

## 8 Ecology

---

### 8.1 Introduction

- 8.1.1 This chapter of the ES Addendum has been produced by FPCR Environment and Design Ltd on behalf of Countryside Sovereign Swindon LLP (CSS). This chapter provides a current baseline summary of the ecological and arboricultural features of the Site. This chapter also seeks to assess the likely impacts of the Proposed Development on wildlife designations, habitats of nature conservation interest, legally protected and notable species of plants and animals (terrestrial and aquatic), and trees of arboricultural value.
- 8.1.2 This addendum is not intended to be read as a standalone assessment, but it contains additional information in order to assess the effects that could arise following the modifications to the Proposed Development. Modifications are proposed following a technical review of the previously approved FRA Addendum, Parameters Plan, Illustrative Masterplan and associated technical evidence in which inconsistencies were identified. The modifications therefore seek to amend the Drainage Strategy and FRA Addendum to regularise its contents with the rest of the outline permission.
- 8.1.3 Reference should be made to the Original Environmental Statement (ES) Chapter<sup>1</sup> from 2019 and its associated figures and appendices, as well as the Ecological Mitigation and Management Framework (EMMF) from 2019 which was previously submitted following the Original ES prior to determination and was more up to date. The EMMF has also been updated to reflect the necessary changes. The EMMF addendum is found in **Appendix 8.7**.

### 8.2 Assessment Criteria & Methodology

#### Previous Assessment

- 8.2.1 Outline permission (ref. S/OUT/19/0582) was subject to an EIA and was granted consent in March 2021. The Original ES included a chapter prepared by Environmental Dimension Partnership Ltd (EDP); who provided ecology and arboricultural support for the outline application.
- 8.2.2 EDP provided a suite of ecological surveys (conducted in 2009, 2013 and 2017) and reporting as part of the outline application. Additionally, EDP prepared an arboricultural assessment of the Site, which comprised a survey (2014) and subsequent reporting. The findings of these original surveys are compiled as technical appendices to, and summarised within, Chapter 12 of the Original ES Chapter entitled "Ecology and Nature Conservation (Including Arboriculture)".
- 8.2.3 The technical appendices of the Original ES Chapter are listed below and can be found with that document:
- Ecology Baseline Report (EDP, 2017)
  - Update Phase 2 Survey Report (EDP, 2017)

---

<sup>1</sup> Turley (2019). Environmental Statement Land at Lotmead Farm, Swindon. Accessed via: <https://pa.swindon.gov.uk/publicaccess/> (Accessed 01.08.2023).

- Arboricultural Impact Assessment (EDP, 2019)
- Outline Landscape, Ecology and Arboricultural Management Plan (EDP, 2018)
- Ecology Consultee Correspondence (EDP, 2018)

8.2.4 EDP, based on the aforementioned technical information, included the following features of District value (or above) within the scope of the Original ES Chapter:

#### **Habitats/Land-use**

- River Cole LWS/River Cole and its tributaries (Liden Brook and Dorcan Stream);
- Hedgerows and associated mature trees;

#### **Faunal Species Assemblages/Populations**

- Freshwater bryozoan *L. crystallinus* population;
- Grass snake population;
- Serotine population;
- Great crested newt population; and
- Assemblages of fish and aquatic invertebrates (River Cole and its tributaries).

8.2.5 The Original ES chapter sought to identify the significance of residual effects, following the implementation of mitigation, for each of these features during both the Construction and Operation phases of the Proposed Development. In all cases the residual effects were assessed to be "Not Significant" and either "Neutral" or "Beneficial" following the application of mitigation – see Table 12.7: Summary of Residual Effect of Original ES Chapter.

### **Legislative Context, Technical Guidance and Best Practice**

#### **Legislative Context**

8.2.6 The Original ES Chapter set out the relevant legislation; however, for completeness there has since been an amendment to the Conservation of Habitats and Species Regulations (CHSR). The amended Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 ensure that the habitat and species protection and standards derived from EU law as per "The Habitat Regulations" will continue to apply after Brexit. There would be no meaningful impact from a legislative perspective to the application of CHSR on the Proposed Development.

8.2.7 Additionally, the Environment Act 2021 came into force on 9th November 2021. Of relevance is the requirement for all developments subject to the Town and Country Planning Act to provide an at least 10% biodiversity net gain (BNG), as calculated using a Biodiversity Metric and a Biodiversity Gain Plan, with habitat used for net gain to be secured for a minimum of 30 years. Delivery of BNG may be on site, offsite or undertaken using statutory biodiversity credits. The requirement for BNG does not over-ride the need to apply the mitigation hierarchy (avoidance, mitigation and compensation) when considering biodiversity assets and their loss and does not change existing environmental and wildlife legal protection.

8.2.8 Whilst the Act mandates a 10% BNG delivery and for this to be a condition of planning permissions (Part 6 section 98 and Schedule 14 part 1), section 147 (3) states that this will only come into force once the secondary legislation is in place to support this requirement.

Therefore, there is a transition period (the length of which is not defined but anticipated as being around 2 years) until the mandated 10% is required under law.

8.2.9 At the time of writing the 10% is still not required by law but is due to be mandated from November 2023. Further, it is understood that mandatory BNG will only apply to sites that have submitted an application after the implementation of the Act, including Section 73 applications. Thus, the Proposed Development, having been submitted before the policy's enforcement is not considered bound by a mandatory 10%<sup>2</sup>.

