisional Agricultural Land Classification Sheet, South East Region (MAFF 1993).

**Assessment approach**

11.2.7 A soil survey was carried out over the Proposed Development Site during September 2012 using a 70mm hand-held Edelman auger capable of sampling to 120cm depth.

11.2.8 The detailed information collected from the soil survey has been used to determine the classification of agricultural land capability in accordance with the 'Agricultural Land Classification of England and Wales, revised guidelines and criteria for grading the quality of agricultural land' (MAFF, 1988). This is used in conjunction with the interpolated agro-climatic characteristics of the Site, as determined from 'Climatological Data for Agricultural Land Classification: Gridpoint datasets of climatic variables at 5km intervals for England and Wales' (Met. Office, 1989).

11.2.9 In order to produce a robust assessment, appropriate criteria have been selected to quantify the significance of impacts associated with the proposal. Unlike other environmental issues such as noise and dust, the environmental impact of development upon land use and soil resources has very little, if any, recognisable national, regional or local criteria or guidelines published (e.g. DEFRA, Environment Agency, professional institutes). As such, the criteria have been selected on the basis of the understanding and knowledge of experience, with reference made where possible to published guidelines and criteria.

11.2.10 The criteria have been selected for three main groups of potential impacts:

- impacts upon land quality (ALC);
- impacts upon soil resources; and
- impacts upon agricultural drainage.

11.2.11 Assessment criteria have not been selected to determine the significance of impact upon land use and farm business. Potential impacts are considered to be fully mitigated through the process of discussion and negotiation between the developer, the land owners, and any agricultural tenants who lease the land. It is considered that such negotiations have therefore already reached a satisfactory stage whereby

**Outline Planning Application**

---

landowners are effectively compensated for all potential loss of revenue from farm business (e.g. through options, direct compensation, etc.).

11.2.12 Upon determining the likely significance of the impacts associated with the Proposed Development, mitigation measures are proposed to minimise the effects and consequently the significance of these impacts. Residual impacts are identified and cumulative effects assessed.

*Definitions*

11.2.13 The term 'best and most versatile' agricultural land is used to mean agricultural land of Grades 1, 2 and 3a as defined using the 'Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land' (MAFF, 1988) and National Planning Policy Framework (Department for Communities and Local Government, 2012). Best and most versatile agricultural land has been identified in the baseline survey together with land classified as subgrade 3b, 4 and 5, which are of lesser significance with respect to the published guidance.

**Significance criteria**

11.2.14 Table 11.1 identifies the criteria used to establish the magnitude of effects on agricultural land, soil resources and agricultural drainage. These are based upon the permanent/temporary damages and/or losses to the receptors arising as a result of the Proposed Development. Where guideline criteria have been used in the absence of specific and documented guidance relating to the determination of the magnitude of effect on the soil resource, land quality and agricultural drainage, they have previously been agreed and accepted as best practice in other assessments.

11.2.15 Table 11.2 displays the sensitivity of the receptors to the impacts of the proposed development. Together, these are then used to establish the significance of the effects in Table 11.3. Effects identified as major and moderate are considered to be significant.

**Table 11.1 Magnitude Criteria for agricultural land, soil resources and agricultural drainage**

<b>Agricultural Land</b>	
<b>Magnitude</b>	<b>Disturbance or loss of agricultural land</b>
Large	>20ha of ALC Grade 1, 2 or 3a land permanently lost and >50ha of ALC Grade 3b or below permanently lost. OR >50ha of ALC Grade 1, 2 or 3a land temporarily lost and >100ha of ALC Grade 3b or below temporarily lost.

