

CHAPTER 10: ECOLOGY

10.1 INTRODUCTION

10.1.1 This chapter of the Environmental Statement assesses the likely effects of the Proposed Development with reference to ecology, including designated sites and different habitats and species. The chapter should be read in conjunction with Chapter 3: The Proposed Development and with reference to relevant parts of Chapter 7: Air Quality, Chapter 11: Hydrology, Chapter 12: Noise and Vibration, and Chapter 13 Landscape and Visual, where common receptors have been considered and where there is an overlap or relationship between the assessment of effects. In addition to the information set out in the main body of this Chapter of the ES, a series of associated Appendices provide further detailed information as set out below:

- Appendix 10.1 Desk Study
- Appendix 10.2: Extended Phase 1 Habitat Survey
- Appendix 10.3: Watercourses and Fish Habitat
- Appendix 10.4: Bats
- Appendix 10.5: Great Crested Newt
- Appendix 10.6: Otter and Water Vole
- Appendix 10.7: Dormouse
- Appendix 10.8: Birds
- Appendix 10.9: Badger
- Appendix 10.10: Reptiles
- Appendix 10.11: Ecological Lighting Baseline
- Appendix 10.12: Landscape and Ecological Mitigation and Enhancement Masterplan
- Appendix 10.13: Habitat Change

- Appendix 10.14: Information to Inform Appropriate Assessment

10.1.2 In summary, the Proposed Development comprises the comprehensive development of the Site delivering up to 2,500 residential dwelling, local employment, local retail, leisure, employment and community facilities, primary school, formal and informal publically accessible open space, including formal sports facilities, landscaping, green infrastructure and sustainable drainage systems. From an ecological perspective, this includes the provision of 15.09 ha of informal open space and 5.85ha of amenity space as well as the SuDS system, which will contribute to the long term ecologically rich habitats and biodiversity of the site.

10.1.3 The ES considers the delivery of the One Horton Heath project, and incorporates formal assessment of two planning applications submitted at the same time. These are:

- An Outline Planning Application ('the wider OPA') for the whole One Horton Heath Project, together with the delivery of a new link road that would be aligned across the whole wider OPA site; and
- A Full planning application for the first phase of the One Horton Heath project ('OPA Phase 1') for up to 400 dwellings that is considered to be part of the Wider OPA rather than a stand-alone scheme.

10.2 ASSESSMENT CRITERIA & METHODOLOGY

Previous Assessment

O/14/75735 and O/16/79354 Application Surveys

10.2.1 Eastleigh Borough Council (EBC) resolved to grant outline planning permission in June 2015 for the West Horton Heath development (reference no O/14/75735), comprising up to 950 dwellings, a primary school and secondary school, employment uses, creation of a village centre at Chalcroft Farm (including a community building), and associated infrastructure (including public open space, landscaping, drainage, new access road, public rights of way, footpath and cycle links and utilities infrastructure). The planning permission includes the demolition and/ or conversion / change of use of existing buildings at Chalcroft Farm.

10.2.2 Subsequently, an outline planning application for the North West Horton Heath (NWHH) development was submitted to EBC in 2016 (reference no O/16/79354), comprising construction of up to 450 dwellings with new road and access onto Fir Tree Lane and Allington

Lane and with associated highway modifications, infrastructure, public open space, landscaping and drainage. Outline planning permission was granted in November 2017.

10.2.3 A range of historic ecological surveys have been completed by Ecological Associates Ltd as part of these earlier applications.

10.2.4 A summary of the historic surveys that have been completed in 2014/15 (including both O/14/75735 and O/16/79354) is provided below.

- Extended Phase I habitat surveys identified stream corridors, woodland and hedgerows as being valuable habitats. Two areas of invasive plant species were also identified (Himalayan balsam and Japanese knotweed).
- A detailed botanical survey identified several areas were found to retain a moderately species rich flora, particularly where the better-quality vegetation occurs on areas liable to winter flooding. Over 7km of "important" hedgerows were also identified.
- Badger surveys - only one active badger sett was recorded on site, with a number of disused setts noted.

Bat surveys

- Emergence/Re-entry surveys of the buildings on site recorded:
- Brown long-eared bat maternity roost (on site);
- Three common pipistrelle roosts of undefined nature (conclusion of previous surveys – these have since been defined);
- Two long-eared bat roosts of undefined nature (conclusion of previous surveys – these have since been defined);;
- A brown long-eared maternity roost
- Activity Transect Surveys recorded:
- Noctule, Serotine, Myotis sp., Long eared bats, common and soprano pipistrelle species.
- No Annex II species of bat were recorded.



- Important features for long eared bats were identified as being linear tracks and hedges.
- The highest bat diversity and activity along the woodland edge and watercourse on the western site boundary and watercourses north and west of the solar farm.

Great Crested Newts

- Two distinct populations (single metapopulation) were identified on Site.

Water Vole

- Signs of water vole activity and burrows were identified on Site during historic surveys in 2014/15, particularly on the western and central watercourses.

Otter

- No evidence of otter was recorded on site; however, prints were identified immediately adjacent to the Site and presence has been confirmed within the wider catchment.

Dormouse

- No evidence of dormouse was found.

Birds

- Breeding
- A common breeding bird assemblage was recorded. Evidence of barn owl was found associated with Foxholes Farm buildings (N.B. since demolished under licence with two barn owl boxes erected, one of which was occupied by a breeding pair in 2020).
- Wintering
- A kingfisher, listed in Schedule 1 of the Wildlife and Countryside Act was recorded on site. Other species typical of common wintering bird assemblages associated with the habitats present were recorded (redwing, starling, house sparrow, dunnoek, song thrush).

Reptiles

- Slow worm – good population (mainly associated with boundary habitats).

- Grass snake – low population present along site boundaries.
- Common lizard low population present along site boundaries.

Invertebrates

- No surveys were undertaken because of the absence of high quality habitats in the development footprint (dominated by grazed improved or poor semi-improved grassland and arable fields).

O/14/75735 and O/16/79354 Condition Discharge Surveys

10.2.5 Further ecological surveys and assessment were completed by Johns Associates in 2018 and 2019 in order to discharge the ecological conditions relating to the above consents that also facilitated the initial infrastructure works.

10.2.6 The 2018/19 summary survey results are further added to by additional ecological surveys and investigations carried out in 2020 by Johns Associates.

10.2.7 The 2018/19 and the 2020 baseline have been integrated into comprehensive habitat and species specific baseline reports that can be found in the Appendices of this ES Chapter and summarised in Section 10.4 of this Chapter.

Scoping Opinion

10.2.8 An EIA Scoping Report was submitted to Eastleigh Borough Council in January 2020 with a request for a formal Scoping Opinion. The Ecology Chapter of the Scoping Report and suggested scope of assessment drew on the baseline established in the 2014/15 work carried out by Ecologica Associates Ltd and the 2018/19 work carried out by Johns Associates. Ongoing baseline surveys and Scoping has continued with an updated Scoping Opinion received from Eastleigh Borough Council dated 12 August 2020 which is reproduced here in the italicised text.

There are no Statutory Designated Sites of nature conservation interests within the Site, although a number are located in the surrounding area including the River Itchen SSSI, Moorgreen Meadows SSSI, the Solent and Southampton Water Special Protection Area and Ramsar site and the Solent Maritime SAC and the New Forest SPA. The LPA considers that there is likely to be a significant effect on biodiversity as a result of the construction, recreational and operational aspects of the proposal. Baseline information will inform the type, scope and

range of surveys to be carried out. The applicant has committed to undertake further surveys, and the Local Planning Authority would endorse the completion of these surveys. This information will also need to be supplemented by Air Quality and Water Quality assessments (which should include surface water flows).

Regarding invasive species, Section 10.2.5 should include further details on the recording of their presence and an invasive species management plan, with advice taken from the Environment Agency.

Water vole should be included under Table 10.5 and assessed, as they and their places of shelter or protection are protected under the Wildlife and Countryside Act 1981 (as amended). Whilst the most recent survey did not find any active signs, this species has been noted previously along the western and central watercourses. Road and footbridge crossings (both permanent and any temporary crossing required to facilitate development) could result in loss, fragmentation of and damage to the habitat of this species, especially if the crossings are situated where active burrows and areas of refuge are currently located. As the location of these crossing points has not yet been decided, this important ecological feature could be affected by the proposed development. In addition, this feature is sensitive to disturbance which may increase as a result of development on the site.

With reference to Quobleigh Ponds and woods SINC as included in Table 10.5, any changes to hydrological regimes on site should be included as potential significant effects to be assessed (plus any other standing water features on site).

With reference to Table 10.5 and effects on watercourses, rivers are a Priority Habitat under the Natural Environment and Rural Communities Act (2006). The ES should include assessment of the potential significant effects to these habitats on site, and this should include habitat fragmentation (as a result of crossings), construction and operational water quality/pollution and changes to hydrological regimes on the site. Changes of quantity and direction of overland surface water flow could impact on receiving waters and wetlands (also include in Chapter 11 Hydrology).

The table identifies the potential of Ndep to affect the habitats present. However, the Air Quality chapter appears to be addressing only dust impacts during the construction phase on ecological receptors within 50m of the site. It does not appear to be considering Ndep levels on ecological receptors which it will need to do in order to address this potential ecological impact.

Section 10.5 sets out avoidance and mitigation measures. Watercourse crossings should be as few as possible, clear span and as narrow in width as possible to minimise effects on watercourses and any species dependent on them, including avoiding fragmentation of these important habitats. Depending upon bridge designs, mammal crossings may need to be provided. Shading and loss of watercourse corridors with the vehicular and pedestrian access crossings should also be included.

A thorough and detailed understanding of hydrological regimes on the site is essential when looking to avoid and mitigate for impacts on wetland habitats and watercourses, and when looking to achieve biodiversity net gain.

It is understood from the information in the Scoping Report regarding noise that piling may be required for the proposed development. Fish are particularly sensitive to vibration that may arise as a result of piling or other noisy percussive activities during construction within or close to watercourses. This and other habitats should be included as a potential significant effect to be assessed in the ES. Following discussion at the 1HH Ecology Working Group further information on the impacts from sediments and on salmon spawning specifically is needed.

Recreation and disturbance (including noise) impacts could also be extensive and affect all retained and created habitats, including hedgerows which will also need to be assessed in terms of masterplanning and layout to make sure that the site design doesn't encourage use of ecologically sensitive sites for recreation.

Any additional mitigation following the above comments should be included in 10.5 Mitigation.

Section 10.5.4 should make reference to the required 50m buffers to ancient woodlands.

Climate change needs to be considered in this chapter. The ES should also contain reference to Policy HH1 of the Submitted Eastleigh Borough Local Plan (2016-2036).

Potential additional effects requiring further assessment

10.2.9 A wide range of potential effects are being considered by this Chapter of the ES, based on the original Scoping Report, the Scoping Opinion and ongoing scoping as part of preparing the ES. The full scope of the assessment is set out in Section 10.6 of this ES.

Ecological Receptors Scoped Out of This Assessment

10.2.10 The following receptors and potential effects are unlikely to be significant (or fall beyond the remit of this project) and do not require further assessment.

10.2.11 Wintering Birds – No species of importance, other than those listed above and particularly with respect to designated sites or protected species, have been recorded on site.

10.2.12 Loss of lower value and common and easily re-creatable habitats, e.g. improved grassland, arable, poor semi-improved grassland, tall ruderal vegetation, scattered scrub and short perennial/ ephemeral vegetation.

10.2.13 Likewise, the loss of common species not listed above, e.g. small mammals and common amphibians is not considered to be significant as the mitigation and habitat enhancement measures for receptors (such as great crested newt and reptiles for the purpose of this example) will adequately avoid direct harm and replace/enhance the site for these species.

10.2.14 Southern Water will supply potable water to the OPA Phase 1 residents as part of its statutory function. Southern Water has a legal obligation to mitigate effects of abstraction through the preparation, consultation and implementation of its Water Resource Management Plan (WRMP) and any more focused measures set out when applying for new abstraction licences from the Environment Agency. As such, consideration of potential effects on water levels and hydrology associated with potable water supply to One Horton Heath has been scoped out of this assessment. Further information on the robust justification for scoping this out can be found in Chapter 11 of this ES.

Legislative Context

10.2.15 The legislation relevant to ecology (sites, habitats and species) and the assessment that will be presented within the Environmental Statement (ES) is summarised in the following text.

10.2.16 Whilst a significant change in legislation is expected due to the departure of the UK from the EU, the existing EU and UK regulations have been included as described herein and assumes that there will be no significant changes to the existing methodology of the assessment and mitigation of environmental effects.

10.2.17 Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are European sites of international importance for wildlife. SACs and SPAs are protected in the UK under the Conservation of Habitats and Species Regulations 2017 as amended ('Habitat Regulations').



10.2.18 The Habitats Regulations (UK Government, 2017) impose stringent protection on SACs and SPAs. Regulation 63 requires all 'competent authorities', to undertake a formal assessment (Habitats Regulations Assessment or HRA) of the implications of any new plans or projects that may be capable of affecting the designated interest features of European Sites before deciding whether to undertake, permit or authorise such a plan or project. The HRA must consider the impacts of a plan or project alone and in combination with other plans and projects. Development which would adversely affect the integrity of a SAC or SPA, either alone or in combination with other development, is highly unlikely to be granted planning permission as it will not be capable of passing stringent tests¹ Importantly, Regulation 63 and associated case law requires the application of the precautionary principle, i.e. where the impacts of development are uncertain, the Competent Authority must assume that negative impacts will adversely affect the integrity of the SAC and not grant permission for the plan or project.

10.2.19 Ramsar sites are wetlands of international importance designated under the Ramsar Convention, which was ratified by the UK in 1976. Although many Ramsar sites are also underpinned by SAC and SPA designations, Government have also issued policy statements that extend the same protection at a policy level to listed Ramsar sites in respect of new development as that afforded by the Habitats Regulations (see Section 1.4.2 below).

10.2.20 The Wildlife and Countryside Act (1981)² confers statutory protection to Sites of Special Scientific Interest (SSSI). It is an offence to intentionally or recklessly damage, disturb or destroy land known to be an SSSI or intentionally or recklessly disturb the wildlife in an SSSI. Statutory bodies have a general duty to take reasonable steps to further the conservation and enhancement of the special feature of SSSIs. SSSIs also receive strong protection under national policy (see Section 1.4.2 below).

10.2.21 Many species of animal and plant receive some degree of legal protection. For the purposes of this chapter, legal protection refers to: species included on Schedules 2 and 5 of the

1 Where development will adversely affect the integrity of a SAC, it must: a) be required for imperative reasons of overriding public interest; b) demonstrate that there are no alternative solutions; and c) ensure that adequate compensatory measures are secured to ensure the overall coherence of the network of European (Natura 2000) sites.

2 UK Government. (1981). The Wildlife and Countryside Act 1981(WCA 1981) as in force today (including any amendments) within the United Kingdom, from. Retrieved from www.legislation.gov.uk: <http://www.legislation.gov.uk/ukpga/1981/69>

Conservation of Natural Habitats and Species Regulations 2017³ and Schedules 1, 5, 8 and 9 of the Wildlife and Countryside Act (1981)

10.2.22 Legal offences associated with species listed on Schedule 2 of the Habitats Regulations and Schedule 5 of the Wildlife and Countryside Act in England and Wales include inter alia:

- Deliberate capture, injury or killing of animals or taking or destroying their eggs;
- Deliberately disturb animals in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- Intentional or reckless disturbance of an animal in its place of shelter or protection;
- Damaging or destroying a resting place or breeding site;
- Intentionally or recklessly obstructing access to a place of shelter or protection; and
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead animal or any part of an animal.

10.2.23 Relevant species listed on these Schedules receive full protection from all legal offences listed above. Common reptile species receive partial protection under the Wildlife and Countryside Act in that they are protected from killing and injury only.

10.2.24 All species of wild bird are protected under the Wildlife and Countryside Act (1981) (as amended) from killing or injury. In addition, it is an offence to take or damage / destroy their eggs and to damage or destroy a nest whilst it is in use. Species listed on Schedule 1 (such as barn owl and kingfisher) receive additional protection in that it is illegal to disturb birds or their young whilst occupying, or near to, an active nest.

³ UK Government. (2017). Conservation of Habitats and Species Regulations 2017 as amended. Statutory Instrument 2017 No. 1012. Retrieved 21/10/20, from www.legislation.gov.uk: <https://www.legislation.gov.uk/uksi/2017/1012/contents>



10.2.25 Badgers are protected under the Protection of Badgers Act 1992⁴ which makes it an offence to wilfully kill, injure or take (or attempt to kill, injure or take) a badger; or to disturb badgers whilst occupying their setts.

10.2.26 A number of wild plants and animals (including slow worm, common lizard, great crested newt, skylark and some species of bat) are also included within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (UK Government, 2006)⁵ which lists flora, fauna and habitats considered by the Secretary of State to be of principal importance for conserving biodiversity. The publication of the "England Biodiversity List" satisfies the requirements of Section 41 of the NERC Act 2006 for the conservation of biodiversity. Section 40 of the NERC Act 2006 requires public bodies, including local planning authorities, to have regard for the conservation of biodiversity in England, when carrying out their normal functions.

10.2.27 The EU Water Framework Directive ⁶ introduced a comprehensive river basin management planning system to help protect and improve the ecological health of rivers, lakes, estuaries and coastal and groundwaters. This is underpinned by the use of environmental standards to help assess risks to the ecological quality of the water environment and to identify the scale of improvements that would be needed to bring waters under pressure back into a good condition.

10.2.28 The Salmon and Freshwater Fisheries Act 1975⁷ defines which methods of fishing for salmon, trout and freshwater fish are permitted, consider obstructions to the passage of fish, including fishing weirs, screens and sluices; dictating when and where they can be used as well as offences associated with disturbance effects on spawn or spawning fish. The Act also deals with problems of pollution making it an offence to knowingly permit the flow of poisonous matter and polluting effluents into river courses.