8.2.10 The requirement of a mandatory 10% BNG gain will therefore be considered no further within the present Chapter; however, it was agreed at outline through the EMMF that a net gain would be delivered and a now outdated metric was used to calculate net gain and had been included within the update EMMF (**Appendix 8.5**).

#### **Guidance and Best Practice**

8.2.11 The principal guidance and best practice as detailed within the Original ES Chapter for Ecological Impact Assessment (EclA) remain current, these being the Chartered Institute of Ecology and Environmental Management's guidelines (CIEEM, 2018<sup>3</sup>).

8.2.12 All other relevant guidance cited within the Original ES Chapter also remains current.

#### **Baseline Data Collection**

8.2.13 The previous assessment has been updated to reflect changes to the Proposed Development resulting from the amended drainage strategy. A re-assessment of the sites baseline condition has been conducted to inform this. This has involved the following:

- A recent desktop study including a request for data to the Local biodiversity records centre (sent April 2022).
- Updated site-wide habitat assessment including full Defra Biodiversity Net Gain Condition Assessment including rivers (October 2021 & April 2022).
- Updated site-wide badger walkover (2022).
- Updated site-wide automated bat surveys (May, July, August, September, October 2022)
- Manual bat surveys on phases 1-4(May, July, August, September, October 2022).
- Updated site-wide breeding bird survey (scoping) (May, 2022).
- Updated site-wide Great Crested Newt (GCN) eDNA surveys (2022 & 2023).
- Updated site-wide hazel dormouse surveys (2022).

---

<sup>2</sup> Local Government Association. Biodiversity Net Gain FAQs - Frequently Asked Questions. Last Updated 27.06.2023. Available at: Biodiversity Net Gain FAQs - Frequently Asked Questions | Local Government Association (Accessed 01.08.2023).

<sup>3</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

- Updated reptile surveys at targeted locations (2022).
- Updated site-wide riparian mammal surveys (2022).

8.2.14 Methods, results and conclusions drawn for these updated works are presented within **Appendix 8.1 - Ecology Survey Results Report**.

8.2.15 It should be noted that surveys conducted in 2022/2023 were part of a detailed program for ongoing survey updates across the life of the scheme. The robust program spans 10 years and aims to provide a thorough program of updates to ensure up to date surveys are available as the phases come forward. The outline conditions have also influenced the survey schedule. This is why manual bat activity surveys do not cover the whole site (but automated surveys do) as they only targeted the early phases, and it is also why there are no update bats in buildings and trees surveys (except for Phase 1) as these have been programmed in accordance with condition 14. The robust nature of the updates has still, however, ensured that a thorough baseline update is available for this addendum. Further justification for the survey design is provided in **Appendix 8.1**.

8.2.16 An updated tree survey in accordance with BS5837(2012) "*Trees in Relation to Design, Demolition and Construction – Recommendations*" has also been conducted by FPCR in February 2022. The results of which are provided within **Appendix 8.2 – Tree Survey Plan** and **Appendix 8.3 – Tree Schedule**.

### **Assessment Methodology**

8.2.17 The assessment methodologies for assessing the significance of ecological effects were outlined within the Original ES Chapter. In sum, the value of ecological features were defined within a geographical context from **International** to **Negligible**:

- **International**/European value (SACs, SPAs, Ramsar sites);
- **National** value (SSSIs and NNRs, within UK and/or England);
- **County** value (e.g. within Wiltshire): e.g. Local Nature Reserves, Local Wildlife Sites, Ancient woodlands;
- **District** value (e.g. Swindon Borough): e.g. watercourses, ponds, hedgerows, woodland – where species rich/extensive/atypical examples are present – moderate population sizes or species assemblages with moderate diversity of species;
- **Local** value (e.g. Covingham Parish): e.g. watercourses, ponds, hedgerows, woodland – common and widespread species with small populations;
- **Site**-level (e.g. Lotmead Farm Villages) and immediate environs: e.g. small areas of grassland and scrub – agricultural land – common and widespread species with small populations; and
- **Negligible** value; typically applied to areas of built development, active mineral extraction, or intensively farmed agricultural land.

8.2.18 Only those features deemed **District** value, or above were considered for further assessment.

8.2.19 Both onsite and off-site effects of the Proposed Development to ecological (and arboricultural) features were assessed. Consideration was given as to whether effects would be permanent or temporary, and direct or indirect. The significance of an effect was calculated to be a product

of the magnitude of the impact and the assessed value of the ecological feature affected. The effect may be either **adverse**, **beneficial**, or in some cases **negligible**.

8.2.20 For consistency, only those important ecological features of district level or above have been taken to assessment and justification is provided in paragraphs 12.76 to 12.80 of the Original ES Chapter. These paragraphs also detail how those features below this level were still considered and mitigated through the design of the scheme and proposed mitigation within the Technical Appendices. This has also been repeated here, and is supported by the detail provided in the updated EMMF (**Appendix 8.7**).

8.2.21 On this basis, the assessment of likely ecological effects within this Chapter uses the same terminology as summarised below:

- **significant** or **not significant**;

8.2.22 And a combination of the following:

- either **adverse** or **beneficial** or **negligible**;
- either **direct** or **indirect**;
- either **permanent** or **temporary**; and
- where relevant, either '**short**', '**medium**' or '**long-term**' (short – up to 1 year, medium – 1 to 10 years, or long-term – over 10 years) of effect.