**Outline Planning Application**

Moderate	10-20ha of ALC Grade 1, 2 or 3a land permanently lost and 20-50ha of ALC Grade 3b or below permanently lost. OR 20-50ha of ALC Grade 1, 2 or 3a land temporarily lost and 50-100ha of ALC Grade 3b or below temporarily lost.	
Small	<10ha of ALC Grade 1, 2 or 3a land permanently lost and <20ha of ALC Grade 3b or below permanently lost. OR <20ha of ALC Grade 1, 2 or 3a land temporarily lost and <50ha of ALC Grade 3b or below temporarily lost.	
<b>Soil Resources</b>		
<b>Magnitude</b>	<b>Damage to soil resource</b>	<b>Loss of soil resource</b>
Large	Permanent irreversible damage to soil resource quality through handling, stockpiling etc	>50% soil resources removed from site.
Moderate	Long term temporary/reversible damage to soil resource quality through handling, stockpiling etc.	25-50% of soil resources removed from site.
Small	Moderate term temporary/reversible damage to soil resource quality through handling, stockpiling etc.	<25% of soil resources removed from site.
Negligible / None	Short term, reversible damage or disruption to soil resource quality through handling, stockpiling etc / no damage or disruption to resource quality	All soil resources retained on site.
<b>Agricultural Drainage</b>		
<b>Magnitude</b>	<b>Disruption to agricultural drainage</b>	
Large	Permanent (irreversible) disruption to on-site or off-site agricultural drains	
Moderate	Long term (reversible) disruption to on-site or off-site agricultural drains	
Small	Short term, reversible disruption to on-site or off-site agricultural drains	
Negligible	No disruption to on-site or off-site agricultural drains	
Criteria based on:		

**Outline Planning Application**

1. A 20ha for loss of best and most versatile agricultural land threshold follows the approach of Statutory Instrument 2010 No. 2184, The Town and Country Planning (Development Management Procedure) Order 2010, Schedule 5. This stipulates that the Secretary of State for the Environment Food and Rural Affairs should be consulted before the grant of permission. 20ha represents a measure of significance for the loss of such land, which has been tried and tested in land use planning and at public enquiries over several decades.
2. Consultant's experience
3. DEFRA/Environment Agency guidance
4. National, Regional and Local Planning Policy

**Table 11.2 Sensitivity of the receptors**

Receptor	Sensitivity	Justification
<b>Soils and Agricultural land</b>		
Best and most versatile agricultural land (ALC Grades 1, 2 and 3a)	High	Land capable of producing a very wide range to a moderate range of crops.
Moderate quality agricultural land (ALC Grade 3b)	Medium	Land capable of producing a range of crops.
Lower quality (ALC Grade 4 and lower)	Low	Land capable of producing a narrow range of crops or suited to use as improved grassland and rough grazing.
<b>Agricultural Drainage</b>		
Agricultural drainage systems	Medium	Agricultural drainage (e.g. a field drain system) controlling soil water level for crop production.

**Table 11.3 Significance of effect on agricultural land, the soil resource and agricultural drainage**

MAGNITUDE	SENSITIVITY			
	High	Medium	Low	None
<b>Large</b>	Major	Major	Moderate	Minor
<b>Moderate</b>	Major	Moderate	Minor	Minor
<b>Small</b>	Moderate	Minor	Minor	Negligible / none
<b>Negligible</b>	Minor	Minor	Negligible / none	Negligible / none

**Uncertainties and limitations**

11.2.7 There are no published or widely accepted assessment criteria for effects on farm businesses, best and most versatile land or soil resources, but we believe that the assessment criteria used are well founded.

**Outline Planning Application**

---

**11.3 RELEVANT POLICY**

***National Planning Policy Framework (March 2012)***

11.3.1 Paragraph's 111 and 112 of The National Planning Policy Framework (NPPF), 2012 promotes the sustainable management and protection of soils and agricultural land consistent with the economic, social and environmental needs of England.

*“Planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed (brownfield land), provided that it is not of high environmental value. Local planning authorities may continue to consider the case for setting a locally appropriate target for the use of brownfield land.*

*Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development on agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.”*

11.3.2 Consequently, impacts to the soil resource and best and most versatile (BMV) agricultural land are to be considered, and protected against development where they override the economic needs of the development itself.