10.2.29 The Environment Bill is progressing through Parliament and is likely to be enacted during the multi-phase construction programme associated with One Horton Heath. Legally binding targets will be introduced for air quality, nature, water and resource and waste efficiency,

⁴ UK Government. (1992, 01 01). *Legislation.gov.uk - Protection of Badgers Act 1992*. Retrieved from Legislation.gov.uk: <http://www.legislation.gov.uk/ukpga/1992/51/contents>

⁵ UK Government. (2006, 05 02). *Legislation - Natural Environment and Rural Communities Act 2006*. Retrieved from Legislation.gov.uk: <http://www.legislation.gov.uk/ukpga/2006/16/contents>

⁶ Jncc.defra.gov.uk. (2010). EU Water Framework Directive. [online] Available at: <http://jncc.defra.gov.uk/page-1375> [Accessed 15 Mar. 2018].

⁷ UK Government, 1975. The Salmon and Freshwater Fisheries Act 1975 Available at: <https://www.legislation.gov.uk/ukpga/1975/51/section/43> [Checked 21/02/2020]

and a new, independent Office for Environmental Protection (OEP) will be created to hold government and public bodies to account for their environmental credentials. This legislation will also formalise the requirement for Biodiversity Net Gain from new developments.

Planning Policy and Guidance

10.2.30 There are a number of policies and guidance documents at the national and local level that are relevant to Ecology. These are discussed in turn in the following sections.

National Planning Policy Framework (NPPF) 2019

10.2.31 Section 15 of the National Planning Policy Framework (NPPF) 2019⁸ requires impacts to biodiversity to be minimised. Paragraph 176 of the NPPF applies the same protection to Ramsar sites as that conferred by the Habitats Regulations to SACs and SPAs. The NPPF requires development to:

- Minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressure;
- Ensure that there will be no adverse impacts to SSSIs (such development would not normally be permitted);
- Ensure that there will be no loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Where significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequate mitigation, or as a last resort compensation, must be provided.

10.2.32 The NPPF and associated Planning Practice Guidance also emphasise the requirement for ecological networks to be created throughout the wider landscape (paragraph 174).

⁸ UK Government. (February 2019). Gov.uk - Publications - National Planning Policy Framework. Retrieved from [www.gov.uk: https://www.gov.uk/government/publications/national-planning-policy-framework--2](https://www.gov.uk/government/publications/national-planning-policy-framework--2)



Local Planning Policy

Current Planning Policy

10.2.33 Current adopted policy for Eastleigh comprises the Eastleigh Borough Local Plan Review (2001 – 2011)⁹ (adopted in May 2006). Saved policies 22.NC, 23.NC, 25.NC and 26.NC provide protection for SSSIs, locally designated sites and the overall wildlife network; and promote biodiversity conservation overall. In particular, Policy 23.NC states that:

- 'Development which is likely to have a direct or indirect adverse effect on a Site of Importance for Nature Conservation (SINC) will not be permitted, unless it can be demonstrated to the satisfaction of the Borough Council that the benefits of the development clearly outweigh the need to safeguard the nature conservation value of the Site. If development is to be permitted, the Council will require appropriate measures to be taken to mitigate for the adverse effects on the SINC.'

10.2.34 Policy DM11 provides strong protection for locally-designated sites and biodiversity and states that:

- 'Development will not be permitted if it is likely to have a direct or indirect adverse effect on a Site of Importance for Nature Conservation (SINC) or Local Nature Reserve as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre), unless it can be demonstrated to the satisfaction of the Borough Council that:
 - i. the benefits of the development clearly outweigh the adverse effects on the nature conservation value of the Site;
 - ii. the adverse impacts are unavoidable;
 - iii. measures are taken to mitigate or, if this is not possible, compensate for the adverse effects, such that the development will result in at least no net loss of biodiversity; and
 - iv. buffers free from development are provided to Locally designated sites within or

⁹ Council, E. B. (2006, May). *Adopted Local Plan Review 2001 - 2011*. Retrieved from <https://www.eastleigh.gov.uk/planning-and-building/planning-policy-and-implementation/local-plan/local-plan-2001-2011>



adjacent to developments to alleviate recreational impact and impacts on edge habitats and to maintain dark skies.’

Impacts on priority habitats and protected and priority species will not be permitted unless the applicant can evidence that:

- there has been thorough habitat and species surveys;
- there is an overall biodiversity gain;
- protected species impacts have been avoided or mitigated and their needs taken into consideration within the development design;
- the great crested newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and
- the strategic bat trapping survey has been considered in all developments within the locality of a woodland surveyed or connected habitat networks.’

Emerging Planning Policy

10.2.35 Emerging policy is set out in the Eastleigh Borough Local Plan 2016 – 2036 (Proposed Submission Local Plan)¹⁰. This emerging policy should be considered as a material planning consideration. Policy DM11 requires development to achieve the following:

- Protect, conserve and enhance areas subject to international, national and local nature conservation designations;
- Assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);
- Protect, conserve and enhance networks of natural habitats and features, including the Priority Biodiversity Areas and Priority Biodiversity Links identified in the Eastleigh Borough Biodiversity Action Plan 2012-2022, and watercourses and wetland complexes, woodland

¹⁰ Eastleigh Borough Council. (2018, June). *Proposed Submission Local Plan 2016 - 2036*. Retrieved from Eastleigh Borough Council: <https://www.eastleigh.gov.uk/media/3484/final-local-plan-document-june-2018-print.pdf>

trees and hedgerows important to biodiversity and local character

- On new development sites seek enhancement of biodiversity through the protection and connection of existing and provision of new habitats and features compatible with the native biodiversity characteristics of the Borough.

Other Relevant Policy

10.2.36 The Solent Recreation Mitigation Strategy¹¹ aims to prevent bird disturbance from recreational activities, particularly through a growth in local population. It seeks to do this through a series of management measures which actively encourage all coastal visitors to enjoy their visits in a responsible manner rather than restricting access to the coast or preventing activities that take place there. Prepared by the Solent Recreation Mitigation Partnership of local authorities (including Eastleigh Borough Council) and conservation bodies, the strategy was published for consultation in July 2017 and changes incorporated as a result. The Strategy proposes:

- a team of 5-7 coastal rangers to advise people on how to avoid bird disturbance, liaise with landowners, host school visits, etc;
- communications, marketing and education initiatives and an officer to implement them;
- initiatives to encourage responsible dog walking and an officer to implement them;
- preparation of codes of conduct for a variety of coastal activities;
- site-specific projects to better manage visitors and provide secure habitats for the birds;
- providing new/enhanced greenspaces as an alternative to visiting the coast;
- a partnership manager to coordinate and manage all the above.

10.2.37 Implementation of these measures and monitoring of their effectiveness, will be funded by 'developer contributions' calculated according to the bedroom numbers of the property, equivalent to an average of £564 per dwelling (increased annually to take into account inflation). This applies to new homes built within 5.6 kilometres of the SPAs. (This 5.6 kilometre zone is

¹¹ <https://solent.birdaware.org/strategy> checked 30/10/20

where the majority of coastal visitors live.) Some developments may require additional mitigation due to their size or proximity to a SPA.

10.2.38 The developer contributions will be collected by the local authorities and transferred to the Partnership which will implement the measures. Some of the money received will be set aside to fund the measures 'in-perpetuity' (calculated on an 80 years basis) after 2034.

10.2.39 Natural England have issued an updated Ancient woodland, ancient trees and veteran trees: protecting them from development wherein the requirement for a 50m buffer was removed in favour of a 15m buffer subject to the scale of the development. This advice note has been considered and the buffer specification is considered to comply with this guidance and has been agreed with Natural England and EBC.¹²

Technical Guidance/ Best Practice

10.2.40 There are a number of technical guidance documents that have been used to define the adopted approach to undertaking the Ecology aspects of Environmental Impact Assessment (EIA). These include methods for characterising the ecological baseline and the appropriate interpretation of data, as well as the specific approach to be adopted for Ecological Impact Assessment (EcIA). Technical guidance directly applicable to this technical specialism is described below.

- *British Standards Institute (BSI): BS 42020:2013 Biodiversity – Code of practice for planning and development*¹³: Provides recommendations on topics such as professional practice, proportionality, pre-application discussions, ecological surveys, adequacy of ecological information, reporting and monitoring.
- *BSI: BS 8596:2015 Surveying for bats in trees and woodland*¹⁴: Provides best practice guidance for assessing the presence of bats in trees and woodland.
- Chartered Institute of Ecology and Environmental Management (CIEEM): Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and

¹² <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences> - accessed 20.11.20

¹³ British Standards Institute (BSI) (2013). BS 42020:2013 Biodiversity – Code of practice for planning and development (First Ed.) London. BSI.

¹⁴ BSI, 2015. BS 8596:2015 Surveying for bats in trees and woodland. Guide. London. BSI, [online]. Available at: <https://shop.bsigroup.com/ProductDetail/?pid=000000000030273056> [Checked 28/11/18].

Marine¹⁵: Provides technical guidance for assessing the potential ecological impacts of a development. EclA is a process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems. EclA can be used for the appraisal of projects of any scale including the ecological component of EIA. When undertaken as part of an EIA, EclA is subject to the relevant EIA Regulations. Includes guidance on scoping; establishing the baseline; identifying important ecological features; assessing potential impacts; incorporating measures to avoid, reduce and compensate ecological impacts and the provision of ecological enhancements. Guidance on the consideration of the legal and policy framework throughout the EclA process is also included.

- *UK Government*¹⁶: Provides standing advice on assessing the impacts of development on a range of protected species, including bats, great crested newts (GCN), badgers, dormouse, reptiles, wild birds, protected plants, invertebrates and ancient woodland. Includes guidance on survey effort, methods, assessing impacts and mitigation. Incorporates current Natural England (NE) guidance.
- Bat survey guidelines for professional ecologists: Good practice guidelines¹⁷: Guidance on bat surveys, data analysis, interpretation and reporting.
- *Bats and lighting in the UK*¹⁸: Guidance on the impacts of lighting on bats and developing mitigation strategies to minimise those impacts.
- *Bat tree habitat key*¹⁹: Guidance on the use of trees by bats.
- *Bat Mitigation Guidelines*²⁰: Guidance on good practice in relation to land-use planning and

¹⁵ Chartered Institute of Ecology and Environmental Management (CIEEM), 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine (September 2018)* CIEEM.

¹⁶ UK Government (2019) Natural environment, [online]. Available at: <https://www.gov.uk/guidance/natural-environment> [Checked 20/10/20].

¹⁷ Bat Conservation Trust (2016). *Bat survey guidelines for professional ecologists: Good practice guidelines* (Third ed.) London. BCT.

¹⁸ Bat Conservation Trust (2009). *Bats and lighting in the UK*. London. BCT.

¹⁹ Andrews, H. (2013). *Bat tree habitat key*. *Andrews Ecology*.

²⁰ Mitchell-Jones, A.J. (2004). *Bat Mitigation Guidelines*. *English Nature*.

development where bats are known or suspected to occur.

- *Bats and Artificial Lighting in the UK*²¹: Specific guidance on the impact of lighting on bats and associated mitigation for different scenarios.
- WC1060 Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure²². A methodology to assess the likelihood of road collision impacts on commuting bats.
- *The Dormouse Conservation Handbook*²³: Guidance on survey techniques and habitat requirements for dormice.
- *Herpetofauna Worker's Manual*²⁴: Guidance on survey techniques and habitat requirements for amphibian and reptile species.
- *Advice Sheet 10: reptile survey*²⁵: Guidance on survey techniques for reptiles.
- *Surveying Badgers*²⁶: Guidance on surveying badgers.
- *Badgers*²⁷: Guidance on survey techniques and ecology of badgers.
- *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*²⁸: Standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The handbook provides information on the planning and execution of habitat surveys, together with definitions of the standard habitat types, alphanumeric reference codes and mapping colour codes.

21 Institute of Lighting Professionals and the Bat Conservation trust (2018). Bats and Artificial Lighting in the UK. *Bats and the Built Environment Series*. Guidance Note 08/18.

22 WC1060 Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure (J. Altringham & A. Berthinussen, 2015);

23 English Nature (2006). *The Dormouse Conservation Handbook*. (Second Ed.).

24 Gent, A.H. and Gibson, S.D. (2003). *Herpetofauna Worker's Manual*. Peterborough. Joint Nature Conservation Committee (JNCC).

25 Froglife. (1999). *Advice Sheet 10: reptile survey*. Froglife, Halesworth.

26 Harris, S. Cresswell, P. and Jeffries, D. (1989). *Surveying Badgers* (First Ed.). London. Mammal Society.

27 Neal, E. and Cheeseman, C. (1996). *Badgers*. London. Poyser Natural History.

28 JNCC (2010). *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*. London. JNCC.



- *River Habitat Survey*²⁹ - River Habitat Survey is a standard methodology for recording habitat features for wildlife and hydromorphology that was designed by the Environment Agency, England and Wales and has since been applied in many other countries. It focuses on standard survey reaches of 500m length and uses a series of regular transects and a sweep-up survey to capture key information.
- *Water Vole*³⁰- surveys for this species have been conducted historically and by Johns Associates. Surveys are based on a close examination of the waterways and ponds (up to at least 2m from the water) between April and October by an ecologist experienced in water vole ecology. A detailed search for key signs is conducted, which are recorded on a map if found. These signs include: faeces, latrines, feeding stations, burrows, footprints, runs or pathways. The survey aims to gather information on the size and extent of the population on and adjacent the development site.
- *Otter*³¹- surveys for this species focused on watercourses and riparian corridors, searching for both sightings of otter and characteristic field signs including, spraints, anal jelly, prints, feeding remains, slides and key resting places such as holts. Evidence would be recorded on a plan.

Baseline Data Collection

10.2.41 The additional survey and data collation methods set out in this Section were used (in conjunction with the historic investigations described in Section 10.2.4) to confirm the baseline for the ecological chapter of the ES and associated evaluations including the Appropriate Assessment set out in Appendix 10.14 of this Chapter of the ES. These investigations commenced in July 2018 and were completed in November 2020.

10.2.42 The baseline ecological conditions on site have been informed by a comprehensive suite of surveys (see Table 10.2.1).

29 Environment Agency 2003. Version 1. *River Habitat Survey in Britain and Ireland. Field Survey Guidance Manual.*

30 Dean, M., Strachan, R., Gow, D., & Andrews, R. (2016). *The Water Vole Mitigation Handbook* (Mammal Society Mitigation Guidance Series). Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London.

31 Natural England (2015) *Otters: surveys and mitigation for development projects*. <https://www.gov.uk/guidance/otters-protection-surveys-and-licences>

Desk Study

10.2.43 A formal ecological desk study was completed in 2018 to inform the initial scope of surveys. This was then updated in March 2020. Data was requested (in October 2018 and March 2020) from the Hampshire Biodiversity Information Centre (HBIC) for land within the Site boundary and an adjacent 2km buffer zone with an extended radius of 5km applied for Statutory sites and bat roosts for priority habitats and species, controlled and legally-protected species within the Site boundary and an adjacent 2 km buffer zone for other ecological receptors (the likely Zone of Influence (Zoi) of the Site). In line with current CIEEM guidance, these are the sites, habitats and species that are of sufficient importance that effects on them could be significant.

10.2.44 The Multi-Agency Geographical Information for the Countryside (MAGIC) website (www.magic.gov.uk) was also used to obtain information relating to statutory designated sites of international nature conservation importance within 10km of the Site; and for statutory sites of national or local nature conservation importance within 2km of the Site.

10.2.45 The following strategic documents for Eastleigh Borough Council were reviewed to inform the baseline understanding of habitats and species present, or likely to be present, within or adjacent to the Site:

- Eastleigh Borough Council (2012) Biodiversity Action Plan for Eastleigh Borough 2012 – 2022.
- Eastleigh Borough Council (2018). Eastleigh Borough Local Plan 2016-2036. Great Crested Newt Study
- Rushbrook, B (2018). Southern Damselfly Survey and Habitat Assessment Study, Eastleigh Borough.
- The Highwood Group and Drew Smith Group (2017). Strategic Eastleigh Site Bat Trapping and Radio-tracking Baseline Report and Evaluation

10.2.46 The subsequent desk study report (Johns Associates, 2020) is included as Appendix 10.1 to this ES Chapter.

Habitats

10.2.47 An extended Phase 1 habitat survey of the Site and immediately adjacent areas was conducted on 21 November 2019, updated on 15 April 2020, 18 August 2020, on 9th October 2020, but

inspection and updates have been ongoing throughout the project during the course of many hundreds of hours spent surveying the One Horton Heath site between 2018 and 2020. These were undertaken by Johns Associates Ltd to establish the baseline ecological conditions and to inform the Scoping Report and this subsequent ES Chapter. The survey was conducted following JNCC guidelines for Phase 1 Habitat Survey. In addition, the habitat types recorded were also recorded as UK Habitat Classification System³² (UKHab) typologies, to enable direct translation into the use of the Defra Biodiversity Metric 2. The Phase 1 habitat survey was extended to include characteristic signs, habitat features and/or observations associated with legally protected and/or notable species.

10.2.48 This included:

- searching for badger setts and signs and classification of any recorded setts;
- assessing the suitability of habitat for notable plant species, invertebrates, birds, dormouse, reptiles, amphibians, and other mammals;
- conducting potential roost assessment surveys of trees and the one building on site;
- updating the Habitat Suitability Index assessment of accessible ponds;
- searching for evidence of hedgehog (e.g. in leaf piles, characteristic droppings);
- assessment of boundary hedgerows;
- evaluation of potential impacts and effects, source, pathway receptor relationships including habitat connectivity, hydrological and groundwater relationships where present.

10.2.49 Use of Google Earth and other aerial images have also been used to place the habitats at the Site into context within the wider landscape.

10.2.50 The subsequent Phase 1 Habitat Survey report (Johns Associates, 2020) is included as Appendix 10.2 to this ES Chapter.

³² <https://ukhab.org> checked 30/10/20

10.2.51 A River Habitat Survey of the watercourses associated with the application site was carried out by Johns Associates in July 2020.