### **Geographical Scope**

8.2.23 The geographical scope of this chapter was outlined within the Original ES Chapter in paragraphs 12.37 – 12.38 and Figure 12.1. This scope has been carried through into the data presented within **Appendix 8.1**. No change to the assessed geographic scope from the Original ES Chapter is proposed.

### **Temporal Scope**

8.2.24 The temporal scope remains the same as set out within the Original ES Chapter. As such, effects on ecological and arboricultural features have been assessed during both the Construction and Operation phases of the Proposed Development.

## **8.3 Baseline Environment**

8.3.1 Baseline habitats have previously been assessed by EDP during their surveys in 2009, 2013 and 2017.

### **Habitats**

8.3.2 An updated assessment of the ecological baseline of the Site is provided in **Appendix 8.1**. The Site remains under agricultural tenure. It was predominantly given over to improved grassland that was being actively managed for grazing cattle. There were relatively smaller areas of intensively managed arable land used by the pick your own farm. Other habitat, notably pockets of woodland, tall ruderal, marshy grassland and species-poor semi-improved grassland were present on Site. Bounding the field compartments were a network of largely native hedgerows many of which incorporated standard trees.

8.3.3 In the Original ES Chapter, the River Cole LWS/River Cole and its tributaries (Liden Brook and Dorcan Stream) and extensive hedgerows and associated mature trees, were identified as the

ecologically important habitat features on site (district level or above), and were the only features scoped into the assessment. The updated baseline assessment does not change this conclusion and again are the only features are scoped in.

## Fauna

8.3.4 A suite of protected and notable species survey was conducted by EDP in 2009, 2013 and 2017. A number of surveys updates have been conducted by FPCR in 2022 and 2023 as highlighted earlier in this chapter and detailed within **Appendix 8.1**. Below summarises the baseline status of the taxa identified in the Original ES Chapter and following the 2022.23 updates:

- Breeding birds: assessed as **site** level at outline. No significant change in habitat nor assemblage was confirmed during the May 2022 update scoping survey.
- Navigating / foraging bats: assessed as **local** value at outline. At least nine species were recorded, including barbastelle (0.72% of total) which was recorded in low number during the 2017 surveys. The 2022 surveys recorded at least ten species in total, again including low numbers of barbastelle (0.59%). The additional species was lesser horseshoe which recorded as a single registration in September 2022 (0.001%). The results of the 2022 surveys do not show a significant change in baseline and the assessment remains **local** value.
- Bat roosts: at outline there were maternity roosts for serotine and (brown) long-eared bats present in Building B12, and small non-maternity roosts for common pipistrelle recorded in B16 and B21. Serotine were assessed as **district** value, and the long-eared bats and common pipistrelle as **local**. Buildings remain present and will be re-assessed through Condition 14.
- Dormouse: assessed as **local** value at outline. Single dormouse recorded in north of the site in 2013, absent 2017 and 2022. Thought to be present locally in low numbers. Remian assessed as **local** value.
- Otter: assessed as **local** value at outline. In 2022 were present in River Cole and Dorcan Stream and absent from Liden brook. The evidence was similar that found in the surveys conducted in 2017, and the assessment remains **local** value.
- Water vole: assessed as **local** value at outline. 2022 showed a reduction with no water vole signs in Liden Brook and pond P1 compared to the 2017 surveys. Remain assessed as **local** value.
- Great crested newt: assessed as **district** value at outline with a medium-sized population in Ponds P3 and P4 onsite. The 2022 eDNA survey showed continued presence in P4 and an absence in pond P3. In 2023, P3 was resurveyed and again the result was negative. Remain assessed as **local** value.
- Grass snake: assessed as **district** value at outline, with a high population recorded on site. 2022 surveys indicate no significant change, and the assessment remains **local** value.
- A freshwater bryozoan (*Lophopus crystallinus*): known population in the River Cole system and assessed as **district** value at outline and for this addendum.

8.3.5 Across all taxa/species there were no significant differences between the findings of the original EDP surveys and FPCR's. It is therefore concluded that there has been no material baseline change in ecological condition on site between that presented as part of the Outline Planning application and present day. The baseline ecological value of the Site itself remains unchanged (see **Appendix 8.1** and section 8.3 below) since the Original ES Chapter.

- 8.3.6 Except for River Cole LWS, the majority of offsite Statutory and Non-Statutory Sites of Nature Conservation were scoped out of the assessment in the Original ES Chapter. One offsite Statutory Site, Tuckmill Meadows SSSI located 4 km NE, has now been assessed in the air quality chapter for this addendum (Chapter 11) as exceeding the threshold for Annual Average Daily Traffic. An impact assessment for this important ecological feature is now included here.
- 8.3.7 Through consideration of the geographic and temporal scope of the assessment, and confirmation that there has been no material change of the baseline ecological condition on Site, it is considered that the final scope of the present assessment should remain in line with that scoped into the Original ES Chapter with the addition of Tuckmill Meadows SSSI. The final scope is summarised below in Table 8.1.