***National Planning Policy Guidance***

11.3.3 Paragraph 26 of the National Planning Policy Guidance 2014 states how agricultural land should be taken into consideration within planning policy:

*“The National Planning Policy Framework expects local planning authorities to take into account the economic and other benefits of the best and most versatile agricultural land. This is particularly important in plan making when decisions are made on which land should be allocated for development. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality. The Agricultural Land Classification provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system.*



**Outline Planning Application**

---

*Natural England provides further information on Agricultural Land Classification. The Agricultural Land Classification system classifies land into five grades, with Grade 3 subdivided into Sub-grades 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a and is the land which is most flexible, productive and efficient in response to inputs and which can best deliver food and non-food crops for future generations.”*

*Soil Strategy for England*

- 11.3.4 The National Strategy for England; Safeguarding our Soils (DEFRA, 2009), provides a long-term guide to direct policy regarding the protection of soils in England. Similar strategies have been constructed for Wales and Scotland.
- 11.3.5 The strategy highlights the importance of the protection of soils, especially in agricultural landscapes and during development, for ecosystem services, climate change mitigation, and to prevent contamination.
- 11.3.6 In particular, Chapter 1 of this document ensures soils are sustainably managed and degradation threats are successfully dealt with, whilst Chapter 2 puts this into the context of agricultural landscapes. Chapter 6 ensures effective soil protection during development and construction, with a focus on the protection of soil-related ecosystem services. Furthermore, in response to this DEFRA have constructed a series of best practice guidelines for the handling and storage of soil resources during development which are referred to later within this ES chapter.

***Cherwell District Local Plan (1996)***

- 11.3.7 Policy AG1; Development on Agricultural Land, was not saved under the Planning and Compulsory Purchase Act 2004, and therefore is no longer used to determine planning applications.

***The Non-Statutory Cherwell District Local Plan (2004)***

- 11.3.8 Policy EN16; Land resources, states that development shall not be permitted on the best and most versatile agricultural land in accordance with the National Planning Policy Framework.

**Outline Planning Application**

---

*“Development on Greenfield land including the best and most versatile (grades 1, 2 and 3a) agricultural land will not be permitted unless there is an overriding need for the development, and opportunities have been assessed to accommodate the development on previously developed sites and land within the built-up limits of settlements.*

*If development needs to take place on agricultural land, then the use of land in grades 3b, 4 and 5 should be used in preference to higher quality land except where other sustainability considerations suggest otherwise.”*

**Draft Cherwell Local Plan (2014)**

11.3.9 The protection of best and most versatile agricultural land from development is not considered specifically within any of the policies within the Draft Cherwell Local Plan, however it is a consideration in the policies involving the development of specific sites within the locale, such as Policy Banbury 2.

11.3.10 The specific reference to the protection of the best and most versatile agricultural land at particular sites confirms that it is a necessary consideration within planning applications, and therefore needs to be accurately assessed.

**Outline Planning Application**

---

**11.4 BASELINE CONDITIONS****Agricultural Use**

11.4.1 The Site is used as arable farmland for rotation cropping with species rich Hedgerows and individual trees along field boundaries. Drainage ditches follow some field boundaries.

**Soils***Desk Study*

11.4.2 Soils within the site are mapped, according to published sources, as belonging to the 544 Banbury association, the 712b Denchworth association.

*544 Banbury soil association*

11.4.3 544 'Banbury' soil association. This association is mapped as being present over the eastern areas of the Site, and potentially encroaching into western and southern areas of the Site.

11.4.4 The geology of the Banbury association is described as Jurassic and Cretaceous ironstone. This association comprises well-drained brashy fine and coarse loamy ferruginous soils over ironstone. There are also some deep fine loamy over clayey soils with slowly permeable subsoils which are affected by slight seasonal waterlogging. Typical land uses in areas of Banbury soils include winter cereals with short term grassland, potatoes, permanent grassland on valley slopes, sugar beet.

11.4.5 A typical soil profile is described in the published resource material as:

- 0 – 20cm dark brown, slightly stony clay loam or sandy clay loam;
- 20 – 50cm strong brown, slightly stony clay loam; strong medium granular or fine angular blocky structure;
- 50 – 70cm strong brown or reddish brown, very stony clay loam; strong medium granular or fine angular blocky structure;
- 70 – 100cm strong brown or reddish brown, extremely stony clay loam; massive structure.

11.4.6 Soils in the Banbury soil association are described as well drained (Wetness Class I), and the soils readily absorb winter rainwater.