Species

10.2.52 A wide range of species specific surveys were undertaken between 2018 and 2020 to build on the baseline work already completed from historic ecological investigations. These additional studies are highlighted in Table 10.1 below.

Table 10.1 Ecological Investigations Completed to Inform the Baseline (2018- 2020)

Receptor	Investigations	Technical Guidance	Location in this ES Chapter
Sites	October 2018 Ecological Desk Study	CIEEM. (2017, December 01). <i>Guidelines for Preliminary Ecological Appraisal, Second Edition</i> . Retrieved December 18, 2017, from https://www.cieem.net/data/files/Publications/Guidelines_for_Preliminary_Ecological_Appraisal_Dec2017.pdf	Appendix 10.1
Bats	Activity Transects	BSI., 2015. <i>BS 8596:2015 Surveying for bats in trees and woodland. Guide</i> . London. BSI.	Appendix 10.4
	Trapping/Radio tracking	Bat Conservation Trust., 2016. <i>Bat survey guidelines for professional ecologists: Good practice guidelines</i> (Third ed). London. BCT.	
	Crossing Point Surveys	Bat Conservation Trust., 2009. <i>Bats and lighting in the UK</i> . London. BCT.	
	Automated Detector Surveys	Andrews, H. (2013). <i>Bat tree habitat key</i> . Andrews Ecology.	
	Bat Roost Inspection (BRI) (Buildings)	Mitchell-Jones, A. J., 2004. <i>Bat Mitigation Guidelines</i> . English Nature.	
	Bat Roost Inspection (Trees)		

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Receptor	Investigations	Technical Guidance	Location in this ES Chapter
	Emergence/Re-entry Surveys (Buildings)	Institute of Lighting Professionals and the Bat Conservation Trust, 2018. <i>Bats and Artificial Lighting in the UK.</i>	
	Emergence/Re-entry Surveys (Trees)	Bats and the Built Environment Series. Guidance Note 08/18	
	Baseline Lux surveys	Institute of Lighting Professionals and the Bat Conservation Trust, 2018. <i>Bats and Artificial Lighting in the UK.</i> Bats and the Built Environment Series. Guidance Note 08/18	Appendix 10.11
Otter	Field Survey	Natural England. (2014, October 6). <i>Otters: Surveys and mitigation for development projects.</i> Retrieved from GOV.UK: https://www.gov.uk/guidance/otters-protection-surveys-and-licences Joint Nature Conservation Committee. <i>Common Standards Monitoring Guidance for Mammals.</i> Updated August 2004. ISSN 1743-8160.	Appendix 10.6
Water Vole	Field Survey	Strachan, R. M. (2011). <i>Water Vole Conservation Handbook: Third Edition.</i> Oxford: Wildcru	Appendix 10.6
	Camera Trapping		
Birds	Barn Owl	Gilbert, G., Gibbons, D.W. & Evans, J., 1998. <i>Bird Monitoring Methods.</i> British Trust for Ornithology. Natural England. (2015). <i>Wild birds: surveys and mitigation for development projects.</i> Retrieved from UK Gov: https://www.gov.uk/guidance/wild-	Appendix 10.8

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Receptor	Investigations	Technical Guidance	Location in this ES Chapter
		birds-surveys-and-mitigation-for-development-projects#survey-methods	
Badger	Field Survey for setts and other evidence	Harris, S., Cresswell, P. & Jeffries, D., 1989. <i>Surveying Badgers</i> (First ed.) London. Mammal Society. Neal, E. & Cheeseman, C., 1996. <i>Badgers</i> . London. Poyser Natural History.	Appendix 10.9
Habitats	Phase 1 Habitat Survey	JNCC., 2010. <i>Handbook for Phase 1 Habitat Survey – a technique for environmental audit</i> . London. JNCC.	Appendix 10.2
Great Crested Newts	Habitat Suitability Index Assessment Presence/Absence/Population Size Class Assessment (ponds) Terrestrial Refugia Searches	Gent, A. H. & Gibson, S. D., 2003. <i>Herpetofauna Worker's Manual</i> . Peterborough. Joint Nature Conservation Committee (JNCC). Oldham, R. K. (2000). <i>Evaluating the suitability of habitat for the great crested newt (Triturus cristatus)</i> . Herpetological Journal, 143-155.	Appendix 10.5
Reptiles	Refugia Survey	Gent, A. H. & Gibson, S. D., 2003. <i>Herpetofauna Worker's Manual</i> . Peterborough. Joint Nature Conservation Committee (JNCC). Froglife. (1999). <i>Advice Sheet 10: reptile survey</i> . Froglife, Halesworth.	Appendix 10.10
Terrestrial Invertebrates	Historical surveys have been completed. Mapping/charact	https://www.cieem.net/invertebrates-terrestrial-	See Extended Phase 1 habitat survey in Appendix 10.2

Receptor	Investigations	Technical Guidance	Location in this ES Chapter
	erisation of key terrestrial invertebrate habitats to inform impact extent and mitigation will be completed. N.B. Invertebrates have been scoped out of this assessment as the Site is considered to offer suitable habitat for predominantly common species within boundary habitats only. These areas are to be retained and enhanced as part of the Proposed Development, which will increase their value to this group.		
Fish	River Habitat Survey to characterise physical habitat quality and diversity, also	Environment Agency. 2003. River Habitat Survey in Britain and Ireland. A Field Survey Guidance Manual.	Appendix 10.3

Receptor	Investigations	Technical Guidance	Location in this ES Chapter
	acting as a benchmark for future stream restoration proposals.		
Dormouse	Nest Tube and nut search	English Nature, 2006. <i>The Dormouse Conservation Handbook</i> . (Second ed).	Appendix 10.7

Assessment Methodology

Identification of Receptors that Could be Subject to Likely Significant Effects

10.2.53 The identification of receptors is informed by the Scoping Opinion and consultation carried out to inform Chapter 10 of this ES, based on relevant guidance and the professional judgement of qualified technical specialists who have undertaken a desk study and ecological field surveys at the Site.

10.2.54 In some cases, even without quantified information, it is reasonable to conclude that some potential receptors will not experience significant effects. This is the result of the type and condition of the habitat present and mitigation measures that have been integrated into the Proposed Development.

10.2.55 The following considerations have been taken into account when identifying receptors:

- The importance (or value) of the receptor at a local, regional and national level;
- The extent to which important ecological receptors will be affected by changes that are expected to result from the Proposed Development;
- The sensitivity of the important ecological receptors to the changes that are likely to occur;
- The likely magnitude, duration and other characteristics of the effects; and
- Relevant best-practice and guidance where specialist methodologies have been developed

as detailed below.

Potential Receptors

10.2.56 A key consideration in assessing the effects of the Proposed Development on flora and fauna is to define the habitats and species that need to be included in the assessment. In identifying these receptors, it is important to recognise that a development can affect flora and fauna both within the Site (e.g. through the land-take required) as well as beyond the Site (e.g. through noise generation, changes in air quality or local hydrology etc.). The approach that has been taken in preparing this Chapter is to identify important or valuable ecological resources (the sites, habitats and species of sufficient importance that effects upon them could be significant), as well as considering legally protected species.

10.2.57 Assessment of the effects of the Proposed Development on ecology was undertaken in accordance with the CIEEM's EcIA Guidelines³³.

Statutory nature conservation sites

10.2.58 Internationally important sites (collectively referred to in this Chapter as European sites – whilst recognising that Ramsar sites are designated at a global level):

- Special Areas of Conservation (SACs)³⁴;
- Candidate SACs³⁵;
- Sites of Community Importance (SCIs)³⁶;

³³ CIEEM, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine*, [online]. Version 1.1. Updated September 2019. Available at: <https://www.CIEEM.net/data/files/EcIA%20Guidelines.pdf> [Checked 30/10/20].

³⁴ SACs are designated under Article 4(4) of Directive 92/43/EEC

³⁵ Candidate SACs are designated under Article 4.1 of Directive 92/43/EEC

³⁶ SCIs are sites that have been nominated or submitted by Member States and entered onto the list of sites compiled by the European Commission that form (along with Sacs and SPAs) the Natura 2000 network. SCIs are subject to the provisions of Article 6(2) of Directive 92/43/EEC. SCIs are afforded full protection by law under the Conservation of Habitats and Species Regulations 2017 (regulation 8(1)(b))

- Special Protection Areas (SPAs)³⁷;
- Listed or proposed Ramsar sites, potential SPAs, possible/ proposed SACs³⁸; and
- Sites identified or required as compensatory measures for adverse effects on other European sites³⁹.

10.2.59 Nationally important sites:

- Sites of Special Scientific Interest (SSSIs)⁴⁰; and
- National Nature Reserves (NNRs).

10.2.60 Locally important sites:

- Local Nature Reserves (LNR): Statutory sites that are of importance for recreation and education as well as ecology. Their level of importance is defined by their other statutory or any non-statutory designations (e.g. if an LNR is also an SSSI but is not a European site, it will be of national importance). If an LNR has no other statutory or non-statutory designation it should be treated as being of borough/ district-level importance for biodiversity (although it may be of greater socio-economic value).

10.2.61 Non-statutory nature conservation sites:

- Sites of county importance – non-statutory nature conservation sites (Sites of Importance for Nature Conservation (SINC)).

Priority Habitats and Species

³⁷ SPAs are classified pursuant to the requirements of Directive 2009/147/EC (Article 4). As European Sites, they are provided with full protection by law under the Conservation of Habitats and Species Regulations 2017.

³⁸ Government Policy in England (see paragraph 118 of the NPPF) protects Ramsar sites, potential SPAs and possible SACs as if they were fully classified SPAs or a fully designated SACs.

³⁹ Government policy in England (see paragraph 118 of the NPPF) is that any such compensatory land or water must itself be protected as if it were a fully classified SPA or a fully designated SAC.

⁴⁰ Some SSSIs also wholly or partially fall within a European Site boundary.

10.2.62 In this Chapter (and following the CIEEM guidance), the geographic level at which a species/habitat has been identified as a priority for biodiversity conservation is referred to as its level of 'species/habitat importance'. For example, habitats and species of principal importance for the conservation of biological diversity in England are identified as being of national species or habitat importance reflecting the fact that the importance of these species or habitats has been defined at a national level. The level of importance pertains to the species or habitat as a whole rather than to individual areas of habitat or species populations, which cannot be objectively valued (other than for waterfowl, for which thresholds have been defined for national/or international 'population' importance).

- International importance: populations of species or areas of habitat for which European sites are designated;
- International importance: populations of birds meeting the threshold for European importance (1% of the relevant international population)⁴¹;
- National importance: priority habitats and species of principal importance (HPI and SPI⁴²) for the conservation of biological diversity in England⁴³;
- National importance: species listed as being of conservation concern in the relevant UK Red Data Book (RDB) or the Birds of Conservation Concern (BoCC) Red List;
- National importance: Nationally Rare and Nationally Scarce species, which are species recorded from, respectively, 1-15 and 16-100 hectads (10x10km squares of the national grid) respectively;
- National importance: populations of birds comprising at least 1% of the relevant British

⁴¹ The JNCC prepared guidelines to assist in the selection of SPAs (The Birds Directive: Selection guidelines for Special Protection Areas). Stage 1 of the two-stage process identifies those areas used regularly by 1% or more of the Great Britain (or in Northern Ireland, the all-Ireland) population of a species listed in Annex I of the Birds Directive in any season. The JNCC undertakes reviews of the SPA network and populations of its qualification species at roughly decadal intervals with the last (third) review published in 2016.

⁴² Habitats and Species of Principle Importance (HPI and SPI).

⁴³ Natural England (2018). UK BAP priority species and habitats, [online]. Available at: <http://naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/prioritylist.aspx> [Checked 28/11/18].

breeding/ wintering population (where data are available); and

- Borough/ district importance: habitats and species listed in the Borough or District Biodiversity Action Plan (BAP).

Legal Protection

10.2.63 Many species of animal and plant receive some degree of legal protection. For the purposes of this document, legal protection refers to:

- Species included in Schedules 1, 5 and 8 of the WCA (as amended), excluding:
- Species that are only protected in relation to their sale (see Section 9(5) and 13(2) of the WCA 1981), given that the Proposed Development does not include any proposals relating to the sale of species; and
- Species that are listed in Schedule 1 of the WCA 1981 that are likely to breed on or near the Site (given that this schedule is only applicable whilst birds are breeding).
- Species included in Schedules 2 and 5 of the Habitats Regulations 2017 as amended;
- Badgers, which are protected under the Protection of Badgers Act 1992; and
- Hedgerows, some of which are protected under the Hedgerows Regulations 1997.
- Fish, protected under The Salmon and Freshwater Fisheries Act 1975 and the Eels Regulations 2009
- Waterbodies and associated ecological receptors protected under the Water Framework Directive

Legal Control

10.2.64 Schedule 9 of the WCA 1981 lists species of animal that it is an offence to release or allow to escape into the wild and species of plant that it is an offence to plant or otherwise cause to grow in the wild.

Assessment Methodology

10.2.65 Assessment of the effects of the Proposed Development on ecology was undertaken with reference to CIEEM's Guidelines for Ecological Impact Assessment in the United Kingdom. The assessment has focused on designated sites, legally protected and otherwise importance ecological resources.

10.2.66 The starting point for the assessment was to undertake an exercise, using the baseline data that were collected through the desk study, site survey and knowledge of the local area, to sub-divide the recorded (and likely) ecological receptors (i.e. designated sites, together with species populations and habitats) into:

- Those that could be significantly affected by the Proposed Development or for which the development could result in the contravention of relevant legislation, and that therefore required more detailed assessment; and
- Those that were assessed as not being likely either to be significantly affected or whose presence was not likely to result in any relevant legislation being contravened, and that did not therefore require further assessment (i.e. that were 'scoped out' of the assessment).

10.2.67 For sites/ habitats/ species that meet the criteria given in the above section, the next stage of the scoping assessment is to determine whether the identified receptors are likely to be of sufficient 'ecological conservation value' that an effect upon them could be significant. In this context:

- Ecological conservation value relates to the quality and/or size of sites or habitats, or the size of species populations; and
- Potential significance means that the effect could be of sufficient concern, or for positive effects, of such substantial benefit that it could influence the decision about whether or not development consent or a specified other consent should be granted.

Impact characterisation

10.2.68 Characterisation of impacts considers the baseline conditions and likely changes as a result of the construction and operation of the Proposed Development. The following parameters are considered in this assessment:

- Magnitude - the 'size' or 'amount' of an impact, determined on a quantitative basis where

possible;

- Extent – the area over which an impact is expected to occur;
- Duration - the time for which the impact is expected to last prior to recovery or replacement of the resource or feature;
- Reversibility – an irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) impact is one from which spontaneous recovery is possible or for which effective mitigation is both possible and an enforceable commitment has been made; and
- Timing and frequency – some impacts will only occur if an activity takes place at a certain time of day/ year (i.e. when a species is active).

Approach to mitigation

10.2.69 Consideration and application of avoidance, mitigation and compensation to the OHH development proposals have been considered from the earliest possible stage and has been an iterative process in the project design. Appropriate measures included in this ES Chapter are realistically achievable where a high likelihood of success is expected, based on good practice guidance and evidence. Commitments would be secured through appropriate planning conditions and/or legal agreements.

10.2.70 A sequential process has been adopted:

- Avoidance of potentially adverse impacts is best achieved through consideration of potential impacts of a project from the earliest stages of scheme design and throughout its development.
- Mitigation involves reduction or minimisation of adverse impacts. Measures fundamentally incorporated into the scheme design are described as 'inherent design mitigation'. This includes the iterative re-design of the layout of the scheme or adjusting the location of certain activities.
- Where a predicted adverse impact cannot be acceptably mitigated, there may be opportunity for implementation of compensatory environmental measures. Compensation comprises measures taken to make up for loss of, or permanent damage to, ecological features, despite

application of mitigation.

- 1.1.1.1 Where appropriate, biodiversity enhancements have been identified for incorporation into the planning application in accordance with planning policy.

Assumed and Inherent Design Mitigation

10.2.71 The assessment has assumed the implementation of a number of 'mitigation' measures that are either considered assumed and inherent to the Proposed Development design. This section will explicitly outline elements of the scheme design that have been assumed as in place when undertaking the assessments and would be particularly important to ensure are retained.

10.2.72 For the purpose of the assessment, it is acceptable to include measures that would be commonly implemented as part of the delivery of the scheme. These should be set out here. For example, it can be assumed that a robust CEMP to avoid and minimise any construction related effects to acceptable and non-significant levels, will be produced, implemented, monitored and enforced. Any assumed mitigation is carried forward and presented within the mitigation summary tables at the end of the chapter clearly stating how this would be delivered e.g. via planning condition.

10.2.73 The assessment for the Wider OPA will be undertaken on the basis of the outline parameter plans that have been prepared for the Wider OPA Site.

10.2.74 The Wider OPA Site boundary is shown on Drawing No. EAST200403-RLP-01, Rev. P1 (Site Boundary Plan). These measures are shown on the following parameter plans:

- Access – Drawing No. EAST200403-PP01-P14
- Land Use – Drawing No. EAST200403-PP02-P19
- Green Infrastructure – Drawing No. EAST200403-PP03-P19
- Building Heights – Drawing No. EAST200403-PP04-P16
- Demolition – Drawing No. EAST200403-DEP01-P1

Additional Mitigation, Compensation and Enhancement Measures

10.2.75 Best practice for mitigation is to 'avoid, reduce or compensate'. Additional mitigation measures are those that can be applied in addition to the design proposals to reduce the potential effects.

Mitigation measures proposed are realistic and achievable in terms of the proposed development and have been agreed by the Client/ design team. This section will also include details on how the mitigation will be achieved. Mitigation will be used to enhance positive effects further and this should be considered wherever possible.

Biodiversity Net Gain

10.2.76 The overall aim for ecology will be to deliver a net gain in biodiversity through the Proposed Development. This will either be delivered on site and/or through an appropriate funding mechanism with Eastleigh Borough Council for the delivery of any required off-site biodiversity net gain. The evaluation of Biodiversity Net Gain associated with this pre-submission version of the ES has been conducted by focusing on the net change in areas associated with those ecological habitat receptors scoped into the ES as being Important receptors i.e. Priority Habitats listed under the Natural Environment and Rural Communities Act 2006.