Table 8.1 Final Scope of Ecological Assessment

Important Ecological Feature	Key Attributes	Value
<b>Habitat/Land Use</b>		
Tuckmiell Meadow SSSI (4km NE)	Designated for its calcareous fen, calcareous grassland and neutral grassland.	National
River Cole LWS/River Cole and its tributaries (Liden Brook and Dorcan Stream)	Landscape-scale wildlife corridor	County
Hedgerows and associated mature trees	Strong, species-rich, green network	District
<b>Faunal Species Assemblages/Populations</b>		
Freshwater bryozoan <i>L. crystallinus</i> population	Conservation notable (Red data List)	County
Grass snake population	High population present	District
Serotine population	Small maternity roost present	District
Great crested newt population	eDNA positive result for Pond 4 only.  Pond 4 was previously assessed to have a medium sized meta-population in combination with Pond 3. GCN currently considered absent from Pond 3.	District
Assemblages of fish and aquatic invertebrates (River Cole and its tributaries)		District

## 8.4 Updated Assessment of Impacts and Effects

- 8.4.1 As discussed above, this Chapter has been prepared in order to assess the likely effects of the amended Drainage Strategy and FRA Addendum in order to regularise its contents with the approved Outline Application, based on the current understanding of the baseline value of the Site.
- 8.4.2 To this end, the amendments have been designed, based on the parameter plans which were approved at Outline. There are there no proposed changes to the approved parameters and

the scope of the Proposed Development remains the same as approved, in summary comprising:

- up to 2,500 homes
- up to 1,780sqm of community/retail uses
- up to 2,500sqm of employment use
- sports hub
- playing pitches
- 2no. 2 form entry primary schools
- green infrastructure
- indicative primary access road corridors to A420
- improvements to Wanborough Road and associated works

8.4.3 The primary difference between the approved Drainage Strategy and FRA Addendum and the proposed amendments is the removal of the requirement for prioritisation of plot scale source control features and new above ground conveyancing features. This enables a predominantly piped drainage solution to tertiary basins in open space. Drained swales are proposed to run alongside strategic roads, with piped sewers to be used to convey surface water runoff to tertiary basins or ponds.

8.4.4 The location and extent of the majority of proposed drainage features match those shown on the approved Parameter Plan Green Infrastructure (**Appendix 8.4**). Most drainage features will sit within land previously shown as developable area or within land safeguarded for tertiary drainage features.

8.4.5 However, three additional drainage basins are proposed as part of the amended Drainage Strategy and FRA Addendum. These will sit within areas previously shown as Green Space within the central Biodiversity Zone (**Appendix 8.4**) close to Ponds 3 and 4. The location of additional drainage basins are indicated by red arrows in Figure 8.1.

**Figure 8.1: Proposed changes to Drainage Strategy and FRA Addendum in area of central Biodiversity Zone.** Left image shows snapshot of proposed changes (DWG. 22006-HYD-P0-XX-DR-C-2222 P03). Right image shows snapshot of approved parameter plan (DWG. DWG. PL1461.1-PLA-00-XXDR-U-0005 P04).





- 8.4.6 The Original ES Chapter provided a comprehensive breakdown of Permanent Habitat Losses to development both for Area Features (Table 12.6a of Original ES Chapter) and Linear Features (Table 12.6b of Original ES Chapter).
- 8.4.7 The revised Drainage Strategy and FRA Addendum will require a reduction of 0.68ha from what was originally proposed as Lowland Meadow within the central Biodiversity Zone. For context, total Green Space of the Proposed Development constitutes 62.29ha. This reduction will be mitigated via Primary Mitigation, inherent within the landscape proposals (and as explained within Appendix 8.7), in two ways:
- 8.4.8 Firstly, the basins in this area will experience periodical flooding, but otherwise the embankments and some of the base will be dry for much of the year. Whilst the topography of the basins will not be typical of floodplains/lowland meadows, the vegetation in these ephemeral (from a flood perspective) areas will function in much the same way as a lowland meadow with the right management prescriptions. The basins will therefore work in tandem with the two existing ponds (P3 and P4), providing a matrix of wet, marginal and grassland habitats. The area will remain functional as a Biodiversity Zone. Impacts on great crested newt, which were present in Pond 4, are discussed below.
- 8.4.9 Secondly, it is envisaged that the majority of the Green Space forming the northern boundary of the Site will be managed as a meadow with infrequent mowing and access provided in the most part by mown paths. In any case, it is considered that this area would function much better as a lowland meadow, than the aforementioned central Biodiversity Zone, due to its better connectivity to the wider landscape, proximity to the riparian corridor on the northern boundary and the other Biodiversity Zone/ Nature Reserve located in the north west of the Site.
- 8.4.10 It is considered that the management provisions, as discussed above, can be easily incorporated into a Landscape, Ecology and Arboricultural Management Plan (LEAMP) as per condition 11 as these areas are brought forward for Reserved Matters.
- 8.4.11 The central Biodiversity Zone will remain a valuable feature for ecology, based on the present proposals. Furthermore, the large areas of Green Space in the north of the Site, which will be well connected to the wider landscape and other relatively higher ecological value areas will be managed as lowland meadows. It is therefore concluded that the proposed changes within the central Biodiversity Zone will have a Negligible, Not Significant impact on the ecological value of the Proposed Development once operational.
- 8.4.12 Additionally, because the amended Drainage Strategy and FRA Addendum are in keeping with the approved parameter plans, the impacts to the wider habitat features of significance (namely Hedgerow Network and Trees) are predicted to be Negligible, Not Significant. This is based on a review of the Proposed Development from an arboricultural perspective – see **Appendices 8.5 and 8.6**.
- 8.4.13 Construction, Operation and Cumulative effects for ecological features scoped into the assessment are discussed in turn below. The assessments have been considered in the context of the outline conditions. These are summarised as follows:

Ecology:

- 11. Landscape and Ecological Management Plan (LEMP), informed by EMMF and updated survey updates.
- 12. Access from A420 Habitat Surveys Prior to the submission of any reserved matters application that includes access from the A420.