**Outline Planning Application**

---

*712b Denchworth soil association*

- 11.4.7 This association is mapped as being present over northern and central areas of the Site.
- 11.4.8 The geology of the Denchworth association is described as Jurassic and Cretaceous clay. This association comprises slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. There are also some fine loamy over clayey soils with slight seasonal waterlogging, and some slowly permeable calcareous clayey soils. Denchworth soils are affected by landslips and associated irregular terrain locally. Typical land uses of the Denchworth association include winter cereals and short term grassland in drier lowlands and dairying on permanent grassland in moist districts.
- 11.4.9 A typical soil profile is described in the published resource material as:
- 0 – 25cm dark greyish brown, slightly stony clay loam or clay;
  - 25 – 65cm grey with many ochreous mottles, stoneless clay; weak medium subangular blocky structure;
  - 65 – 100cm grey, mottled, stoneless clay; weak coarse prismatic structure, calcareous.
- 11.4.10 The major soils in the Denchworth association are described as slowly permeable and are waterlogged for prolonged periods in winter and at times in the growing season (Wetness Class IV).

**Soil survey**

- 11.4.11 The soil profile of the agricultural land within the Site was examined in order to determine the characteristics of the soil resource, and to determine the Agricultural Land Classification (ALC) grade (see below). A summary of the observed soil profiles is included as Appendix 11.2.

*Topsoil*

- 11.4.12 Topsoil over the Site was consistently 20cm (Fields 2 and 3), 25cm (Fields 4 to 6) or 30cm (Field 1) strong brown clay loam generally demonstrating a moderate angular

**Outline Planning Application**

---

blocky to granular structure. Abundant large stones (~2cm) on the surface were recorded in Fields 1, 5 and 6.

*Subsoil*

11.4.13 The depth of the subsoils over the Site varied with the depth to stony layers. Fields 2, 3 and 4 were consistently deep (120cm), whilst the remaining fields encountered excessively stony layers between 40cm and 80cm, or none at all within 120cm.

11.4.14 Subsoil over Fields 1, 5 and the northern extents of Field 6 generally comprised a yellowish brown or strong orange brown clay loam or clay, with a coarse angular blocky structure.

11.4.15 Subsoil over Fields 2, 3 and 4 generally comprised an orange brown or strong brown clay loam or clay, with a coarse angular blocky structure; over an orange and olive brown, mottled clay with a coarse prismatic structure.

11.4.16 Subsoil over the south of Field 6 generally comprised a yellowish brown or strong orange brown sandy clay loam, with a moderate angular blocky to granular structure.

*Soil Profiles*

11.4.17 The findings of the Site survey are comparable to the literature based assessment, in that the soil profiles described generally match the description given of the typical component of the Banbury soil association. Soils within Fields 2, 3 and 4 were similar to the mapped Denchworth association; but also shared certain characteristics with the Irondown series described below:

- 0 – 25cm dark brown, slightly stony clay loam;
- 25 – 60cm yellowish brown, slightly mottled, slightly stony clay loam; moderate medium subangular blocky structure;
- 60 – 80cm olive brown, mottled, stoneless clay; weak very coarse prismatic structure;
- 80 – 100cm olive brown, mottled, stoneless silty clay; massive structure.

**Outline Planning Application**

---

**Agricultural Drainage**

11.4.18 The Site is located on level or slightly undulating land, with water draining into the soil profile and underlying geology, and south towards the Sor Brook.

**Agricultural Land Classification**

11.4.19 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). Best and most versatile agricultural land is classified as grades 1, 2 or subgrade 3a, whereas moderate to very poor quality land is designated subgrade 3b or grades 4 and 5, and is restricted to a narrow range of agricultural uses.

11.4.20 The ALC map for the South East indicates that eastern, and potentially some southern and western, areas of the Site have an ALC of grade 2; and northern and central areas of the Site have an ALC of grade 3 (see Appendix 11.3). There is no differentiation made between sub-grades 3a and 3b at the scale of map provided (1:250,000). The mapping indicates that grade 2 and 3 soils are common in the area around Banbury, with smaller areas of grade 1 and grade 4 land present.

11.4.21 Additional post 1988 ALC mapping from previous MAFF surveys (typically at 1:10,000 scale) indicates land within has been assessed as a mixture of grade 2, subgrade 3a and subgrade 3b land (see Appendix 11.4). Additional land in the vicinity has been assessed as a mixture of grade 2, subgrade 3a and subgrade 3b, with some areas of grade 4 land also present.