10.2.77 It is recognised that the current Defra 2 Biodiversity Metric 2.0⁴⁴ (JP029) is currently in beta test with a number of inconsistencies in the current version. The formal Version 3 is due to be finalised and released in January / February 2021. This is considered to be the best available method for this type of evaluation available and will be used prior to planning determination to assess Biodiversity Net Gain associated with the whole site, including those habitats not considered to be Important ecological receptors.

Identifying significance of residual ecological effects

10.2.78 A 'significant residual effect' (both positive and negative) is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' after considering inherent and additional ecological mitigation. Significant effects require assessment (including to appropriate geographical scale) to inform the decision maker of the environmental consequences of permitting a project.

10.2.79 In determining whether a residual ecological effect is 'significant' or not, the following has been considered:

- Designated sites – whether construction and/or operation is likely to undermine conservation

⁴⁴ <http://publications.naturalengland.org.uk/publication/5850908674228224>

objectives, affect the conservation status or condition.

- Ecosystems – whether the project is likely to cause changes in structure and function.
- Habitats – the effect on conservation status (including cumulative effects).
- Species – the effect on conservation status (including cumulative effects).

Cumulative Impact Assessment

10.2.80 Cumulative effects within the same Zone of Influence have been considered in the following way (using criteria set out by CIEEM):

- Additive/ incremental effects from multiple activities/ projects that may give rise to a significant effect (additive or synergistic) due to their proximity in time and space;
- Associated/ connected effects arising because of an enabling effect from one development on another development e.g. phased development occurring as part of separate planning applications.

10.2.81 Developments for inclusion in the cumulative assessment have been assessed on national guidance and have been agreed with Eastleigh Borough Council. Table 10.8 in Section 10.9 lists committed developments that have been identified by Eastleigh Borough Council as offering potential cumulative effect in-combination with One Horton Heath.

Geographical Scope

10.2.82 The spatial scope of the assessment of each potential significant effect reflects:

- The area occupied by the receptor that is being assessed; and
- The Zone of Influence associated with the environmental changes that will result from the Proposed Development that are likely to affect the receptor.

10.2.83 Thus, if part of a designated biodiversity site is located within the ecological zone of influence ZOI relating to a particular environmental change, an assessment is made of the effects on the Site as a whole. A similar approach has been taken for areas of notable habitat. For species that occur within an ecological ZOI that relates to a change that could significantly affect the species, an assessment has been carried out on the total area that is used by the affected individuals or population of the species (e.g. for foraging or commuting).

10.2.84 Receptors that are of sufficient value that an effect upon them would have the potential to be significant, together with all relevant legally protected species, are taken through to the assessment stage. This involves identifying, for each receptor:

- Any environmental changes that are likely to be caused by the Proposed Development which have the potential to lead to a significant effect and/ or to contravene relevant legislation;
- For these environmental changes, determining the area within which each change could cause a likely significant effect or could contravene relevant legislation (i.e. an 'ecological Zol');
- Comparing the area where the receptor occurs with the ecological Zol; and
- If the receptor occurs or is likely to occur within the Zol, concluding that either the receptor could be subject to a significant effect and/ or the relevant legislation could be contravened, in which case the effects upon the receptor are scoped in, or no significant effect is likely to occur and it is scoped out.

10.2.85 The ecological Zol is the area affected by land-take and direct land-cover changes associated with the Proposed Development. This zone is the same for all affected ecological features. Environmental changes can extend beyond this area (e.g. changes in disturbance associated with increased lighting associated with roads and other infrastructure, or discharges to surface water courses), therefore the Zol may vary between ecological features, dependent upon their sensitivity and the nature of the change.

10.2.86 In view of these complexities, the definition of the Zol that extends beyond the land-take area will be based upon professional judgement, informed by discussions with the technical specialists who are working on other chapters of the ES (e.g. air quality and hydrology). Environmental changes within their assessments will be combined aligned with ecological information about feature sensitivity to define the extent of each ecological Zol.

10.2.87 The Zone of Influence associated with the Proposed Development is considered at two levels:

- A radius of 10 km was considered to be appropriate to consider potential effects on sites of International value and 5km for with more mobile species, e.g. bats. NB the New Forest SPA/SAC is included as part of the scoping process, which lies just beyond this buffer.
- A radius of 2 km was deemed appropriate for consideration of potential effects on habitats

and species of national value and sites and habitats of local value, although designated sites with an environmental pathway characterised by surface water flow paths and emissions to air were considered further away (e.g. up to 10km).

Temporal Scope

10.2.88 The proposed EIA will assess the effects of the One Horton Heath Project arising during the anticipated construction phase and occupation phase and will be based upon the following scenarios:

- Baseline/Future Baseline + OPA Phase 1 with the Link Road delivered concurrently and completed by occupation of 100 units of OPA Phase 1;
- Baseline/Future Baseline + the Wider OPA (assuming the Link Road and OPA Phase 1 have been delivered);
- Baseline/Future Baseline + the Wider OPA (assuming the Link Road and OPA Phase 1 have been delivered) + Cumulative Development.

10.2.89 In the Future Baseline / 'do-nothing' scenario, no significant changes or trends are predicted to occur to the habitats and species populations associated with the Site. Habitats within the Site boundary would continue to be managed intensively for agriculture.

10.2.90 The assessment of potential likely significant effects has been completed for the temporal periods as set out below:

- Construction-phase – Pre-commencement tasks including implementation of relevant protected species or important ecological receptor related ecological mitigation, removal of vegetation/ topsoil, hedgerows and trees; Construction tasks including activities associated with the building phase, including vehicle/ plant movements, air quality changes, dust, lighting etc.
- Occupation-phase - Commencement of occupation of new residential and other buildings and full occupation of the new settlement and use of all associated infrastructure.

10.2.91 Using information about the way in which sites/ habitats/ species are likely to be affected by the Proposed Development, each change (change from the baseline situation) that is assessed has been assigned a level of 'magnitude', based on the definitions set out in Table 10.2.

Table 10.2 Guidelines for the assessment of change magnitude

Magnitude of change	Criteria and resultant effects
High	The change permanently (or over the long term) negatively affects the conservation status of a habitat/ species, reducing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/ species population, a large area of habitat or large proportion of the wider species population is affected. For designation sites, integrity is compromised. There may be a decrease in the level of ecological conservation value of the receptor.
Medium	The change permanently (or over the long term) negatively affects the conservation status of a habitat/ species reducing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/ species population, a small-medium area of habitat or small-medium proportion of the wider species population is affected. There may be a decrease in the level of biodiversity conservation value of the receptor. Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations would experience little or no reduction. Any changes are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/ species receptors or the integrity of designated sites.
Low	The quality of extent of designated sites or habitats or the size of species populations, experience some small-scale reduction. These changes are likely to be within the range of natural variability and there is not expected to be any permanent change in the conservation status of the species/ habitat or integrity of the designated site. The change is unlikely to modify the evaluation of the receptor in terms of its ecological conservation value.
Very Low/ Neutral	A change to the level of which is so low, it is not discernible on the designated sites or habitats or the sizes of species populations, or changes that balance each other out over the lifespan of a project.

10.2.92 The criteria in Table 10.2 refer to the terms 'integrity' and 'conservation status'. For habitat areas and species, an affect is assessed as being significant if the favourable conservation status of a receptor would be changed by the Proposed Development. Conservation status is defined by the CIEEM Guidelines as follows:

- For habitats: the sum of the influence acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area; and
- For species: the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

Negative Effects

10.2.93 A negative effect is considered to be significant if the favourable conservation status of a receptor is compromised by the Proposed Development.

10.2.94 A similar procedure has been used for designated sites that are affected by the development, except that the focus is on the integrity of each site, defined by the CIEEM guidelines as:

10.2.95 "...the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified"

10.2.96 The assessment of effects on integrity draws upon the assessment of effects on the conservation status of the features for which the site has been designated.

10.2.97 The decision as to whether the favourable conservation status has been compromised is made using informed judgement based on the findings of the assessment of how the resource would be affected.

Positive Effects

10.2.98 A positive effect is assessed as being significant if the development activities are predicted to cause:

- An improvement in the condition of a habitat/ species population from unfavourable to unfavourable recovering or favourable (noting that condition data are only available for SSSIs but that professional judgement has been used to apply the same principle to habitats/ species elsewhere); or
- Partial or total restoration of a site's favourable condition.

10.2.99 If a species population, habitat or site is already in favourable condition, it is still possible for there to be a significant positive effect. There is, however, no simple formula for determining when such effects are significant and decisions about significance therefore have to be made on a case by case basis using professional judgement.

Evaluation matrix

10.2.100 Significance evaluation involves combining information about the sensitivity, importance or value of a receptor, and the magnitude and other characteristics of the changes that affect the receptor. The approach to using this information for significance evaluation is outlined below.

Receptor sensitivity, importance or value

10.2.101 The sensitivity or value of a receptor is largely a product of its importance, as informed by legislation and policy and as qualified by professional judgement. For example, receptors for ecology or the historic environment may be defined as being of international or national importance. However, lower value resources may still be defined as sensitive or important at a county or district level.

Magnitude of change

10.2.102 The magnitude of change affecting a receptor is identified on a scale from very low to very high. As with receptor sensitivity and value, a rationale is provided that explains how the categories of environmental change are defined.

Determination of significance

10.2.103 The significance of effects is determined with reference to the nature of the development, the receptors that could be significantly affected and their sensitivity, importance or value, together with the magnitudes of environmental change that are likely to occur.

10.2.104 Sensitivity/value and the characteristics of environmental changes can be combined using a matrix (refer to Table 10.3). In addition, professional judgement is applied since, the distinction between the sensitivities or magnitudes of change may not be clearly defined. Consequently, the resulting assessment conclusions explain how professional judgement has been applied to arrive at the level of effect.

10.2.105 Within the matrix that is used in most significance evaluation exercises, reference is made to:

- Major effects, which will always be determined as being significant in EIA terms;
- Moderate effects which could be significant, although there may be circumstances where such effects are considered not significant on the basis of professional judgement; and
- Minor or negligible effects, which will always be determined as not significant.

Table 10.3: Significance evaluation matrix

		Magnitude (of change)					
		Very high	High	Medium	Low	Very Low	Will not occur
Importance/ value / sensitivity (of receptor)	Very high	Major (significant)	Major (significant)	Major (significant)	Major (significant)	Moderate (could be significant)	Minor (not significant)
	High	Major (significant)	Major (significant)	Major (significant)	Moderate (could be significant)	Minor (not significant)	Minor (not significant)
	Medium	Major (significant)	Major (significant)	Moderate (could be significant)	Minor (not significant)	Negligible (not significant)	Negligible (Not significant)
	Low	Major (significant)	Moderate (could be significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)
	Very low	Moderate (could be significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)
	Negligible	Minor (not significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)	Negligible (not significant)

Note: Significant effects are those shown as 'Major'. 'Moderate' effects could be significant. Notwithstanding this, this is not always the case, although this very much depends on the environmental topic and the appropriate application of professional judgement.

Assumptions & Limitations

10.2.106 Assumed that mitigation measures elsewhere are technically robust and provide a reliable solution (see other relevant chapters of this ES);



10.2.107 Tree Roost Assessment – ground based and climbing assessments only. Most trees are on perimeter, retained protected by eco buffer and unlit. Small number of trees offering potential for roosting bats exist in the development site and a precautionary approach has been taken and assume they support the most likely bat roost associated with a given feature and species recorded on site. Mitigation has been included that will accommodate needs for sensitive roost/species. Potential Tree Roosts fall outside of the Phase 1 OPA and as such are considered by the Outline planning application at this stage, with appropriate mitigation detailed on a precautionary basis. Detailed further surveys will be undertaken for Reserved Matters applications/licencing to confirm specific placing of mitigation features.

10.3 CONSULTATION

10.3.1 A wide range of consultation has taken place during 2018 to 2020 to both inform the scope of the assessment, mitigation, compensation and enhancement measures, and to inform this Chapter of the ES. Formal consultation responses from statutory consultees were received in the Scoping Opinion received in August 2020 (see Section 10.2).

10.3.2 Key statutory consultees identified at this stage are:

- Eastleigh Borough Council (EBC);
- Natural England (NE);
- Hampshire and Isle of Wight Wildlife Trust (HIOWWT);
- Environment Agency (EA).

10.3.3 To date, EBC, NE, EA and HIOWWT have been engaged through the formation and meeting of a steering group in respect of biodiversity interest, baseline assessment and mitigation design.

10.3.4 Formal agreement with the steering group on the evolution of the project has been sought regularly and iteratively covering all baseline surveys and the assessment methodology, together with mitigation and enhancement design and to agree the strategy and target for the delivery of biodiversity net gain through the development. This has been established as a series of three Memorandum of Understanding (covering baseline, ecological buffers and Biodiversity Net Gain).

10.3.5 A OHH website <https://www.eastleigh.gov.uk/planning-and-building/housing-and-development/one-horton-heath> has been made available to the public, providing access to information, plans, timescales and a series of information videos.

10.3.6 Biodiversity also was a key topic featured as part of public consultation undertaken during 2nd and 3rd September 2020.

10.3.7 A short video has been prepared and is available on the OHH website which sets out the approach to biodiversity (including EIA) taken by the project.

10.3.8 Table 10.4 provides a summary of the consultation with statutory consultees, undertaken to date, to inform the production of this ES Chapter.

Table 10.4: Summary of Consultation with Statutory Consultees

Consultation	Date	Organisations Present
Ecological Steering Group	17.10.18	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	20.11.18	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	18.12.18	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	07.02.19	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	27.11.19	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	02.12.19	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	13.02.20	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA), Hampshire & Isle of Wight Wildlife Trust (HIWWT)
Ecological Steering Group	30.03.20	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA),
Ecological Steering Group	18.06.20	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA),
Ecological Steering Group	14.07.20	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE), Environment Agency (EA),
Water Quality and Recreation Mitigation Strategy Consultation	29.07.20	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE),
Drainage Strategy Consultation	15.09.20	Eastleigh Borough Council (planning & ecology) (EBC), Natural England (NE),

10.4 BASELINE ENVIRONMENT

Ecological Context

- 10.4.1 The Proposed Development is associated with an area of grassland, woodland and riparian habitats covering approximately 120 Ha, located to the west of the existing settlement of Horton Heath, Eastleigh Borough, Hampshire.
- 10.4.2 The Proposed Development site is characterised by gently undulating agricultural land currently used to produce arable crops in the northern component, close to Fir Tree Lane and cattle grazed grassland in the southern component, adjacent to Chalcroft Farm. The site is bisected by an area of woodland and minor watercourse, running east to west across the Site. An extensive network of hedgerows exists with large mature standard trees present in the northern section. An area of mature deciduous woodland lies in the northern section (Quobleigh Wood) that is complimented by a number of small but mature (some ancient) woodlands located along the northern, western and southern boundaries.
- 10.4.3 Small watercourses, tributaries of the River Itchen, are present, flowing westwards and northwards. A number of ponds are present within the Chalcroft Farm complex, in the south, and associated with Quobleigh Wood, in the north, that support breeding populations of great crested newts.
- 10.4.4 The site contains clusters of residential and agricultural buildings, a number of which are now unoccupied. A commercial meat processing facility is currently operational within Chalcroft Farm. A number of these buildings support active bat roosts including maternity and satellite roosts.
- 10.4.5 Immediately adjacent to the east, lies the settlement of Horton Heath with residential areas and associated gardens and infrastructure. To the south, the commercial development at Chalcroft Business Park lies adjacent to the Site, separating it from the railway. To the west and north lie areas of agricultural land, woodland and small farm and school building complexes. To the north, the Site adjoins woodland.
- 10.4.6 Habitats are summarised in Table 10.5 below.

Table 10.5 : Summary of Phase 1 Habitats present

Phase 1 Habitat Type	Summary description
Scattered scrub	Small areas of scattered scrub exist across the Site associated with less managed areas of marshy grassland and disused farm complexes.
Scattered Trees	A number of scattered trees are present across site, the majority of which are broadleaved a number of these are large, mature trees. The area south of Chalcroft Farm supports an area containing several large oak trees in a parkland setting.
Hedgerows	An extensive network is present comprising both intact and defunct hedgerows, the majority of which are species rich, albeit regularly flailed to ~2m.
Fence	Wire fences associated with grazed fields and field boundaries are present throughout the Site.
Wall	Mortared stone walls are present associated with the building complexes.
Broadleaved woodland	Areas on site can be broadly separated in to dry and wet woodland habitats with species indicative of ancient woodland present.
Parkland	An area of parkland exists south of Chalcroft Farm. This contains so large parkland oak trees but the ground flora is improved grassland and subject to intensive grazing.
Improved grassland	Extensive areas of the Site are intensively cattle and sheep grazed with very little in the way of species diversity.
Poor semi-improved grassland	The areas of improved grassland are interspersed with patches of slightly more diverse grassland habitat.
Other tall herb and fern – ruderal	Thistles and nettles indicative of local enrichment are present around the farmyards and form a mosaic with the ephemeral and bare ground habitats.
Standing water	Four standing waterbodies are present on site comprised of three ponds and a swimming pool. These are supplemented by a number of ephemeral pools associated with the small watercourses.
Running Water	One minor tributary of the River Itchen is present running from south to north along the western boundary and two small watercourses flow from east to west across the Site with associated woodland, and marshy riparian vegetation.
Cultivated/disturbed land – amenity grassland	Areas of managed landscaped grassland are associated with residential gardens on site.
Cultivated/disturbed land – ephemeral/short	Small areas of ephemeral perennial habitat are associated with the areas of bare ground around the building complexes on site.
Cultivated/disturbed land – arable	Areas of arable habitat are present, restricted to the north of the Site.
Buildings	A number of extensive agricultural complexes are present on site that include barns, stables, farmhouses and number of modern residential buildings.
Bare ground	Extensive areas of bare ground are associated with the farm complexes across the Site.
Swamp	Areas immediately bounding Quobleigh woods to the west. These areas have substantial coverage of Himalayan balsam.