- 14. Bat Surveys of roost potential buildings and trees prior to partial or full removal.
- 35. Construction and Ecological Management Plan (CEMP) per Phase.
- 43. Environment Agency - River corridor survey where a phase of development is the first to propose an outfall into a main river (submitted with Phase 1).
- 44. Environment Agency - Ecological buffer zone. No development within any phase or sub phase of development that is within 10 metres of the River Cole and its tributaries shall take place until a scheme for the provision and management of at least a 10 metre wide ecological buffer zone alongside the River Cole and its tributaries has been submitted to, and approved in writing by, the local planning authority.

#### Arboriculture

- 15. Trees: Reserved matters applications shall accord with the details of trees and hedgerows contained within the Lotmead Farm Villages Arboricultural Impact Assessment
- 13. Access from A420 Arboricultural Survey Prior to the submission of any reserved matters application that includes access from the A420.

#### **Construction Impacts and Effects**

8.4.14 Predicted construction effects are detailed below and summarised in Table 8.3. In all cases the predicted residual effect arising from the construction phase remain the same as the Original ES Chapter.

##### *Tuckmill Meadow SSSI (4km NE)*

8.4.15 No construction impacts are predicted on this SSSI due to the distance of the SSSI from the Proposed Development.

##### *River Cole LWS/River Cole and associated aquatic fauna*

8.4.16 There has been no significant change in baseline ecological condition of the Site. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

##### *Hedgerow network and trees*

8.4.17 There has been no significant change in baseline ecological condition of the Site. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

##### *Small serotine maternity roost*

8.4.18 There has been no significant change in baseline ecological condition of the Site. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

##### *Medium population great crested newt*

8.4.19 Previously a medium sized meta population of great crested newts (GCN) were described within the Original ES Chapter in Ponds 3 & 4.

- 8.4.20 eDNA surveys by FPCR for Pond 3 in both 2022 and 2023 provided negative results for GCN. At the time of writing GCN are considered absent from Pond 3. Pond 3 is not considered a constraint to the proposals from a GCN perspective.
- 8.4.21 Pond 4 has consistently had GCN positive results. Both from the Original ES Chapter and from the 2022 and 2023 eDNA surveys conducted by FPCR.
- 8.4.22 Two Natural England District Level Licences (DLL) are in preparation to ensure that the Proposed Development may proceed in a legally compliant manner with respect GCN. A DLL is currently in preparation for Phase 1 (and a small area of associated land) and a countersigned IACPC agreement from Natural England has been received. Further to this, a phased DLL is in preparation that will cover all remaining phases of the Proposed Development.
- 8.4.23 Compensation for GCN will therefore be provided for the entire Proposed Development as part of the DLL. GCN are therefore no longer considered a constraint to the Proposed Development.
- 8.4.24 However, it is proposed that GCN present on site will be protected from accidental harm during construction through Reasonable Avoidance Measures (RAMs) during clearance of sensitive areas of the Site, namely those close to Ponds 3 and 4. RAMs produced in accordance with best practice guidance<sup>4</sup> will ensure measures for sensitive clearance of vegetation and good working practices/site housekeeping to ensure that GCN do not stray onto the developable area during construction. These works will be conducted simultaneously with the grass snake measures (discussed below) and may therefore involve a degree of incidental (from a GCN perspective) exclusion measures from the development area during construction.
- 8.4.25 RAMs will be specified through the conditioned CEMP accompanying GCN sensitive areas of the site, as appropriate, when these areas are brought forward for Reserved Matters.
- 8.4.26 In absence of the aforementioned mitigation it would be predicted that the construction phase of the Proposed Development would have a significant adverse effect on the GCN population of the Site. However, following implementation of the DLL and RAMs it is deemed that the residual effect would be reduced. This is because the DLL will ensure that suitable habitat is created and maintained locally, whilst the RAMs will ensure that GCN identified on Site will be protected as a precaution.
- 8.4.27 Accordingly, following the implementation of the DLL and RAMs it is concluded that the impacts of the construction remain **Not significant, Neutral** in accordance with the Original ES Chapter.

*High population of grass snake*

- 8.4.28 Previously a high population of grass snake were described within the Original ES Chapter.
- 8.4.29 FPCR conducted reptile surveys over a smaller geographic area of the Site than surveyed for the Original ES Chapter. These surveys were targeted at areas of most suitable habitat in 2022 as detailed in Appendix 8.1. FPCR recorded grass snake during 2022, though not in the number of individuals as described in the Original ES Chapter. However, there has been no material change in baseline habitat condition and therefore there is no reason to suggest that the Site

---

4 ARGUK (2019). Guidance for works carried out under great crested newt district level licensing. Available at: <https://www.arguk.org/info-advice/gcn-licensing-reform/436-ne-gcn-dll-guidance-march19/file> (Accessed 02.08.2023)

no longer supports a high population. The population and therefore scope of the assessment in the Original ES Chapter remain valid.

8.4.30 The Original ES Chapter detailed proposals for trapping, capture and exclusion measures delivered through the conditioned CEMP. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

#### **Occupation Impacts and Effects**

8.4.31 Predicted occupation effects are detailed below and summarised in Table 8.3. In all cases the predicted residual effect arising from the occupation phase remain the same as the Original ES Chapter.