**Agroclimatic data**

11.4.22 The agroclimatic data of a Site influences the Agricultural Land Classification in respect of growing conditions for crops, and the soil reaction in terms of wetness and droughtiness. The Meteorological Office publishes agroclimatic data for England and Wales on a five kilometre grid basis, from which the following data was interpolated for the Site. Table 11.4 shows the values given for the nearest agroclimatic datasets and the interpolated values for the Site.

**Table 11.4 Agroclimatic data for Wykham Park Farm**

<b>Agroclimatic data for Wykham Park Farm</b>	
<b>SP448385</b>	
Average Annual Rainfall (AAR)	697mm
Accumulated Temperature January – June (AT0)	1354 day°C
Duration of Field Capacity	157 days

11.4.23 The Site is located in an area with an average annual rainfall of 697mm per year and duration of field capacity (FCD) of 157 days (i.e. period over winter and spring during which the soil has more water available than can be used by growing crops).

*Climatic, site and soil limitations*

11.4.24 The combination of average annual rainfall and accumulated temperature (697mm and 1354 day°C respectively, see Table 11.4) identifies there are no climatic limitations to ALC at Wykham Park Farm.

11.4.25 Gradient has a significant effect on mechanised farm operations since most conventional agricultural machinery performs best on level ground. The safe and efficient use of machinery on sloping land depends very much on the type and design of the machine and on the nature of the slope being farmed. The gradient over the Site is consistently less than 7 degrees. This means that the Site does not exhibit slopes likely to restrict agricultural machinery; therefore ALC is not limited by gradient.

11.4.26 Soil depth is important when determining available water capacity and shallow soils can affect cropping in a number of ways. Whilst augers were frequently impeded, this was generally as a result of stones in the subsoil and the soil resources is consistently deeper than 60cm over the Site, therefore soil depth is not a limiting factor.

11.4.27 Stones act as an impediment to cultivation, harvesting and crop growth. A high stone content reduces the potential for certain agricultural crop management, can cause wear and tear to agricultural implements/tyres and can reduce the quality of crops (i.e. bruising potatoes during harvesting). A limitation to ALC by stones depends on the size, quantity, shape and hardness of the stones. Stoniness is a limitation to ALC that applies over the eastern and western fields within the Site, limiting the ALC to grade 3b in Fields 1 and 6.

**Outline Planning Application***Interactive limitations*

11.4.28 The physical limitations resulting from the interactions between climate, Site and soil characteristics are soil wetness and droughtiness. Soil wetness limitations adversely affect plant growth or agricultural management (e.g. grazing, machine operation, poaching by livestock, smearing by machinery). Droughtiness is most likely to be a significant limitation to crop growth in areas with low rainfall and high evapotranspiration, or where the soil profile holds only small reserves of moisture. Droughtiness was a limiting factor to ALC over parts of the Site, giving a maximum grade of 4 in the east of Fields 1 and 4, the west of Field 5, and the north and south of Field 6. It also limited the south east of Field 5 to grade 3a.

11.4.29 For ALC purposes the soil wetness assessment takes account of:

- Climatic regime (duration of field capacity = 157 days);
- Soil water regime based on soil profile characteristics (Wetness Class III); and
- Texture of the top 25cm of the soil profile (clay loamy).

11.4.30 Based on the criteria laid out above, Fields 2, 3 and 4 are allocated an ALC of subgrade 3b based on a soil wetness limitations, alongside limiting sections of Fields 5 and 6 to grades 3a and 3b.

**Baseline Summary**

11.4.31 The primary limitations to Agricultural Land Classification at Wykham Park Farm are droughtiness, soil wetness and stoniness. This limits the soils of the Site to the ALC grades 3a, 3b, and 4 as identified in Table 11.4. The ALC grades within the Site are detailed on Appendix 11.1.

**Table 11.4: ALC Grades identified across the Site by way of a soil survey**

ALC Grade	Area (ha)	Location within Site
BMV Grade 3a	3.4	East of the Site within Fields 2 and 3.
Grade 3b	35.3	The majority is within the centre of the Site, however it is found within all Fields,
Grade 4	10.5	Within Fields 1, 2, 3 and 5.
Non-agricultural	3.3	Along the Sites southern boundary within Fields 5 and 6.