Designated Sites of Nature Conservation Interest

10.4.7 There are five internationally important and designated sites (and their constituent sites) associated with the River Itchen, Emer Bog and the Solent within 10km of One Horton Heath with three further sites associated with the New Forest SPA within 11km. These are listed in Table 10.6.

10.4.8 There are two nationally important and designated sites within 2km of One Horton Heath. These are listed in Table 10.6.

10.4.9 Nine sites of Importance for Nature Conservation (SINC) lie adjacent to the Site. A further 9 SINCS are located within 2km of One Horton Heath. These are listed in Table 10.6.

Table 10.6. Designated Sites Within ZOI

Site name	Reason for designation	Location relevant to Horton Heath site boundary
Solent and Southampton Water Special Protection Area (SPA)	Supports breeding populations of the following species listed on Annex I of the Directive: common tern, little tern, Mediterranean gull, roseate tern, sandwich tern. Supports populations of the following migratory over-wintering species: black-tailed godwit, dark-bellied brent goose, ringed plover, teal. The area also qualifies by regularly supporting at least 20,000 waterfowl	4 km south east
Solent and Southampton Water Ramsar Site	The site is designated under the following Ramsar criteria: Criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs Criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. Criterion 5: supports a species assemblage in the winter of international importance (assemblage of wintering waterfowl). Criterion 6: supports species populations of international importance (migratory ringed plover; and wintering black-tailed godwit, teal and dark-bellied brent geese).	4 km south east

Solent Maritime SAC	Supports the following Annex I habitats that are a primary reason for designation: Estuaries Salt marsh with <i>Spartina</i> swards Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>). The site also supports a range of Annex I habitats that are present as a qualifying feature, but not a primary reason for selection as follows: Sandbanks which are slightly covered by sea water all the time. Mudflats and sandflats not covered by sea water at low tide. Coastal lagoons Annual vegetation of drift lines Perennial vegetation of stony banks Salicornia and other annuals colonising mud and sand Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") The site also supports Desmoulin's whorl snail <i>Vertigo moulinsiana</i>, which is present as a qualifying feature, but not as a primary reason for selection.	3.6km south east
River Itchen Special Area of Conservation (SAC)	Supports the following Annex I habitats that are a primary reason for designation: Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation. Supports the following Annex II species which are a primary reason for selection of this site: Southern damselfly <i>Coenagrion mercuriale</i>. Bullhead <i>Cottus gobio</i>. The site also supports the following Annex II species present as qualifying features but not as primary reasons for site selection: White-clawed crayfish <i>Austropotamobius pallipes</i> Brook lamprey <i>Lampetra planeri</i> Atlantic salmon <i>Salmo salar</i> Otter <i>Lutra lutra</i>	950m west
Emer Bog SAC	Designated due to the occurrence of the following Annex I habitat: transition mires and quaking bogs. The basin is surrounded by more mature willow <i>Salix</i> woodland and open heathland.	9.4km north west
New Forest SAC	Supports Annex 1 Habitats that are a primary reason for selection of this site: oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>), Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoeto-Nanojuncetea</i>, Northern Atlantic wet heaths with <i>Erica tetralix</i>, European dry heaths, <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>), Depressions on peat surfaces of the <i>Rhynchosporion</i>, Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion robur-petraeae</i> or <i>Illici-Fagenion</i>), <i>Asperulo-Fagetum</i> beech forests, Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains, Bog woodland, Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>). Supports Annex 1 habitats present as a qualifying features, but not a	11km south west

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	primary reason for selection of this site: Transition mires and quaking bogs, Alkaline fens. Annex II species that are a primary reason for selection of this site: Southern damselfly, Stag beetle. Annex II species present as a qualifying feature, but not a primary reason for site selection. Great crested newt.	
New Forest SPA	Qualifies under Article 4.1 by regularly supporting in summer over 300 pairs of nightjar, 51-54 pairs of woodlark, 454 pairs of Dartford warbler, and 2 pairs of honey buzzard. Notable are up to 10 pairs of Kingfisher.. In winter the site qualifies under Article 4.1 by regularly supporting about 15 hen harriers. It qualifies under Article 4.2 by supporting in summer, up to 25 pairs of hobby, in excess of 350 pairs of wood warble. Notable are breeding populations of lapwing, redshank, curlew, snipe, stonechat and redstart. In addition to its importance for individual species, the site is of exceptional scientific importance for its assemblage of lowland heathland breeding birds, including nightjar, woodlark, Dartford warbler and stonechat.	11km south west
New Forest Ramsar	An extensive complex of woodland, dry and wet heath and over 90 valley mires, associated seepages and peatlands situated on acidic and nutrient-poor soils. Pools in the heath-mire matrix contain nutrient-enriched water supporting a species-rich assemblage of plants. Several species of plants, invertebrates and birds occurring at the site are rare, vulnerable, endangered or nationally scarce. The site is important for breeding, feeding and roosting birds characteristic of the heathland environment and wintering raptors, with up to 15 <i>Circus cyaneus</i> feeding or roosting in the area. Human activities include tourism, recreation, and increased development around the periphery. The decline in livestock grazing has caused a reduction in the floral diversity.	11km south west
Moorgreen Meadows SSSI	Neutral meadows and alder wood flanking a small tributary of the River Hamble on the Bracklesham Beds of the Hampshire Basin.	945m south west
River Itchen SSSI	This site is notified for classic chalk stream and river, fen meadow, flood pasture and swamp habitats, particularly formations of in-channel vegetation dominated by water crowfoot <i>Ranunculus</i> spp, riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches associated with the main river and former water meadows. The site supports nationally important invertebrate assemblages; and is also notified for the assemblage of breeding birds including tufted duck <i>Aythya fuligula</i>, pochard <i>A. ferina</i> and shoveler <i>Anas clypeata</i>, the waders lapwing <i>Vanellus vanellus</i>, redshank <i>Tringa totanus</i> and snipe <i>Gallinago gallinago</i>, and wetland passerines including sedge warbler <i>Acrocephalus schoenobaenus</i>, reed warbler <i>A. scirpaceus</i> and Cetti's warbler <i>Cettia cettia</i>.	950m west
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	The Chalcroft Distribution Park woodlands comprise a complex series of (mainly) recent semi-natural woodland, situated in the edges of, and to the immediate west of, the Distribution Park grounds, Botley, South Hampshire.	Adjacent to southern boundary

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Round Copse, West End SINC	Comprises a small and predominantly ancient semi-natural oak-hazel woodland, located against the eastern boundary of the Chalcroft Distribution Park, West End, Hampshire. The site is structurally diverse and supports at least 15 ancient woodland indicator species.	Adjacent to southern boundary
Hearts Copse, West End SINC	The wood, which lies on very gently sloping heavy clay soils, is mostly ash and hazel coppice with field maple in the eastern and western sides and patches of alder woodland on the southern, wetter ground.	Adjacent to south western boundary
Treeline Break SINC	Treeline Break is a narrow strip of ancient semi-natural woodland, situated in a small and quite deeply incised stream valley, on the north-western edge of the new solar farm, south of Allington Lane, Eastleigh. 18 ancient woodland indicators were recorded within this site.	Adjacent to western boundary
Field West of Treeline Break (Long Field) SINC	Situated on the western side of the small stream valley south of Allington Lane, West End. Supports significant areas of unimproved fen meadow, supporting species such as sneezewort <i>Achillea ptarmica</i> and brown sedge <i>Carex disticha</i> .	Adjacent to western boundary
Quobleigh Pond and Woods SINC	The site is an area of mixed habitats located on the edge of Fair Oak. Woodland is the main habitat and the majority of the woodland is wet and much is ancient. There is a high diversity of woodland species including 31 ancient woodland indicators. There are two ponds within the Site.	Located partly within site boundary
Fair Oak School Meadow SINC	The site is a field and woodland strip located on the outskirts of Fair Oak. The site is adjacent to Quobleigh Pond and Wood SINC. Within the field there is an excellent range of unimproved grassland communities, both dry and marshy with over 100 species noted including an excellent 10 acid/neutral grassland indicators. The woodland strip along the south edge is not ancient but there is some wet woodland present. There is also a small pond on site.	Adjacent to north western boundary
Wyvern Technical College Meadow SINC	Covered by the Fair Oak Meadows SINC survey – see above.	See above
Ponds and Meadow adjacent to Wyvern Technical College SINC	Covered by the Fair Oak Meadows SINC survey – see above.	See above

Species

Flora

10.4.10 Data provided by Hampshire Biodiversity Information Centre returned records of; stinking chamomile, box, oak-leaved goosefoot, buckler fern, white ramping-fumitory, Jersey cudweed and greater duckweed to be present within wider landscape within the last 10 years.

10.4.11 Two stands of the invasive and Schedule 9 species, Japanese knotweed, have been recorded on site at Chalcroft pond and on the northern boundary of the central woodland, together with a large stand of the invasive and Schedule 9 species Himalayan balsam located within Quobleigh Wood. An additional, small stand is located immediately south of Quobleigh wood. This species is common and extensive along a number of the site boundary and east-west flowing watercourses (recorded by Johns Associates in 2019 & 2020).

10.4.12 A small population of an IUCN vulnerable plant Mousetail (*Myosurus minimus*) has been recorded in the NW of phase 1. This is proposed to be translocated to a suitable receptor site on site that is not subject to disturbance.

Bats

10.4.13 Data provided by Hampshire Biodiversity Information Centre returned; 10 records of serotine, 1 record of Brandt's, 5 records of Daubenton's, 4 records of whiskered, 11 records of Natterer's, 21 records of noctule, 52 records of common pipistrelle and 32 records of soprano pipistrelle. These are all field records; no records of roost were returned within the data search.

10.4.14 Ten species have been confirmed to be present on Site through various surveys carried out (see Appendix 10.4 Bats):

- Barbastelle: A very low level of activity was recorded through static detector surveys however; this species was recorded at all detector locations and in all months with the exception of May. Maximum of 16 passes recorded (median 0.15 passes per night of recording effort).
- Serotine: No roosts identified on site. Two adult males recorded during trapping, both southwest of Chalcroft Farm. Low activity levels observed (maximum 1.03 median passes per night in August) despite high detectability and distinctive call structure. Few records (28 passes recorded within emergence window over 1133 recording nights) indicating potential presence of low status non-breeding roost within ZOI. 20 total passes within potential impact height recorded at all crossing point locations.
- Brown long-eared: Two maternity roosts present on site (Fir Tree Farmhouse and Chalcroft Farm). Fir Tree Farmhouse (Northern Colony) – static data indicates that these bats are

using the two main connective habitats leading both north and south across Fir Tree Lane from the Farmhouse, presumably to the highly suitable foraging habitats in Quobleigh Wood and the central/western stream corridor respectively (ST11 and ST12). Two Post lactating female BLE and one adult male were caught in Quobleigh Wood in August 2020. Chalcroft Farm (Southern Colony) – Maternity roost present in Pond Cottages to the north of Chalcroft pond. Additional satellite roosts identified in tree in Hearts Copse and within the stables building (A6). Key supporting habitats are considered to be Hearts Copse (offsite) with the marshy grassland and riparian corridor of the southwest and western areas of the site. Trapping in the vicinity of Hearts Copse in 2020 caught 4 lactating female bats, two adult males and two juvenile bats (male and female). Key connective corridors are the hedgerows to the south and the riparian corridor to the north and west of Chalcroft Farm. Radiotracking in 2019 recorded a female adult post lactating female from this colony roosting in Round Copse and foraging repeatedly in the central and eastern woodland utilising the central hedgerow east of the solar park and the western riparian corridor. One confirmed tree roost was found (T23) during the survey of a brown long-eared roost which was found on the 20th October and re-checked on the 27th October with the maximum count of 2 individuals present on the 20th October. 10 crossing events were recorded within the collision risk height band (locations CP2 – 5, CP3 – 3 & CP4-2). No crossing events were recorded for this species at CP1 or CP5.

- Natterer's: One roost record on site in B18 in 2018. This building has subsequently been demolished under licence. Static detector surveys are limited to providing additional information at genus level. This genus is represented at all locations sampled. Radiotracking surveys tracked a post lactating female to two maternity roosts to the east of Horton Heath (both tree roosts, colony size 20-30). This bat foraged along the central woodland belt and within a young woodland within the existing housing estate each night of the survey. Trapping surveys recorded a total of 19 Natterers bats with female lactating bats captured in Quobleigh Wood, Hearts Copse and the Central Woodland. Males and juveniles were also present in these areas. Crossing point data recorded 45 crossing events by this genus within the predicted road traffic collision height range with 33 of these at location CP1 (Quobleigh Stream Crossing). This value is likely to be comprised of a high proportion of Daubenton's bats given the riparian habitats present at this location.
- Daubenton's: No known roosts present on site. Anecdotal observation of two Daubenton's bats entering oak tree in parkland south of Chalcroft during trapping surveys. 1 male was captured in Chalcroft Farm Parkland in 2018. 8 females (4 adults and 4 juveniles) were caught in Hearts Copse, 14 males (2 adult and 12 juveniles caught in Hearts copse and Chalcroft

Farm Parkland. 1 adult female and 3 adult males were caught in Quobleigh Woods. These were predominantly males (18 in total) and juveniles. No evidence of the use of the site of lactating females was recorded. One adult male bat caught in Quobleigh Woods on the 22nd Aug 2019, was radiotagged but the tag failed within minutes of application. Key locations are considered to be the riparian corridors, particularly the western site boundary connecting Quobleigh Wood and the habitats south of the site to the River Itchen and to Itchen Valley Country Park. Crossing point data recorded 45 crossing events by this genus within the predicted road traffic collision height range with 33 of these at location CP1 (Quobleigh Stream Crossing). This value is likely to be comprised of a high proportion of Daubenton's bats given the riparian habitats present at this location.

- Nathusius Pipistrelle: 51 passes over 1133 recording nights, 26 of which at location ST16. 41 of these were recorded in October 2020. No records in July or August. Not recorded during crossing point surveys.
- Noctule: The majority of records for this species were recorded at ST1, ST2, ST3, ST5, ST6 and ST16 with ST5 recording the highest median number of recordings in total. Tree 19 (an Ash next to the pond at Charlcroft Farm) has been confirmed as a roosting tree. Noctules were heard lekking from the tree in 2018 and emergence surveys on the tree in September 2020 confirm 3 noctules emerging from a tear out at the top of the tree. In total 4 adult noctules were caught (2 post-lactating females and 2 males) all in Charlcroft Parkland. 55 crossings were recorded in total across all the crossing point locations by noctule. Of those only 1 at CP4 and 2 at CP3 were within the highest collision risk category.
- Common pipistrelle: Common pipistrelles were recorded at high levels at all static locations. The majority of records for this species were recorded at ST1, ST5 and ST14. The median bat passes per hour per month found April, June and July to have the highest activity for common pipistrelle which is within the peak maternity period for this species. ST14 recorded the highest number of pre-sunset recordings with 100 recordings. Recordings made within the species-specific emergence window (Russ J., 2012) are considered to give an indication as to the likelihood of a roost being nearby. Therefore, recordings made close to or pre-sunset are likely to give a stronger indication of a roost nearby. 40 common pipistrelles were captured during the trapping surveys; 18 females (4 post lactating and 6 juveniles) and 22 males (12 adults and 10 juveniles). They were caught in all years and at all locations. Crossing point surveys recorded; 20 at CP1, 26 at CP2, 125 at CP3, 87 at CP4 and 181 at CP5 at the highest collision risk category for this species. CP1, 3 and 4 are considered to be on commuting routes while CP2 and 5 recorded more foraging activity.

- Soprano pipistrelle: The majority of static records for this species were recorded at ST1, ST2 and ST4 with ST2 recording the highest median number of recordings in total. The median bat passes per hour per month found April recorded the highest level of recordings with the lowest number of recordings in May and then a similarly low level of recordings for the remaining months. 18 soprano pipistrelle were captured during the trapping surveys; 5 females (2 parous and 1 juveniles) and 13 males (10 adults and 3 juveniles). They were caught in all years and at all locations. Crossing point surveys recorded; 2 at CP1, 8 at CP2, 16 at CP3, 1 at CP4 and 2 at CP5 at the highest collision risk category for this species. CP1, 3 and 4 are considered to be on commuting routes while CP2 and 5 recorded more foraging activity.

Badgers

10.4.15 Data provided by Hampshire Biodiversity Information Centre returned 17 records for badger were from between 2010-2020. There were no badger records located within the Site boundary. The nearest record is approximately 450m east of the Site, this record is from 2009. Due to the sensitivity of the sett locations, the exact location and type of record has not been revealed.

10.4.16 Historic surveys carried out by Ecologica Ltd in 2014 and 2015 showed a very low level of badger activity throughout the site and found no occupied setts on site, however scattered signs of badger were discovered including, fresh latrines, badger hair and scratching posts. Three abandoned setts were recorded along a hedgerow along the north-west boundary of the site.

10.4.17 Johns Associates have carried out a series of badger surveys across the wider Horton Heath Site in 2018, 2019 and recently updated in 2020. No other active or partially active setts were observed. All previously recorded active and partially active setts from 2018 and 2019 were found disused, caved in or used by other mammal species such as fox or rabbits in the most recent update surveys in 2020.

Amphibians

10.4.18 Data provided by Hampshire Biodiversity Information Centre returned six records for common toad and nine records for great crested newts were returned from between 2006-2016. There were two GCN records located within the Site boundary, pond records related to pond 47 and the other record was located within the woodland shelter belt north of the solar park. Three other records were located adjacent to the site boundary within Quobleigh woods to the north of the site.

10.4.19 Ordnance Survey maps of the area depict the presence of Quobleigh pond within Quobleigh Wood, however, during the Phase One survey conducted by Johns Associates in 2018 and the habitat suitability assessment conducted by Johns Associates in 2019 the compounding structure has collapsed and there is no longer a pond present in this location, rather an area of seasonally inundated wet woodland.