##### *Tuckmill Meadow SSSI (4km NE)*

8.4.32 The ESA air quality chapter (Chapter 11) predicts an Annual Average Daily Traffic (ADDT) increase on the A420 of 1,295, which runs within 200m of Tuckmill Meadows SSSI. The ADDT therefore exceeds the Design Manual for Road and Bridges<sup>5</sup> and Natural England (2018)<sup>6</sup> threshold and subsequently is considered at risk from air pollution due to atmospheric nitrogen deposition.

**Figure 8.2 Tuckmill Meadow SSSI (red) and proximity to A420 (source: MAGIC Maps 2023)**



8.4.33 The SSSI consists of a single unit with two habitat types: calcareous fen habitat and a complex of neutral and calcareous grassland. It was last condition assessed by Natural England in

---

<sup>5</sup> Design Manual for Roads and Bridges Volume 11 Environmental Assessment Section 3 Environmental Assessment Techniques Part 1 Air Quality

<sup>6</sup> Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations

November 2020<sup>7</sup> and has been put in “unfavourable declining” due to undermanagement resulting in both scrub encroachment and botanical evidence of increased nutrient levels. Management to reduce scrub including cutting and removal of vegetation to reduce nutrient is recommended by NE to improve condition. Atmospheric nitrogen is not mentioned by Natural England as a threat; however, calcareous fen and grassland is susceptible to increased nutrient loads, and given the proximity of the SSSI to the A420, further assessment is provided here.

8.4.34 The northern part of the Site is approximately 35m from the road. This section is screened from the road by mature woodland that lies between the SSSI boundary and the road, and it is considered unlikely deposition from the road would be able to reach the protected habitats in this location. The southern part of the site is approximately 170m from the road. There are two hedgerows between the road and the protected habitats which will provide some screening; however, more significantly, the distance from road to the SSSI is at the upper end of the 200m threshold and deposition is known on average to rapidly decrease with distance from the road<sup>8</sup>.

8.4.35 Given these factors, and because atmospheric nitrogen is not identified as a threat to the SSSI, it is concluded that the SSSI is not sensitive to atmospheric nitrogen deposition. The potential impact of the Proposed Development on the SSSI is predicted to be **Not significant, neutral**.

*River Cole LWS/River Cole and associated aquatic fauna*

8.4.36 There has been no significant change in baseline ecological condition of the Site. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

*Hedgerow network and trees*

8.4.37 There has been no significant change in baseline ecological condition of the Site. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

*Small serotine maternity roost*

8.4.38 There has been no significant change in baseline ecological condition of the Site. The Proposed Development remains in accordance with the approved parameters. The assessment of effects remains as set out in the Original ES Chapter.

*Medium population great crested newt*

8.4.39 The DLL will ensure offsite habitat compensation in targeted areas to ensure the favourable conservation status of GCN in these offsite areas will remain. There is no requirement as part of DLL to mitigate/compensate for GCN on site.

8.4.40 Nevertheless, the previously discussed central Biodiversity Zone will provide good habitat for any GCN present on site in this area. Likewise, Green Space habitat provision, in accordance

---

<sup>7</sup> Natural England. Designated Sites View. Available at: <https://designatedsites.naturalengland.org.uk/SiteFeatureCondition.aspx?SiteCode=S1000491&SiteName=Tuckmill%20Meadows%20SSSI> (Accessed 23.08.2023).

<sup>8</sup> 0 BIGNAL, K., ASHMORE, M. & POWER, S. 2004. The ecological effects of diffuse air pollution from road transport. English Nature Research Report No. 580, Peterborough.

with the approved parameters will provide suitable good habitat for GCN and other amphibians present on Site.

- 8.4.41 There are no changes resulting from the amended Drainage Strategy and FRA Addendum that would alter the residual effect of the Proposed Development on GCN during operation. Consequently, the assessment of effects remains as set out in the Original ES Chapter.

*High population of grass snake*

- 8.4.42 There has been no significant change in baseline ecological condition of the Site, nor on the classification of the grass snake population present. The Proposed Development remains in accordance with the approved parameters, the main difference being the addition of three new attenuation basins near to Ponds 3 and 4.

- 8.4.43 Grass snake are a species which favours marginal and riparian habitats. The addition of the three attenuation basins in the central Biodiversity Zone close to Ponds 3 and 4 is therefore expected to provide an minor enhancement during the operation phase above that which was described in the Original ES Chapter. Consequently, the assessment of effects remains as set out in the Original ES Chapter.

**Cumulative Effects**

- 8.4.44 Of the important ecological features scoped in to this Chapter (Table 8.1), it is considered that the following may be cumulatively impacted by offsite proposals due to their connectivity to habitats outside of the Site.

- River Cole LWS/River Cole and its tributaries (Liden Brook and Dorcan Stream);
- Assemblages of fish and aquatic invertebrates (River Cole and its tributaries); and
- Hedgerows and associated mature trees network.

- 8.4.45 Tuckmill Meadow SSSI has been screened out of cumulative assessment because, as discussed above, the Proposed Development is not predicted to have a significant effect on this designated site. Therefore, the Proposed Development could not have a cumulative effect on the SSSI.

- 8.4.46 All other important ecological features, namely: Grass snake population; Serotine population; and GCN population have been screened out of future cumulative impacts. This is because these features are either: localised to the site and fully mitigated for within the proposals with no residual significant impact; or mobile and associated with the above screened in features and so are by default considered with them.