**Outline Planning Application**

---

11.4.32 The post-1988 MAFF mapping around Wykham Park Farm is comparable to Wardell Armstrong's 2012 survey with a mixture of BMV and non-BMV land, although no grade 4 land was encountered in the MAFF survey.

11.4.33 Soils in the Banbury association are well drained and often of best and most versatile quality, with Denchworth (and Irondown) soils generally being borderline best and most versatile to lower quality grades due to slowly permeable horizons present in soil profiles, allowing for longer periods of waterlogging and seasonal wetness.

***The projected future baseline***

11.4.34 The future baseline of the soils and agricultural land of the Site is likely to change under the influence of Climate Change. This will see more extremes of weather occurring at the Site, bringing more precipitation to the area and larger temperature ranges between seasons.

11.4.35 Consequently, with an increase in precipitation, those soils already suffering from slowly permeable horizons and seasonal waterlogging are likely to become more waterlogged in the winter months. Additionally this will lead to more surface runoff and less suitable land for crop growth as the soil becomes anoxic.

11.4.36 In the summer months where temperatures are likely to increase, soils will suffer more from the effects of droughtiness. This in turn will lead to a reduction in the growth of crops which are prone to extreme changes in soil water, such as grasses, horticultural crops, fruits and potatoes.

11.4.37 Consequently, the amount of land which is BMV at the Site is likely to reduce in the future as a result of climate change due to the effects on the soil from an increase in precipitation and summer temperatures at the Site.

**Outline Planning Application**

---

**11.5 POTENTIAL EFFECTS****Construction stage***Agricultural Land*

- 11.5.1 3.4 ha of grade 3a, 35.3 ha of grade 3b, 10.5 ha of grade 4 and 3.3 ha non-agricultural land has been identified within the application boundary from the soil survey.
- 11.5.2 The proposal would result in a built development of 37.49 ha (comprising residential houses, a local centre, primary school, associated infrastructure, SuDS, and strategic landscape). The remaining 14.97 ha will be left as green space or developed for soft uses (such as play areas, outdoor areas and allotments).
- 11.5.3 This proposal would result in the permanent loss of approximately 3.4 ha of grade 3a, 35.3 ha of grade 3b, and 10.5 ha of grade 4 agricultural land. The proposed development would not affect the 3.3 ha of non-agricultural land. In 14.97 ha of the Site, the soil profile would be left intact but would no longer be agricultural as the land use changes to public open space or soft uses. It is proposed to utilise the stripped soils for gardens, public open spaces and landscaping.
- 11.5.4 With reference to the identified potential impacts and the criteria provided the potential effects upon agricultural land are considered to be adverse and of minor significance. This is because the proposal would result in a permanent loss of approximately 3.4 ha of best and most versatile, and moderate quality agricultural land to built development. Additional agricultural land within the Site would be lost as a result of the change in landuse, although soil profiles would remain intact.

*Soil resources*

- 11.5.5 The Proposed Development would involve the stripping, temporary stockpiling and re-use of topsoil resources. This activity has the potential to damage soil in terms of soil structure, nutrient content and soil organism activity if not carried out in an appropriate manner. It is intended to retain soil resources within the Site for use in site restoration; however, if a surplus of soils is identified then some of the resource may require removal from the Site.

**Outline Planning Application**

11.5.6 Topsoil will be stripped as a uniform layer to 0.3m depth in Field 1; 0.2m depth in Fields 2 and 3; and 0.25m depth in Fields 4, 5 and 6. Where subsoil is to be stripped, it will be stripped as a single layer of a thickness of between approximately 0.9m and 1m (i.e. soil stripped to approximately 1.2m total depth) or to the total depth of soil to bedrock. Topsoil storage bunds would not exceed 3m in height, and subsoil storage bunds would not exceed 5m in height. Soil stockpiles and bunds would be constructed in such a way to enable stabilisation, control runoff rates and mitigate the visual impact of site operations. All soil stockpiles and bunds would be seeded to reduce erosion and nutrient losses, and to minimise any impact on soil fauna.