10.4.20 Historic surveys carried out by Ecosupport Ltd conducted GCN surveys in 2013 & 2014 found presence of a metapopulation of GCN in the of the Site and present over five ponds with a peak count of 73 in total overall the ponds and presence of GCN within the pond at Chalcroft Farm with a peak count of 12. Repeated surveys by Ecosupport in 2015 found the Quobleigh Metapopulation had decreased in 2015 to a peak count of 15, Chalcroft was not surveyed in this year. And Surveys carried out by WYG in 2016 the Quobleigh Metapopulation had decreased in 2015 to a peak count of 23 and the Chalcroft Farm population had reduced to a peak count of 2.

10.4.21 Surveys carried out in 2019 by Johns Associates recorded the presence of GCN in only two of the water bodies surveyed during 2019: ponds 41 (onsite) and 47(offsite), which are approximately 1.4km from one another. Population size class assessments based on the 2019 results concluded the following:

- West Horton Heath population (Chalcroft); Low population with a peak count of 5 in pond 47. Eggs present.
- Quobleigh Metapopulation; Medium metapopulation with a peak count of 11 in pond 41. Eggs present.

Reptiles

10.4.22 Data was provided by Hampshire Biodiversity Information Centre returned no historic desk study records in the last ten years within the site boundary of any reptile species. The nearest record of slow worm (*Anguis fragilis*) is approximately 350m north east of the site adjacent to Botley Road. The closest record for grass snake (*Natrix helvetica*) is 1.1km north east of the site in Fairoak. The nearest record of common lizard (*Zootoca vivipara*) is approximately 100m north of the site close to Quobleigh pond. There are no records of adder (*Vipera berus*) within 2km of the site.

10.4.23 Previous surveys undertaken by Ecologica Ltd in 2014 recorded six grass snake, five common lizard and 76 slow worm in total over the survey period. The repeat survey in 2015 recorded

one common lizard and 27 records of slow worm in total. All records are associated with field boundaries, with most of the records associated with the northern most boundary of the site.

10.4.24 The vast majority of the Site comprises a combination of heavily-grazed pasture and arable land which is unsuitable as reptile habitat. Although there are small pockets of semi-natural habitat comprising tussocky grassland and marshy grassland within the Site, the key available habitats for reptiles comprise a network of linear habitats i.e. hedgerows, unmanaged field boundaries, and woodland edge. However, it should be noted that much of this linear habitat in the southern part of the Site in particular is intensively grazed, which significantly reduces suitability for reptiles.

10.4.25 2018 survey results recorded a total of 15 slow worms and a single juvenile grass snake. A peak count of six slow worms was recorded within the Site which represents a good population size within this area.

10.4.26 The 2020 update surveys recorded one common lizard and one adult grass snake within the Site, this represents a low population of both species within these areas.

10.4.27 The habitat suitability for reptiles across the Horton Heath Site remains similar to that of the 2018 surveys. Therefore, it should be assumed that low populations of reptiles (common lizard, grass snake and slow-worm) remain present in all areas where previously recorded. The suitability of habitats across the site is locally restricted and patchy with reptile presence largely restricted to the boundaries of the site, particularly in areas adjacent to woodland or domestic gardens.

Breeding birds

10.4.28 Comprehensive breeding bird and barn owl surveys have been conducted over a number of years covering the One Horton Heath site. Survey methodologies and detailed results are described in detail in appendix 10.8 Birds.

10.4.29 A breeding pair of barn owl are present, successfully nesting in the nest box south of Chalcroft Farm in 2020. Evidence of roosting was also observed in the stables building at the far southern extent of the Chalcroft Farm complex. The site is considered to support one home range for these birds.

10.4.30 Passerine species of note are:

- Species of Principal Importance in England under s41 of the Natural Environment and Rural

Communities (NERC) Act (2006):

Skylark (also Hampshire BAP Priority Species)

- One singing male was observed in the areas both north and south of the Chalcroft farm track. A possible pair was observed in this area during the second survey visit but these were absent during the third visit and are unlikely to have bred in this area in 2020.

House Sparrow

- Seven house sparrow nests were recorded in 2020 clustered around Chalcroft Farm and the unoccupied Fir Tree Farm. Additional activity was observed associated with the gardens and properties immediately adjacent to the site on the eastern boundary.
- Hampshire Biodiversity Action Plan Priority Species

Song Thrush

- Three singing males were recorded on site with one confirmed nest identified in a hedgerow just north of Quobleigh stream containing 4 chicks.

Linnet

- One singing male was observed on two occasions singing from the hedgerow immediately to the north of the Chalcroft Farm track. A subsequent record of a pair with two juveniles in this area could indicate breeding but a direct link between these records, and therefore breeding on site, is uncertain. The habitats in this area are considered suitable nesting habitat for this species.

BOCC Red list Species

Starling

- Activity was dispersed over the site with multiple records of foraging and singing adults. Four nests were confirmed (including 2 within holes in telegraph poles and 2 in buildings) with a number of foraging sorties observed with adult birds returning to nests within the adjacent Horton Heath residential areas.
- Additional observations in late summer/autumn recorded small post breeding flocks of adults and juvenile birds with the largest group comprising 20 birds. No large murmurations or

aggregations of this species have been recorded on site through the suite of 2018-2020 surveys delivered on site for multiple species however previous winter surveys conducted in 2014/15 observed post breeding groups of up to 20-30 birds

Mistle Thrush

- A pair of mistle thrush were observed in the large dead oak tree in the south west of the site, flying into the Chalcroft distribution Park woodland on two separate visits in April and June. This pair is assumed to be breeding within this woodland.

Hedgehogs

10.4.31 Data provided by Hampshire Biodiversity Information Centre returned 15 records of hedgehog within the last 10 years.

10.4.32 Hedgehog have been recorded to be present within the site being observed during bats surveys in August 2018 within the Chalcroft Farm complex and Foxholes Farm area.

10.4.33 The Site itself is considered to offer suitable foraging and hibernation habitat for this species, particularly along the edges of the Site and within boundary hedgerows and deadwood. Pastures used for cattle are known to be important foraging areas for hedgehogs.

Dormouse

10.4.34 Arboreal habitat potentially suitable for hazel dormouse *Muscardinus avellanarius* at Horton Heath are the ancient woodland blocks to the north and south of the site and elements of the network of hedgerows that border and traverse the Site (those that are connected, continuous and of sufficient size/maturity). The remaining woodlands have been dissected into smaller copses and left as fragmented blocks of suitable habitat with connectivity being restricted by the railway to the south and urban development to the north and east. The network of hedgerows across the site have undergone regular management resulting (generally) in species poor hedges that provide little in the way of important food or dispersal corridors between these woodlands. Habitat suitability would indicate potential dormouse presence within the woodlands but likely to be only a small population due to the habitat isolation and the limited connectivity for the exchange of animals between local populations, with large lengths of the hedgerows not providing suitable conditions). Data provided by Hampshire Biodiversity Information Centre identified one record of Hazel Dormouse 1.6km east of the Site boundary. This record was identified as hazel nut evidence inferring species presence. Historic survey

results from Ecologica in 2014 and Johns Associates in 2018 concluded that dormouse were not present on Site. The results of updated survey conducted in 2020 have confirmed presence of dormouse in one section of woodland at Horton Heath (north of the solar farm) with a confirmed sighting of a dormouse and three nests present and the potential habitats associated with the Site.

Otter and Water Vole

10.4.35 Data provided by Hampshire Biodiversity Information Centre returned 1 record of water vole within the Site footprint in the last 10 years. There are also a number of other records approximately 1.8km north west of the Site near Bishopstoke. Historic surveys carried out by Ecologica Ltd in 2014 showed a very low level of otter and water vole activity throughout the site, further surveys in 2015 found no signs of water vole.

10.4.36 There are no desk study records of Otter within the site boundary. There are however five historical records of Otter within the last ten years approximately 1.8km north west of the Site near Bishopstoke. Historic surveys conducted by Ecologica Associates Ltd in 2014 found only one set of footprints in the northwest corner of the site. Repeat surveys done in 2015 found no evidence of otter.

10.4.37 There are no reported desk study records of mink (*Neovision vison*) being within or in close proximity to the site. Previous surveys by Ecologica Associates Ltd in 2014 recorded three mink tracks. One in the south west corner of the Site and three in the north west corner. Mink evidence was also found during the repeat surveys in 2015 with footprints being found in the north west boundary. During the surveys conducted by Johns Associates Ltd in 2018 and 2020, one potential mink scat was recorded along a watercourse to the north of the site. Potential mink footprints were also found along a hedgerow to the south of the site.

10.4.38 Results of the water vole surveys carried out by Johns Associates between 2018 and 2020 suggest that, due to the deterioration of suitability of the watercourses and grazing pressure, it is likely that this species is absent from the site. Otter surveys have not identified confirmed presence, however, otter are likely to use the site as connective habitat within the wider landscape.

Invertebrates

10.4.39 The Site offers habitats suitable for a range of invertebrate species including marshy grassland and riparian woodland. The majority of the grassland has limited floristic diversity and therefore offers limited suitability to invertebrates.

10.4.40 Overall, the Site is considered likely to support an invertebrate assemblage comprising predominantly common and widespread species, (owing to the grazed improved grassland that is dominant), although more floristically diverse and complex habitats (such as the boundary woodlands and marshy grassland) may support more notable species.

10.5 INHERENT DESIGN AND ASSUMED MITIGATION

10.5.1 During the assessment of the potential effects of the Proposed Development on ecological receptors for this ES Chapter (see Section 10.6), a specification for inherent design mitigation measures has been developed based on current the parameter plans for the Site. The Wider OPA Site boundary is shown on Drawing No. EAST200403-RLP-01, Rev. P1 (Site Boundary Plan). These measures are shown on the following parameter plans:

- Access – Drawing No. EAST200403-PP01-P14
- Land Use – Drawing No. EAST200403-PP02-P19
- Green Infrastructure – Drawing No. EAST200403-PP03-P19
- Building Heights – Drawing No. EAST200403-PP04-P16
- Demolition – Drawing No. EAST200403-DEP01-P1

10.5.2 These ecological measures are set out in Table 10.7

10.5.3 In designing appropriate measures, it is important to consider what is realistically achievable and the likely extent to which success can be guaranteed, based on good practice guidance and evidence. Existing proposed inherent mitigation features (as defined in Table 10.7) are considered realistically achievable, locally relevant and will result in a high level of success.

10.5.4 Additional mitigation, enhancement and compensation is also included in the Proposed Development and is detailed in Table 10.11 and Section 10.7 of this Chapter.

Table 10.7. Inherent Design and Assumed Mitigation

Receptor and Potential Effect	Inherent Design and Assumed Mitigation
All on-site and off-site receptors	Construction – all OPA phases Production of a detailed Construction Environmental Management Plan (CEMP) to include (but not limited to): - Clear construction site demarcation to ensure minimal footprint of temporary/permanent development. - General best practice pollution prevention and response measures - Access and construction routing - Phasing and timings schedule - A comprehensive suite of measures to avoid sediment transport and deposition at source (e.g. locations of stockpiles away from watercourses, grassing/sheeting of longer term spoil heaps, methodologies for materials transportation and the cleaning of machinery and control measures for the suppression of construction dust and the installation temporary SuDS features as appropriate) combined with additional interception measures (e.g. erection of slit barrier fencing, settlement lagoons) and provision of other control measures e.g. Siltbuster or equivalent to prevent sediment discharge in extreme weather. - Suppression of construction dust and litter - Limit to the duration and timing of construction activities to avoid crepuscular activity periods and other sensitive periods (e.g. to local residents) - Restrictions to lighting during sensitive periods - Chemical handling and storage control measures - Regular inspection of measures and habitats to ensure effectiveness and to identify remedial actions. - Tree and hedgerow protection and provision of other barrier fencing where needed; - Measure to protect wildlife (e.g. those needed under any protected species method statements/licences), detailed method statements, Ecological Clerk of Works, monitoring and management intervention; - Avoidance of open excavations and entrapment risk for wildlife - Measures to control and prevent the spread of invasive species - CEMP management responsibilities, duties, monitoring, reporting, improvement plan - Communications and complaints reporting system
Watercourses	Construction and Operation - all phases - All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) (measured from the bank edge of water limit when watercourse is full).

	Watercourse severance has been minimised through the development.
Hedgerows	Construction and Operation - all phases - Hedgerow removal and severance has been minimised through the design process. Where the removal or severance of hedgerows is unavoidable, compensatory native species rich hedgerows will be created. Construction - all phases - Suitable protection barriers will be installed to prevent accidental damage to retained hedgerows and their root protection areas.
Woodland	Construction and Operation - all phases - Woodland and tree removal and severance has been minimised through the design process. Retained existing woodlands will be enhanced through the introduction of a high quality Woodland Management Plan, discussed later in the ES Chapter.
Ponds	Construction and Operation – Wider OPA only - One poor condition pond at Chalcroft Farm will be protected and restored through the development. A net increase in ponds will be delivered by the proposals. All ponds will be subject to high quality conservation management, discussed later in the ES Chapter.
Marshy Grassland	Construction and Operation – Wider OPA only - Areas of important marshy grassland have been excluded from the development area where possible and will be enhanced by the project. These areas will be subject to high quality conservation management discussed later in the ES Chapter.

10.5.5 A key aim of the Proposed Development is to deliver Biodiversity Net Gain through the creation and enhancement of habitats. Almost all areas of Important habitats including Priority habitats have been avoided by the project design process and these are being retained and enhanced in perpetuity as part of the development. Important habitats will be created or extended through the development, resulting in a net gain in priority habitats and wider biodiversity. The development has primarily been situated on low value habitats (primarily improved grassland

and arable land), not classified as being Important receptors and scoped out of further assessment in this ES. An assessment of the net change and gains in these Important habitats is presented in this ES Chapter.

10.5.6 The Biodiversity Metric 3.0⁴⁵ will be used in 2021, prior to planning determination to determine a further evaluation of habitat loss and compensatory habitat requirement using these criteria.

10.5.7 Areas of newly created habitat will subsequently be incorporated into the detailed Site design for future Reserved Matters applications to ensure that Biodiversity Net Gain is achieved.

10.5.8 There also remains the potential to deliver additional Biodiversity Net Gain off site through a suitable and effective funding mechanism or directly delivered on EBC owned land, to be agreed with Eastleigh Borough Council.

10.6 POTENTIAL ENVIRONMENTAL IMPACTS & EFFECTS

10.6.1 Potential impacts and effects on ecological receptors are assessed after considering the inherent design mitigation outlined in Table 10.7.

10.6.2 The assessment has been informed by the specific details of all proposed development works and inherent design mitigation. The evaluation of effects on receptors are considered following the methodology presented below, and in the context of the construction methodology set out in Chapter 3 of this Environmental Statement, which describes the methods and approaches to the delivery of construction and occupation of the Proposed Development. Inherent design mitigation consists of those set out in Table 10.7.

10.6.3 For some environmental topics, published guidance is available with regard to significance evaluation. Where such guidance exists, even in draft, it has been utilised to inform the development of the significance evaluation methodologies contained within this ES. This is applicable to Chapter 10: Ecology which uses Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal²⁰.

⁴⁵ Natural England Joint Publication JP029 the Biodiversity Metric 2.0
<http://publications.naturalengland.org.uk/publication/5850908674228224>



10.6.4 Potential impacts and effects are set out in Table 10.8.



Table 10.8 Potential Impacts and Effects

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Receptor	Important/valued and/or legally protected?	Relevant criteria	Potentially significant effects/legal contravention and causal changes
River Itchen Special Area of Conservation (SAC) and River Itchen SSSI	Biodiversity conservation value Legal Status	Internationally and nationally important Habitat Regulations	Construction – all phases Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may affect designated features including macrophytes (in particular <i>Rununculus fluitans</i> and <i>Callitriche-Batrachio</i> vegetation), macroinvertebrates (in particular Southern damselfly <i>Coenagrion mercurial</i>), fish (notably Bullhead <i>Cottus gobio</i>, Brook lamprey <i>Lampetra planeri</i> and Atlantic salmon <i>Salmo salar</i>) and otter (<i>Lutra lutra</i>), notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the River Itchen and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion

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			etc and change in flow characteristics and quality entering the Itchen at SU 46198 16665 Occupation – all phases Discharge of soil/sediment from operation/occupation of the site from various activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may affect designated features including macrophytes, macroinvertebrates and fish, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.
Solent Maritime SAC and relevant constituent sites i.e. SSSI and NNR etc including: Bouldnor and Hamstead Cliffs SSSI Chichester Harbour SSSI Eling and Bury Marshes SSSI	Biodiversity conservation value Legal Status	Internationally and nationally important Habitat Regulations	Construction – all phases Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the Solent resulting in a reduction in water quality including

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Hurst Castle and Lymington River Estuary SSSI Hythe to Calshot Marshes SSSI King's Quay Shore SSSI Langstone Harbour SSSI Lee-on-The Solent to Itchen Estuary SSSI Lincegrove and Hackett's Marshes SSSI Lower Test Valley SSSI Medina Estuary SSSI Newtown Harbour SSSI North Solent SSSI Thorness Bay SSSI Upper Hamble Estuary and Woods SSSI Yar Estuary SSSI Boldre Foreshore LNR Calshot Marshes LNR Chichester and Langstone Harbours Ramsar Chichester and Langstone Harbours SPA Gutner Point LNR Hackett's Marsh LNR Hayling Billy LNR Hook with Warsash LNR Manor Farm LNR			exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the Solent with potential effects on eutrophication levels and associated features of interest. Occupation – all phases Discharge of soil/sediment from operation/occupation of the site from various activities into on site/receiving watercourses and transport into the Solent introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the Solent influencing a possible reduction in water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and transport into the Solent.
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Mercury Marshes LNR Newtown Harbour NNR Newtown Marshes (Now an NNR, but small part retained as an LNR) LNR North Solent NNR Nutborne Marshes LNR Pilsey Island LNR Solent and Dorset Coast pSPA Solent and Southampton Water Ramsar Solent and Southampton Water SPA Sturt Pond LNR The Kench, Hayling Island LNR West Hayling LNR Yarmouth to Cowes MCZ			
Solent SPA and constituent sites i.e. SSSI, NNR etc Brading Marshes to St. Helen's Ledges SSSI Eling and Bury Marshes SSSI Hurst Castle and Lymington River Estuary SSSI Hythe to Calshot Marshes SSSI King's Quay Shore SSSI	Biodiversity conservation value Legal Status	Internationally and nationally important Habitat Regulations	Construction – all phases Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and transported into the Solent resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the Solent with