- 8.4.47 In the case of the GCN population it is also considered that the DLL will ensure that the district population is maintained and enhanced offsite, despite the provision of large areas of suitable habitat within Green Space on Site.

- 8.4.48 A full list of potential cumulative sites to be considered by each specialism within this ES Addendum has been provided in Table 3.2.

- 8.4.49 The following sites have been screened in for further assessment here:

- Land North Of A420 Eastern Villages Swindon (South Marston / Rowborough) (S/OUT/13/1555)
- Land At Symmetry Park Shrivenham Road South Marston SN3 4RS (S/OUT/14/0253)

- Great Stall East – Land South Of The A420 South Marston Swindon (S/OUT/17/1990)
- Land East Of The A419, Between Commonhead Roundabout And Land North Of Wanborough Road, Swindon Wilts (S/19/0703)
- Redlands Eastern Villages Swindon Swindon (S/OUT/16/0021)

8.4.50 Reference information for each of the above has been taken directly from the Local Authority planning portal, including, but not limited to: Environmental Statements; planning layouts and landscape proposals; and technical ecology reports.

8.4.51 The remainder of the cumulative sites have been screened out as they are too far from, or not directly linked with, the features being assessed.

8.4.52 The River Cole LWS/River Cole and its tributaries are either located within or bordering the boundaries of each of the above. Therefore, there is a degree of connectivity between these sites and the Site via this ecological feature.

8.4.53 Additionally, in the case of S/OUT/14/0253, S/OUT/17/1990 and S/19/0703 the Site shares boundaries and therefore links with hedgerows and associated mature trees network.

8.4.54 Table 8.2 below provides details and conclusions of the cumulative assessment based on the parameters discussed above.

Table 8.2 Cumulative assessment of Important Ecological Features

Site Address	Application Reference	Approx distance from site	Cumulative assessment
Land North Of A420 Eastern Villages Swindon(South Marston / Rowborough)	S/OUT/13/1555	450m	<p>S/OUT/13/1555 proposed protection of riparian corridors as part of the construction mitigation, i.e. pollution controls. Additionally, watercourses are to be retained and buffered from proposals. Significant effects of S/OUT/13/1555 on riparian corridors were not predicted.</p> <p>Impacts from S/OUT/13/1555 on aquatic animals (e.g. otter, water vole, white claw crayfish) were not predicted.</p> <p>No cumulative, in combination effect on the River Cole LWS/River Cole and its tributaries and associated aquatic fauna is predicted between S/OUT/13/1555 and the Proposed Development. The effect is predicted to be <b>Not Significant</b>.</p> <p>Site is separated from the Proposed Development by the A420. There is no connection between hedgerows and trees.</p> <p>Hedgerows and trees are considered no further.</p>

<p>Land At Symmetry Park Shrivenham Road South Marston SN3 4RS</p>	<p>S/OUT/14/0253</p>	<p>180m</p>	<p>S/OUT/14/0253 proposed best practice mitigation measures to avoid impacts to offsite habitats, arising from pollution to the River Cole. Significant effects of S/OUT/14/0253 on River Cole were not predicted.</p> <p>No cumulative, in combination effect on the River Cole LWS/River Cole and its tributaries and associated aquatic fauna is predicted between S/OUT/14/0253 and the Proposed Development. The effect is predicted to be <b>Not Significant</b>.</p> <p>S/OUT/14/0253 borders close to the norther boundary of the Proposed Development along the River Cole corridor. The trees partially forming this corridor connect with the network of hedgerows and trees in the Proposed Development. The residual effect of S/OUT/14/0253 on habitats within the site (to include hedgerows and mature trees) are “certain beneficial, medium to long-term” on the basis of planting delivering a net-gain in tree and hedgerow cover. The same applies to the Proposed Development.</p> <p>No cumulative, in combination effect on the hedgerows and associated mature trees network is predicted. The effect is predicted to be <b>Not Significant</b>.</p>
<p>Great Stall East – Land South Of The A420 South Marston Swindon</p>	<p>S/OUT/17/1990</p>	<p>100m</p>	<p>S/OUT/17/1990 proposed protection of riparian corridors as part of the construction mitigation, i.e. pollution controls. Additionally, watercourses are to be retained and buffered from proposals. Finally, new SuDS features were proposed to further mitigate the impacts of the proposals. Significant effects of S/OUT/17/1990 on riparian corridors were not predicted.</p> <p>Impacts from S/OUT/17/1990 on aquatic animals (e.g. otter, water vole, white claw crayfish) were not predicted.</p> <p>No cumulative, in combination effect on the River Cole LWS/River Cole and its tributaries and associated aquatic fauna is predicted between</p>