11.5.7 Consequently, the significance of potential effects upon soil resources is considered minor to moderate adverse.

*Agricultural Drainage*

11.5.8 The Proposed Development could potentially impact upon the agricultural drainage systems of adjacent fields. This may be either as a result of direct disruption of drainage from adjacent land, or additional runoff generated from development areas. This has the potential to result in standing water collecting on previously well drained land. Indirect impacts on drainage could result from the release of sediment from the Proposed Development to nearby drains, causing them to become blocked. Consequently, the significance of potential effects upon agricultural drainage both on and off site is considered to be minor adverse.

11.5.9 Table 11.5 provides a summary of the potential effects occurring within the Site as a result of the Proposed Development.

**Table 11.5: Potential Effects occurring within the Site from the Proposed Development**

	<b>Potential Effects</b>	<b>Significance</b>
Agricultural Land	Loss of agricultural land comprising grade 3a (3.4 ha), grade 3b (35.3 ha), and grade 4 (10.5 ha)	Minor adverse
Soil resource	Damage to the soil resource through inappropriate handling, stockpiling and reuse	Minor to Moderate adverse

**Outline Planning Application**

Agricultural Drainage	Disruption or severance of agricultural drainage systems to the adjacent land.	Minor Adverse
-----------------------	--	---------------

**Post-completion stage**

11.5.10 No additional effects are identified post-completion which relate to soils, agricultural land or agricultural drainage. After completion, all land will be removed from agricultural use.

**Outline Planning Application**

---

**11.6 MITIGATION MEASURES*****Construction stage****Agricultural Land*

11.6.1 The permanent loss of agricultural land cannot be mitigated directly. The impact associated with the loss of agricultural land must however be considered against the positive socio-economic benefits brought about if the development is approved.

11.6.2 No land is to be returned to agriculture. Whilst soil profiles would remain intact in several areas following development, the Site would be classed as 'non-agricultural'.

*Soil resources*

11.6.3 Soils would be handled in accordance with the recommendations of DEFRA in the document 'Good Practice Guide for Handling Soils' (MAFF 2000). Soil resources would be protected against damage during stripping, handling, stockpiling and restoration by adoption of appropriate up to date guidance measures, which would aim to protect topsoil resources from damage. Typical working methods and techniques used to protect topsoil resources include the following:

- the handling of soil resources only when sufficiently dry, generally limiting soil operations to the months May to September (although this period may be extended during dry periods);
- the stripping, handling and storage of topsoil separately from subsoil movements;
- appropriate seeding of soil storage mounds required on site for a period longer than 6 months, to prevent erosion and to maintain soil structure, nutrient content and biological activity. Topsoil stockpiles would have a maximum height of 3m. Subsoil, and other superficial materials handled during the development would only be stockpiled in areas previously stripped of topsoil;
- minimising the number of machine movements across topsoil;
- the definition of all site haul roads and storage areas.

11.6.4 Subsoil resources could be utilised if necessary as fill material for the engineering of development platform areas. There is also the potential for the use of soil resources elsewhere in the locale for improvement of land (e.g. infilling hollows, creation of landscaped areas). These measures should be incorporated into a detailed soil

**Outline Planning Application**

---

handling strategy, to be forwarded to the planning authority and DEFRA for approval at a later date, most likely during the detailed planning application stage.

- 11.6.5 If a surplus of soils were to be identified during the detailed design stage, soils would be removed from the Site for suitable use elsewhere (i.e. agricultural restoration, land reclamation, etc). These soils would be handled in accordance with the methods and techniques described above, in addition to the guidance within Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA 2009).

**Agricultural Drainage**

- 11.6.6 Sustainable urban drainage systems and source controls are to be utilised within the development, to reduce potential impact upon receiving watercourses, this will mitigate potential impacts associated with runoff from the development affecting agricultural land. It is considered unlikely that the drainage of adjacent agricultural land will be impacted by the Proposed Development, provided that agricultural drainage from surrounding land is not cut-off or stopped up during the course of the development. The use of appropriate cut-off trenches and temporary field drains during construction will protect existing agricultural drainage measures. The locations of soil storage mounds will not increase flood risk to the Site.

**Post-completion stage**

- 11.6.7 As no significant effects post-competition have been identified in relation to soils, agricultural land or agricultural drainage, no mitigation measures are required.