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Lee-on-The Solent to Itchen Estuary SSSI			potential effects on eutrophication levels and associated features of interest.
Lincegrove and Hackett's Marshes SSSI			Occupation/operation – all phases
Lower Test Valley SSSI			Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. Species associated with this site are:
Lymington River Reedbeds SSSI			Black-tailed godwit (<i>Limosa limosa islandica</i>), Non-breeding
Lymington River SSSI			Common tern (<i>Sterna hirundo</i>), Breeding
Medina Estuary SSSI			Dark-bellied brent goose (<i>Branta bernicla bernicla</i>), Non-breeding
Newtown Harbour SSSI			Little tern (<i>Sternula albifrons</i>), Breeding
North Solent SSSI			Mediterranean gull (<i>Ichthyophaga melanocephalus</i>), Breeding
River Test SSSI			Ringed plover (<i>Charadrius hiaticula</i>), Non-breeding
Ryde Sands and Wootton Creek SSSI			Roseate tern (<i>Sterna dougallii</i>), Breeding
Sowley Pond SSSI			Sandwich tern (<i>Thalasseus sandvicensis</i>), Breeding
The New Forest SSSI			Teal (<i>Anas crecca</i>), Non-breeding
Thorness Bay SSSI			Waterbird assemblage, Non-breeding
Titchfield Haven SSSI			Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.
Upper Hamble Estuary and Woods SSSI			The site contains a range of habitats that support these bird species including estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.
Whitecliff Bay and Bembridge Ledges SSSI			
Yar Estuary SSSI			
Bembridge MCZ			
Boldre Foreshore LNR			
Calshot Marshes LNR			
Chessell Bay LNR			
Hackett's Marsh LNR			
Hook with Warsash LNR			
Lymington-Keyhaven Marshes LNR			

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Manor Farm LNR Mercury Marshes LNR Newtown Harbour NNR Newtown Marshes (Now an NNR, but small part retained as an LNR) LNR North Solent NNR Solent and Dorset Coast pSPA Solent and Isle of Wight Lagoons SAC Solent and Southampton Water Ramsar Solent Maritime SAC South Wight Maritime SAC Sturt Pond LNR Titchfield Haven LNR Titchfield Haven NNR Yarmouth to Cowes MCZ			
Solent and Southampton Water Ramsar	Biodiversity conservation value Legal Status	Internationally important Ramsar Convention	Construction – all phases Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and transported into the Solent resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the Solent with

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			potential effects on eutrophication levels and associated features of interest. Occupation/operation – all phases Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. Species associated with this site are: Ringed plover Dark-bellied brent goose Teal Black-tailed godwit Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and thereby the Solent associated features of interest. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.
New Forest SPA and constituent sites ie:	Biodiversity conservation value Legal Status	Internationally and nationally important Habitat Regulations Wildlife and Countryside Act 1981 as amended	Construction – all phases No likely significant effects Occupation/operation – all phases Recreational disturbance and habitat degradation e.g. erosion/poaching from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. Species associated with this site are: Nightjar (<i>Caprimulgus europaeus</i>) Woodlark (<i>Lullula arborae</i>) Dartford warbler (<i>Sylvia undata</i>) Honey buzzard (<i>Pernis apivorus</i>) Kingfisher (<i>Alcedo atthis</i>)

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			Hobby (<i>Flaco Subbuteo</i>) Wood warbler (<i>Phylloscopus trohilus</i>) Lapwing (<i>Vanellus vanellus</i>) Redshank (<i>Tringa tetanus</i>) Curlew (<i>Numenius arquata</i>) Snipe (<i>Gallinago gallinago</i>) Stonechat (<i>Saxicola torquata</i>) Redstart (<i>Phoenicurus phoenicurus</i>) Assemblage or lowland heathland birds
New Forest SAC and constituent sites ie: Landford Bog SSSI Langley Wood and Homan's Copse SSSI Loosehanger Copse and Meadows SSSI Roydon Woods SSSI The New Forest SSSI Whiteparish Common SSSI	Biodiversity conservation value Legal Status	Internationally and nationally important Habitat Regulations Wildlife and Countryside Act 1981 as amended	Construction – all phases No likely significant effects Occupation/operation – all phases Recreational disturbance and habitat degradation e.g. erosion/poaching from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. Change in nutrient status in localised areas and change in associated habitat condition from dog urine/faeces Habitats and species associated with this site are: H3110. Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>); Nutrient-poor shallow waters with aquatic vegetation on sandy plains H3130. Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>; Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels H4010. Northern Atlantic wet heaths with <i>Erica tetralix</i>; Wet heathland with cross-leaved heath H4030. European dry heaths H6410. Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>); Purple moor-grass meadows H7140. Transition mires and quaking bogs; Very wet mires often identified by an unstable 'quaking' surface

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			H7150. Depressions on peat substrates of the <i>Rhynchosporion</i> H7230. Alkaline fens; Calcium-rich springwater-fed fens H9120. Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion roburi-petraeae</i> or <i>Ilici-Fagenion</i>); Beech forests on acid soils H9130. <i>Asperulo-Fagetum</i> beech forests; Beech forests on neutral to rich soils H9190. Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains H91D0. Bog woodland* H91E0. Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>); Alder woodland on floodplains* S1044. <i>Coenagrion mercuriale</i>; Southern damselfly S1083. <i>Lucanus cervus</i>; Stag beetle S1166. <i>Triturus cristatus</i>; Great crested newt
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction – All phases Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater

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			catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC Occupation – All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is limited to the majority of this SINC, therefore the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence.
Round Copse, West End SINC	Biodiversity conservation value Legal status	County importance. NERC Act 2006 section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction – All phases Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to

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			substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC Occupation - All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of adjacent habitat areas.
Hearts Copse, West End SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of	Construction - All phases Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other

		Principal Importance Local BAP Priority Habitats WCA 1981	deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC Occupation- All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of adjacent habitat areas.
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Treeline Break SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction All phases Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC Occupation - All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban
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			operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of adjacent habitat areas.
Field West of Treeline Break (Long Field) SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction All phases Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC Occupation All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality

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			including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas from the PRoW in the centre of this site.
Quobleigh Pond and Woods SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction All phases Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion

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			etc and change in flow characteristics and quality entering the SINC Occupation - All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Fair Oak School Meadow SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction All phases No effect Occupation All phases Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Wyvern Technical College Meadow SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.

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Ponds and Meadow adjacent to Wyvern Technical College SINC	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Occupation -All phases Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Various non-statutory designated sites – Air Quality Only (Details to be confirmed once air quality modelling outputs completed and in consultation with EBC and NE)	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction Deposition of dust arising from construction activities. Operation Change to vegetation composition due to an increase in nitrogen deposition (arising from increased road traffic movements).
Watercourses (other than those listed or associated with designated sites listed above) – Priority Habitat	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction All phases Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the watercourses, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the watercourses through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the watercourses and associated features of interest. Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion

			etc and change in flow characteristics and quality entering the watercourses Occupation All phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the watercourses affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Ponds – Priority Habitat – see bats, birds, amphibians and reptiles as well	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction All phases Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the ponds, affecting notable features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged into the ponds through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the watercourses and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including ponds) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of

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			sediment/erosion etc and change in flow characteristics and quality entering the ponds Fragmentation through the construction process and introduction of artificial features including roads, drainage and changes in levels/impermeable surfaces Occupation – All Phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses / surface runoff and into the ponds affecting notable features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Parkland – Priority Habitat	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006 section 41 Habitats and Species of Principal Importance</i> Local BAP Priority Habitats WCA 1981	Construction – all phases Deposition of dust and foliage dieback Change in local drainage conditions causing dieback Operation – all phases Lack of sensitive specimen management leading to dominance by a few species and poor condition becoming established leading to a reduction in biodiversity Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Marshy Grassland – see also bats, barn owl, amphibians and reptiles	Biodiversity conservation value Legal status	County importance. none	Construction – all phases Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the habitat, affecting its notable features through reduction in soil and water quality including exposure to

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			substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the habitat through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the habitat and associated features of interest. Modification of onsite hydrological regime including small scale 0/1st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland) or supply of water to this habitat, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the watercourses Occupation – all phases Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into marshy grassland and into the habitat affecting it through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development, with potential effects on eutrophication levels in the marshy grassland and associated features of interest. Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Hedgerows – Priority Habitat – see also bats, birds, amphibians and reptiles	Biodiversity conservation value Legal status	County importance. NERC Act 2006 section 41 Habitats and Species of Principal Importance	Construction – all phases Deposition of dust and foliage dieback Direct loss and/ or fragmentation of habitat Compaction and damage within root protection area causing die back

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		Local BAP Priority Habitats Hedgerow Regulations	Change in local drainage conditions causing dieback Operation - all phases Lack of hedgerow management leading to dominance by a few species and poor condition becoming established
Broadleaved Semi-Natural Woodland – Priority Habitat – see also bats, dormouse, birds, amphibians and reptiles	Biodiversity conservation value Legal status	County importance. <i>NERC Act 2006</i> section 41 Habitats and Species of Principal Importance Local BAP Priority Habitats WCA 1981	Construction – all phases Deposition of dust and foliage dieback Direct loss and/ or fragmentation of habitat Compaction and damage within root protection area causing die back Change in local drainage conditions causing dieback Operation – all phases Lack of woodland management leading to dominance by a few species and poor condition becoming established leading to a reduction in biodiversity Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.
Bats	Biodiversity conservation value Legal status	Internationally and nationally important. Habitats Regulations <i>NERC Act 2006</i> section 41 Species of Principal Importance Local BAP Priority Species WCA 1981	Construction Direct loss of bat roosts in buildings and trees and risk of injury / killing Direct loss of key foraging habitat Severance of key habitat connecting roost and feeding/breeding areas etc Operation Road collision mortality Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat)
Great crested newt	Biodiversity conservation value Legal status	Internationally and nationally important. Habitats Regulations	Construction Direct loss of great crested newt resting, overwintering and breeding habitat and risk of injury / killing

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		NERC Act 2006 section 41 Species of Principal Importance Local BAP Priority Species WCA 1981	Direct loss of key foraging habitat Severance of key habitat connecting breeding and foraging/resting/overwintering habitat Pollution of breeding ponds and connecting ditches Operation Road collision mortality Entrapment in road and drainage infrastructure Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat) Increased predation from growth in resident cat population
Otter	Biodiversity conservation value Legal status	Internationally and nationally important. Habitats Regulations NERC Act 2006 section 41 Species of Principal Importance Local BAP Priority Species WCA 1981	Construction Habitat fragmentation due to habitat loss and disturbance Injury / killing from construction traffic collisions Operation Increase road collision risk Pollution of watercourses and direct acute/chronic effects potentially leading to mortality or reduction in fish / food Influence on habitat connectivity as a result of increased lighting from roads, housing and other infrastructure, recreational disturbance including growth in resident dog population and severance of rivers through road crossings
Water Vole	Biodiversity conservation value Legal status	Nationally important. NERC Act 2006 section 41 Species of Principal Importance Local BAP Priority Species WCA 1981	Construction Habitat fragmentation due to habitat loss and disturbance Permanent land take causing death/injury/disturbance/loss of bank top habitat and places of shelter and protection. Operation Pollution of watercourses and direct acute/chronic effects potentially leading to mortality or reduction in fish / food

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			Influence on habitat connectivity and suitability as a result of increased lighting from roads, housing and other infrastructure, recreational disturbance including growth in resident dog and cat population and severance of rivers through road crossings
Dormouse	Biodiversity conservation value Legal status	Nationally important. Habitats Regulations NERC Act 2006 section 41 Species of Principal Importance Local BAP Priority Species WCA 1981	Construction Habitat fragmentation and severance due to habitat loss and disturbance Permanent land take causing death/injury/disturbance/loss of arboreal habitat and places of shelter and protection. Operation Influence on habitat connectivity and suitability as a result of increased lighting from roads, housing and other infrastructure, recreational disturbance. Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat) Increased predation from growth in resident cat population
Reptiles	Biodiversity conservation value Legal status	District Importance WCA 1981 NERC Act 2006 section 41 Species of Principal Importance Local BAP Priority Species	Construction Direct loss of reptile resting, overwintering and breeding habitat and risk of injury / killing Direct loss of key foraging habitat Severance of key habitat connecting breeding and foraging/resting/overwintering habitat Operation Road collision mortality Entrapment in road and drainage infrastructure Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat) Increased predation from growth in resident cat population

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Badger	Legal status	Local importance <i>Protection of Badgers Act 1992</i>	Construction Damage/destruction of setts Killing/ injury of individuals Disturbance to badgers including from piling if required Loss of some foraging habitat, and/or access to some foraging habitat Potential for isolation of a main sett Operation Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on setts foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat) Increased disturbance arising from increased recreational disturbance
Breeding birds including barn owl	Biodiversity conservation value Legal status	District Importance WCA 1981 NERC Act 2006 section 41 Species of Principal Importance Local BAP Priority Species	Construction Direct loss of bird nesting, breeding and feeding habitat and risk of injury / killing Direct loss of key nesting/foraging habitat Severance of key habitat Disturbance, in particular to Schedule 1 species (Barn owl and Kingfisher) recorded on site, including from piling if required. Operation Road collision mortality Disturbance from recreational pressure, in particular to Schedule 1 species (Barn owl) recorded on site Increased predation from growth in resident cat population
Invertebrates	Biodiversity conservation value Legal status	District Importance WCA 1981 NERC Act 2006 section 41 Species of	Construction Habitat fragmentation due to habitat loss and disturbance, modification of key life stage plants, microclimate and wet/dry habitats. Operation

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		Principal Importance	Increase in lighting modifying the behaviour of and availability of habitat to night flying species
		Local BAP Priority Species	Decline in habitat diversity through a lack of conservation management and recreational pressure.
Fish	Biodiversity conservation value Legal status	District Importance WCA 1981 NERC Act 2006 section 41 Species of Principal Importance Salmon and Freshwater Fisheries Act 1975 Local BAP Priority Species	Construction Discharge of soil/sediment from construction activities into on site/receiving watercourses, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects. Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses with potential effects on eutrophication levels and associated features of interest. Piling may be required for the proposed development. Fish are particularly sensitive to vibration that may arise as a result of piling or other noisy percussive activities during construction within or close to watercourses. Occupation Discharge of soil/sediment from operation/occupation of the site from various activities into on site/receiving watercourses, deposition of the sediment may affect key habitat features, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects. Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of

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			fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development, with potential effects on eutrophication levels. Change in riverine flow associated with modified drainage and effects on fish and associated habitat features from a change in flow regime.
Invasive Species	Invasive and Non Native Species requiring control/eradication	Wildlife and Countryside Act 1981 as amended	Construction A range of invasive non-native species of plants are present within the development site (including Japanese knotweed, Himalayan balsam, Rhododendron and variegated yellow archangel) and these could be transferred across the site through construction activities if not adequately identified, suitable construction control measures and put in place and INNS management measures implemented Operation A range of invasive non-native species of plants are present within the development site and these could be transferred across the site through occupational and management activities if not adequately identified, suitable construction control measures and put in place and INNS management measures implemented.

10.7 ADDITIONAL MITIGATION, COMPENSATION & ENHANCEMENT MEASURES

10.7.1 This section outlines the additional mitigation, compensation and enhancement measures that are required to address the significant effects which remain following the implementation of the inherent design mitigation measures outlined in Table 10.7. Those measures only applicable to the Wider OPA and Link Road are highlighted with an asterisk *, otherwise it should be assumed that the measures shown apply to all aspects of the One Horton Heath development

10.7.2 Table 10.11 details the additional mitigation, compensation and enhancement measures required in order to properly mitigate for the remaining significant effects described in Section 10.6.