			<p>S/OUT/17/1990 and the Proposed Development. The effect is predicted to be <b>Not Significant</b>.</p> <p>S/OUT/17/1990 borders close to the norther boundary of the Proposed Development along the River Cole corridor. The trees partially forming this corridor connect with the network of hedgerows and trees in the Proposed Development. The residual effect of S/OUT/17/1990 on habitats (Scattered Trees, TPOs, potentially veteran &amp; Native species-rich Hedgerows) was considered non significant at both construction and operation phase. S/OUT/17/1990 predicted a net-gain in tree and hedgerow cover. The same applies to the Proposed Development.</p> <p>No cumulative, in combination effect on the hedgerows and associated mature trees network is predicted. The effect is predicted to be <b>Not Significant</b>.</p>
<p>Land East Of The A419, Between Commonhead Roundabout And Land North Of Wanborough Road, Swindon Wilts</p>	<p>S/19/0703</p>	<p>Adjacent</p>	<p>S/19/0703 proposed best practice mitigation measures to avoid impacts to offsite habitats, arising from pollution to the River Cole LWS. Significant effects of S/19/0703 on River Cole LWS were not predicted.</p> <p>Significant negative effects on otter were predicted as part of S/19/0703 resulting from habitat damage and loss in quality and increased noise and disturbance. All other impacts on otter were predicted to be not significant. The Proposed Development will mitigate for otter (and other aquatic fauna on Site). Cumulative effects on aquatic fauna are not predicted.</p> <p>No cumulative, in combination effect on the River Cole LWS/River Cole and its tributaries and associated aquatic fauna is predicted between S/19/0703 and the Proposed Development. The effect is predicted to be <b>Not Significant</b>.</p> <p>S/19/0703 borders close to the south eastern boundary of the Proposed Development along the Liden Brook (River Cole LWS)</p>

			<p>corridor. The trees partially forming this corridor connect with the network of hedgerows and trees in the Proposed Development. The residual effect of S/19/0703 on hedgerows and trees were predicted to be negative at the local level. S/19/0703 proposed the removal of 2 x veteran trees, which represented a predicted residual negative impact at the county level. Negative effects of S/19/0703 were to be compensated by new hedgerow and tree planting.</p> <p>The Proposed Development will retain and enhance the overall hedgerows and associated mature trees network.</p> <p>No cumulative, in combination effect on the hedgerows and associated mature trees network is predicted. The effect is predicted to be <b>Not Significant</b>.</p>
<p>Redlands Eastern Villages Swindon Swindon</p>	<p>S/OUT/16/0021</p>	<p>400m</p>	<p>S/OUT/16/0021 proposed best practice mitigation measures to avoid impacts to offsite habitats, arising from pollution to the River Cole LWS. Significant effects of S/OUT/16/0021 on River Cole LWS were not predicted.</p> <p>No cumulative, in combination effect on the River Cole LWS/River Cole and its tributaries and associated aquatic fauna is predicted between S/OUT/16/0021 and the Proposed Development. The effect is predicted to be <b>Not Significant</b>.</p> <p>Site is separated from the Proposed Development by existing field compartments. There is no direct connection between hedgerows and trees.</p> <p>Hedgerows and trees are considered no further.</p>

## 8.5 Assessment Summary

- 8.5.1 Table 8.3 below provides a summary of residual effects based on the reassessment of the Proposed Development, following the amendments to the Drainage Strategy and FRA Addendum.
- 8.5.2 As discussed above, the proposed changes are in line with the parameters that were approved at Outline Planning. As there has been no material change in baseline condition of the site it is considered that the assessment of residual effects remain as presented within the Original ES Chapter.
- 8.5.3 The main change from an ecology perspective was the addition of three attenuation basins within the central Biodiversity Zone close to Ponds 3 and 4. Consideration was given to the effects of this change on significant features, GCN and grass snake, both of which were present in this area of the Site. However, when applying the effect of secondary and tertiary mitigation (summarised in Table 8.3) during both the construction and operation phases of the Proposed Development, it was concluded that the significance of residual effect remain as presented within the Original ES Chapter.

Table 8.3 Summary of Residual Effects

Feature	Stage	Significance of effects <sup>1</sup>	Main Secondary and Tertiary Mitigation	Significance of Residual Effect
River Cole LWS/River Cole and associated aquatic fauna	C	Significant, adverse	Buffering/pollution prevention measures delivered through CEMP	Not significant, Neutral
Hedgerow network and trees	C	Significant, adverse (worst case scenario only)	Temporary demarcation and buffering delivered through CEMP	Not significant, neutral
Small serotine maternity roost	C	Significant, adverse	Standard avoidance measures delivered through CEMP	Not significant, neutral
Medium population great crested newt	C	Significant, adverse	<del>Trapping, capture and exclusion under Natural England derogation Licence</del>  DLL and Reasonable Avoidance Measures and Exclusion	Not significant, neutral
High population of grass snake	C	Significant, adverse	Trapping, capture and exclusion delivered through CEMP	Not significant, neutral

Tuckmill Meadow SSSI	O	Not significant	None	Not significant, neutral.
River Cole LWS/River Cole and associated aquatic fauna	O	Significant, adverse	Design and operation of appropriate SUDS; partial-restoration of floodplain	Not significant, beneficial
Hedgerow network and trees	O	Significant, adverse (worst case scenario only)	Habitat enhancement and creation (2:1 planting of tree stock)	Not significant, beneficial
Small serotine maternity roost	O	Significant, adverse	Habitat enhancement and creation for roosting and foraging bats	Not significant, Beneficial
Medium population great crested newt	O	Significant, adverse	<del>Creation and management of dedicated receptor site</del> Creation and management of habitat on site	Not significant, beneficial
High population of grass snake	O	Significant, adverse	Creation and management of dedicated receptor site	Not significant, beneficial

**Table Notes:** Construction - C; Operation – O; 1 includes Primary Mitigation (retention of and buffering from key habitats), A strikethrough indicates a change in status since from the previous assessment as per Original ES Chapter. Light blue text indicates the new status updated by FPCR in the ESA.