The loss of land from agricultural use and the sealing of soils within the construction areas cannot be mitigated against. However about 18 ha will be retained as open space, outdoor sports areas and allotments. These areas will be managed to retain important soil functions but agricultural use is likely to cease.

**Outline Planning Application****11.7 RESIDUAL EFFECTS****Construction stage**

11.7.1 The proposal will result in the permanent loss of 3.4 ha of ALC grade 3a, 35.3 ha of grade 3b, and 10.5 ha of grade 4. This remains to be an effect of minor adverse significance. In areas of the Site not subject to the built development, the soil profiles would be left intact but the land use would no longer be agricultural.

11.7.2 Other identified potential impacts can be properly mitigated and no other residual soil or land use impacts are considered.

**Post-completion stage**

11.7.3 No residual effects are identified post-completion.

**Summary of effects**

11.7.4 The effects identified are summarised in Table 11.6 below:

**Table 11.6 Summary of effects**

Potential effect	Significance (pre-mitigation)	Mitigation measure	Significance of residual effect
<b>Construction stage</b>			
Loss of BMV agricultural land	Moderate adverse	Cannot be fully mitigated	Minor adverse
Damage to the soil resource	Minor to Moderate adverse	The handling of soil resources only when sufficiently dry; the stripping, handling and storage of topsoil separately from subsoil; appropriate seeding of soil storage mounds; minimising the number of machine movements across topsoil; the definition of all Site haul roads and storage areas.	Negligible
Disruption / severance of agricultural drainage measures	Minor adverse	SUDs and source controls; the use of cut-off trenches and temporary field drains during construction.	Negligible
<b>Post-completion stage</b>			
None identified			

**Outline Planning Application**

---

**11.8 CUMULATIVE EFFECTS**

- 11.8.1 Along with the proposed Wykham Park Farm development, an additional development “the Horgan Land development” is proposed on the north western boundary of Site. The proposal for up to 145 houses was submitted in January 2012 and outline planning permission was granted on 23rd September 2013 (Ref 12/0080/OUT).
- 11.8.2 The development of this scheme, along with that of Wykham Park Farm will have a significant “cumulative effect” relating to the loss of agricultural land.
- 11.8.3 The planning application for the Horgan Land development did not involve undertaking an ALC assessment, however using the MAFF, 1993<sup>1</sup> 1:250,000 survey, and soil profile information<sup>2</sup> we can determine that the agricultural land at the Horgan Land development is likely to be of a moderate (subgrade 3b) quality as the soil is identified as that of the Denchworth soil association.
- 11.8.4 When taking the Horgan Land development and proposed Wykham Park development into consideration, 3.4 ha of BMV land, 41.6 ha of moderate quality, 10.5 ha of poor quality agricultural land will be lost. This is a cumulative effect of minor adverse significance.
- 11.8.5 When this is considered in relation to the locale, BMV land and moderate quality agricultural land totals 39,449 ha (61%) of Cherwell District. Subsequently, although the loss of 45 ha of BMV and moderate quality agricultural land cannot be mitigated, when it is considered in relation to the remaining agricultural land of Cherwell District, it equates to losing 0.11% of the districts’ BMV and moderate quality agricultural land. Consequently this is not considered to be a significant loss.

---

<sup>1</sup> 1:250,000 Provisional Agricultural Land Classification Sheet, South East Region, MAFF 1993

<sup>2</sup> Soils and their Use in South East England, Soil Survey of England & Wales, 1984



**Outline Planning Application**

---

**11.9 CONCLUSION**

11.9.1 This assessment has identified that the land of the proposed Wykham Park Farm consists of 3.4 ha of BMV quality agricultural land, and 49.1 ha of non-BMV quality agricultural land.

11.9.2 Potential impacts upon soil resources, agricultural land and agricultural drainage have been identified and mitigated against through incorporation of appropriate soil handling and storage techniques, SUDs, and reinstatement of agricultural drainage affecting adjacent lands. The loss of the agricultural land cannot be mitigated.

11.9.3 This assessment concludes that providing recommended mitigation measures are adopted during the construction of the Wykham Park Farm there should be a negligible impact on soils resources and agricultural drainage. The loss of a relatively small portion of agricultural land cannot be mitigated and remains to be a residual effect of minor significance.