Table 10.11 Additional mitigation, compensation and enhancement measures

Topic	Mitigation
River Itchen Special Area of Conservation (SAC) and Riven Itchen SSSI	OPERATION – ALL PHASES A - Discharge of foul water (sewage) to Peel Common Waste Water Treatment Works and not into the River Itchen. Suitable treatment at Peel Common Wastewater Treatment Works within consented limits. Comprehensive SuDS infrastructure including features such as interceptors, permeable paving, rain gardens, swales, vegetated SuDS ponds, sediment forebays. Successful treatment of nitrates and phosphates using robust methodology. Purchase of Defra/NE/ EBC nutrient credits if necessary to demonstrate overall net zero nutrient emissions from the development, monitoring regime to demonstrate no emissions and feedback mechanism to enable effective management intervention if necessary. This approach has been designed with the express requirement that the development is nutrient neutral and does not result in any increase in nitrate, phosphate or sediment runoff into the receiving watercourses, the River Itchen and the Solent systems. Please refer to Chapter 11 of this ES for full details. CONSTRUCTION AND OPERATION – ALL PHASES B - Retention, protection and restoration of watercourses and associated riparian corridors including bankside and in channel enhancement measures, promoting reconnection with the floodplain and Stage 0 features, delivered in accordance with a detailed long-term water features management plan. All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) with an associated 10-50m green infrastructure corridor (measured from the bank edge of water limit when watercourse is full i.e. bankfull). This buffer will be enhanced with appropriate habitat management and habitat creation measures that complement and enhance the watercourses. CONSTRUCTION AND OPERATION – ALL PHASES C - Inclusion of wetland/watercourse features within the GI and watercourse corridors to promote on-site attenuation of surface waters emerging from the OHH area to enable long-term high quality wetland/watercourse habitats, promoting physical habitat diversity, reconnection to the floodplain and Stage 0 headwater processes, to ensure no further downstream mobilisation of soil/riverine sediment and nutrients and to provide ecologically valuable natural filtration features within the development such as wetland areas reed beds etc that is above and beyond the net

	zero nutrient and sediment emission measures described in above. CONSTRUCTION AND OPERATION – ALL PHASES D - A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of these features is maintained. Please refer to Chapter 11 of this ES for full details. OPERATION – ALL PHASES E - Potable water abstraction and balancing River Itchen flows is comprehensively dealt through strategic measures being implemented by Southern Water e.g. Review of Consent process and Water Resource Management Plan. Please refer to Chapter 11 of this ES and Environment Agency for full details. CONSTRUCTION – ALL PHASES F - Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.
Solent SAC/SPA/Ramsar	See A-F OPERATION – ALL PHASES G - Provision of an extensive network of footpaths and play/sports facilities within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km (optional shorter 2.5km) SANG route, that includes at least 2.5km of this within semi-natural settings that offer a greater element of open space provision provided by more distant open greenspace, including at least 2.5km of route that allows informal access and dog walking. Please refer to Chapter 14 of this ES and the SANG Comparison assessment prepared by Tyler Grange for full details. OPERATION – ALL PHASES H - Subject to final negotiations between EBC and with Natural England in relation to the extent on-site features prevent recreational impacts, if required, an appropriate financial contribution will be paid into the Solent Aware SPD fund, to effectively prevent associated disturbance effects that could result in likely significant effects on the features of interest (bird assemblage and supporting habitats). Please refer to Chapter 14 of this ES and SANG Comparison assessment prepared by Tyler Grange for full details.
New Forest SAC and SPA	See A-H
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	CONSTRUCTION AND OPERATION – * WIDER OPA AND LINK ROAD ONLY I - A 50m wide green infrastructure corridor (measured from tree stems on outer edge of perimeter woodland) will separate the developed areas from areas of highly valuable woodland habitat, including ancient woodland. This 50m corridor includes a 15m ecological buffer in which the following specifications apply: No excavation (except SuDS, respecting RPAs) No construction related activities or activities likely to have negative effect on habitat Biodiversity Enhancement permitted No additional lighting >0.5lux

	The 15m ecological buffer will be demarcated with a significant species rich hedgerow, fence earth bank and ditch features to prevent public access into these areas. The ecological buffer will be designed to effectively extend the existing habitats within the SINC woodland and to provide a transitional habitat and structure, replicating natural woodland expansion/succession to increase diversity and to protect and enhance the existing habitat. The zone between 15-50m from the habitat boundary will be subject to the following restricted uses and constraints: Footpaths Cycleways SuDS Biodiversity enhancement permitted Minimal additional lighting where this does not compromise ecological function, ideally >0.5lux. It is envisaged that ecological enhancement measures will be delivered at the earliest available opportunity. CONSTRUCTION AND OPERATION – ALL PHASES J - Design measures have been included to avoid changes to the hydrological regime or soil levels that would negatively affect trees and shrubs. CONSTRUCTION AND OPERATION – ALL PHASES K - A detailed long term habitat management plan will be implemented to deliver habitat management and enhancement. CONSTRUCTION AND OPERATION – ALL PHASES L - A robust habitat monitoring regime will be implemented to provide feedback on the efficacy of buffers and habitat creation measures and to inform a responsive system of remedial works to ensure that the condition of retained habitats is maintained, the intended habitat conditions of newly created habitats are realised and that the long-term function of these features is maintained. Public access is excluded from the majority of this SINC; therefore, the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence. OPERATION – ALL PHASES M - An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details. OPERATION – ALL PHASES N - The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details.
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Round Copse, West End SINC	* WIDER OPA AND LINK ROAD ONLY See G and I to N There is no public access to this SINC
Hearts Copse, West End SINC	* WIDER OPA AND LINK ROAD ONLY See G and I to N There is no public access to this SINC as it is in private ownership
Treeline Break SINC	* WIDER OPA AND LINK ROAD ONLY See G and I to N CONSTRUCTION AND OPERATION – ALL PHASES O - A 15m ecological buffer subject to the specifications as described in G will be implemented between the link road and the woodland to protect the habitat and to ensure that root protection areas are respected. OPERATION – ALL PHASES P - Acoustic fencing will be installed to minimise operational phase noise disturbance from the link road on sensitive habitats (and associated species receptors e.g. breeding birds). Please refer to Chapter 12 of this ES for full details. There is no public access to this SINC
Field West of Treeline Break (Long Field) SINC	* WIDER OPA AND LINK ROAD ONLY See G and I to N OPERATION – ALL PHASES Q - Provision of circa 2.2ha of grassland recreational areas delivered through the Allington Lane infrastructure works will provide suitable alternative areas for recreation as part of the OHH open space strategy. CONSTRUCTION AND OPERATION – ALL PHASES Q - The new woodland and grassland extension to the west of the existing woodland will provide high value habitat for a broad range of receptors including GCN, bats, birds, invertebrates and reptiles.
Quobleigh Pond and Woods SINC	See A to N CONSTRUCTION AND OPERATION – ALL PHASES R - Flight pond will be restored and enhanced for invertebrates, fish, amphibian, reptiles, birds and mammals.
Fair Oak School Meadow SINC	* WIDER OPA AND LINK ROAD ONLY See A to N
Wyvern Technical College Meadow SINC	* WIDER OPA AND LINK ROAD ONLY See A to N
Ponds and Meadow adjacent to Wyvern	* WIDER OPA AND LINK ROAD ONLY See A to N

Technical College SINC	
Watercourses	CONSTRUCTION AND OPERATION _ ALL PHASES See A to N S - A watercourse restoration plan following best practice as defined by the UK River Restoration Centre will be implemented, linked to a Woodland Management Plan for associated woodlands.
Hedgerows	CONSTRUCTION AND OPERATION – ALL PHASES T - Hedgerows with mature trees at regular intervals (SINC or non SINC) will have a 15m buffer (measured from tree stems) Hedgerows without mature trees or only occasional trees (SINC or non SINC) will have a minimum 5m ecological buffer (plus RPA around any mature trees to be retained) measured from the centre line of the hedgerow. These buffers will be subject to the following constraints: No excavation (except SuDS, respecting RPAs) No construction related activities or activities likely to have negative effect on habitat Biodiversity Enhancement permitted No additional lighting >0.5lux All hedgerows will be managed for biodiversity in accordance with a long-term management plan, including new planting to infill gaps in hedgerows and ongoing high quality management. See A to N
Parkland	* WIDER OPA AND LINK ROAD ONLY See A to N CONSTRUCTION AND OPERATION U - Parkland will also be extended and enhanced through adapting the grassland management and the planting of large, protected specimen oak trees in this field.
Woodland	* WIDER OPA AND LINK ROAD ONLY See A to N CONSTRUCTION AND OPERATION – ALL PHASES V - Where the removal or severance of woodland is unavoidable, compensatory native species rich planting will occur in accordance with the prescriptions agreed with Eastleigh Borough Council. New areas of woodland and woodland extension are also included in the proposals. Woodland management and monitoring will be implemented from the start of the project delivery process if not before to maximise habitat value, structure and longevity, including the control of non-native invasive species. A woodland management plan will be prepared and implemented for all woodlands.

Bats	CONSTRUCTION– ALL PHASES W - Roost Loss A number of low status roosts for common bats species are present within the buildings on site, the majority of which are to be demolished. These will be compensated for through the provision of roost type/species appropriate bat boxes and “natural” roost features created on retained trees in appropriate locations (i.e. in close proximity to existing flight lines, adjacent to high value habitat, relatively undisturbed and unlit areas). A maternity roost for brown long-eared bats will be directly affected by the demolition. A mitigation roost will be constructed in the vicinity of Hearts Copse following the criteria for this roost type as described in the bat mitigation guidelines and delivered under licence. Substantial tree and shrub planting will reinforce the connection this location to existing flight lines and maternity roost locations within Hearts Copse. The removal of mature trees has been minimised through careful masterplan layout. Where trees containing potential roost features are retained, these will be protected by the buffer specifications as described for hedgerows (O & P) and woodland (G). Where trees with potential roost features are required to be removed, a precautionary principle will be applied that assume the presence of the most likely roost type for the feature. This is considered appropriate as tree roosts are dynamic and can be readily occupied/abandoned by a variety of species at any given time, making firm assessment of the roost types present particularly challenging. Mitigation and licensing requirements will therefore be informed by subsequent inspections prior to any impacts on these features. CONSTRUCTION AND OPERATION – ALL PHASES X - Bat Habitat Severance/Road - Collision Mitigation Three locations where the link road severs high value foraging and connective habitat have been identified on site that present a traffic collision risk to bats. • Minimising habitat loss in these areas by designing the road approach to the habitat in a perpendicular orientation • Minimising the width of the road crossing • Clear span design • Incorporation of suitable measures to ensure safe crossing following the most recent research into the efficacy of such measures to minimise road collision mortality. • A minimum height of 3m under bridge crossings. • Sensitive design of any lighting that may be required in these areas. • Additional compensatory habitat may be required.
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	Significant vegetation will be retained either side of the construction areas in these locations to encourage the use of underpasses. CONSTRUCTION AND OPERATION – ALL PHASES Y - Bat Loss/degradation of foraging habitat Mitigation The loss of foraging habitat across the site has been minimised through the retention of key high value habitats. These habitats will be protected and enhanced, with connectivity between these habitat areas and potential roost sites maintained both across the site and the wider landscape through the measures to protect these specific habitats (see G, H, I, O & P). OPERATION – ALL PHASES Z - Bat Lighting Mitigation (also for other nocturnal species). Specific design measures have been included as a key design principle to keep additional lighting to a minimum across the site. Where lux levels must exceed 0.5 lux on any valuable retained or created habitat, a further detailed assessment of the lighting design to include wavelength, directionality and duration/timing of lighting will be conducted to inform lighting design for each phase of development to ensure no deleterious effect on affected habitats. OPERATION – ALL PHASES AA - Bats and cat predation (also relevant to other fauna). Home owner packs will be provided to identify the effects of cat predation on biodiversity and to encourage homeowners to not own cats, or if they do to take a responsible approach including keeping cats in at night, use of bells etc. CONSTRUCTION AND OPERATION – ALL PHASES AB - Bat mitigation efficacy. A suite of species and habitat specific monitoring regimes will be implemented to provide feedback on the efficacy of mitigation and habitat creation measures for specific receptor species in accordance with legislative and policy requirements. This monitoring will inform a responsive system of remedial measures to ensure that the intended function of these measures is realised and maintained in perpetuity. See A to N and T to X above.
Great crested newt and common amphibians	CONSTRUCTION – ALL PHASES AC - Great crested newt and other amphibian/reptile mitigation Key amphibian/reptile habitats have been avoided and will be protected and enhanced. Where valuable amphibian habitats must be affected, appropriate measures will be implemented to ensure that animals are protected during construction and that there is no detrimental effect on the favourable conservation status of the populations present on site. These measures include: Implementation of a series of linked Natural England EPS licences coordinated through the implementation of a great crested newt masterplan Avoidance measures to minimise areas of habitat loss and to maintain habitat connectivity Sensitive approach to vegetation clearance including consideration of timing, duration and methodology. This will employ measures of phased vegetation removal in accordance with best practise under a detailed method statement. Exclusion from working areas until works have ceased and habitat reinstated Capture from exclusion areas and translocation to retained receptor habitat Translocation of the southern low size class Chalcroft population from the single poor quality pond and associated poor quality and disturbed terrestrial habitat to two restored and two created and optimised northern ponds in Chalcroft Wood on land owned by Eastleigh Borough Council, with high quality terrestrial

	habitat. This will provide a closer association with the larger part of the existing metapopulation promoting breeding success and genetic diversity, increasing the territory used by great crested newt into optimal habitat for the construction phase. Chalcroft pond will be retained and restored, including connectivity for great crested newt to return to the southern habitat. A necklace of new ponds will link the northern population with restored and enhanced habitats in the south. Measures to prevent entrapment in drainage systems and connectivity across roads Provision of enhanced terrestrial habitat and a network of created and restored ponds and wetlands, together with resting and overwintering habitats Habitat compensation and enhancement measures will be delivered in accordance with industry best practise ensuring compliance with policy and legislation. The management of recreation on site, particularly dogs, and cats through landscape design, householder packs and appropriate fencing and signage in key habitat areas, particularly close to known and potential future breeding ponds and adjacent habitats. Key elements of GCN mitigation will be delivered under EPS mitigation licences, as appropriate, with additional elements of the development delivered under a non-licensable method statement where the likelihood of an offence is negligible. Habitat connectivity will be maintained through the designation, enhancement and long-term management of ecological connective corridors to maintain the landscape permeability both on and across the site for amphibians/reptiles. Measures will also be incorporated in road designs at key severance locations to facilitate safe passage to avoid collision mortality and entrapment risk. Measures have been incorporated into the masterplan to minimise risk and disturbance to the populations present and to facilitate the recolonisation and natural dispersal/recolonisation of the population across the site post construction to new wildlife ponds constructed to appeal to breeding GCN via a comprehensive network of suitable connective habitats linking existing populations to these new features. All habitats managed for amphibians/reptiles will be subject to a detailed long-term management plan. OPERATION – ALL PHASES See A to N
Otter	CONSTRUCTION AND OPERATION – ALL PHASES AD - Watercourse road crossing points locations to be designed as single span to facilitate continuation of hydrological regime and landscape permeability for terrestrial mammals including otter. Mammal crossings will be included where provision for mammal access cannot be incorporated along the stream at water level. CONSTRUCTION AND OPERATION – ALL PHASES AE - Watercourse restoration using best practice measures (e.g. as defined by the UK River Restoration Centre) to increase physical habitat diversity, reconnect to the floodplain, increase light levels to the channel and riparian corridor and maximise species diversity, controlling non-native species. See A – N

Water Vole	CONSTRUCTION AND OPERATION – ALL PHASES AF - Water vole has not been recorded during 2018-2020, although historic records are present. Further surveys will be conducted on a precautionary basis to ensure no effects and legal compliance. Measures outlined in A – O will be relevant to habitat that could be used by this species. Measures set out in FF and GG are also relevant and will avoid effects on water vole should they be recorded in the area in the future.
Reptiles	CONSTRUCTION AND OPERATION – ALL PHASES See A – N and AB above.
Badger	CONSTRUCTION – ALL PHASES AG - Precautionary surveys will continue to ensure any new setts or re-activated setts are taken into account in the construction programme. Should it be necessary Natural England badger licences will be sought to ensure legal compliance in terms of disturbance of any setts and any requirements for exclusions/sett closure/provision of artificial setts. Deep excavations will be covered at night or suitable mammal ladders/earth maps will be provided to allow large mammals including badger to exit excavations. See A to N and T to X above
Breeding birds	See measures listed above CONSTRUCTION – ALL PHASES AH - Habitats requiring works during the nesting season (March-September inclusive) will be subject to a pre-works nesting bird check with measures implemented to protect any active nests likely to be affected by the works. Please refer to Chapter 12 for full details on measures to minimise construction disturbance through noise and vibration. CONSTRUCTION – ALL PHASES AI - Where areas of suitable nesting habitat for valued bird species is lost, suitable alternative nesting habitat will be provided on site through a network of bird boxes, features incorporated to buildings, new tree and shrub planting and enhanced grassland, woodland, wetlands. CONSTRUCTION AND OPERATION – ALL PHASES AJ - The existing barn owl nest box will be relocated into the area in the vicinity of Hearts Copse (>600m from link road) to reduce road collision risk associated with the link road. Sections where the road is situated on an embankment present the highest risk followed by sections at existing ground levels. In these areas, the creation of obstacles (natural or artificial with a preference for natural) which force birds to fly higher across roads will be incorporated into the scheme. Verges south of the link road will be maintained in a short, thatchless condition to reduce the potential for field vole. Enhancement of grassland habitats and hedgerow buffers for small mammals will provide additional foraging resource for barn owl to compensate for the loss of low value foraging habitats. CONSTRUCTION AND OPERATION – ALL PHASES AK - Measures to minimise the risk of disturbance to birds during nesting will be implemented as defined elsewhere above in A to O, including both on site and off sites notably SSSI, SPA and SAC habitats. Please refer to Chapter 12 for full details on measures to minimise construction and occupation disturbance through noise and vibration.
Invertebrates	CONSTRUCTION AND OPERATION – ALL PHASES AL - The loss of high value invertebrate habitats across the site has been minimised through the retention of key high value habitats. These habitats will be

	protected and enhanced, with connectivity between these habitat areas and potential roost sites maintained both across the site and the wider landscape through the measures to protect these specific habitats (See measures listed above).
Fish	See A – N, S and other measures listed above. Please refer to Chapter 12 for full details on measures to minimise construction disturbance through noise and vibration.
Dormouse	* WIDER OPA AND LINK ROAD ONLY See A- N and other measures above CONSTRUCTION AM - Ongoing annual dormouse tube monitoring to inform licencing requirements for each phase of the project. CONSTRUCTION AN - Avoidance of hedgerow severance within 150m of confirmed records (currently only within woodland north of solar farm). OPERATION AO - No lighting associated with road crossings of woodland copses CONSTRUCTION AND OPERATION AP - Installation of suitable aerial structure (e.g. Peoples Trust for Endangered Species, 2019⁴⁶) across roads severing woodland, in combination with suitable planting to strengthen vegetated corridors OPERATION AQ - Provision of replacement woodland adjacent to key retained woodland corridor to ensure no net loss of habitat and to maximise availability of food plants throughout the active part of the year. CONSTRUCTION AND OPERATION AR - Provision of 150 dormouse nest boxes within retained woodland corridors to maximise and extend suitable nesting habitats. Annual nest box monitoring to be carried out. CONSTRUCTION AND OPERATION AS - Sensitive woodland management to restore and maximise opportunities for dormouse (e.g. Forestry Commission 2019⁴⁷ and the Hampshire Dormouse Group⁴⁸) OPERATION AT - Provision of suitable advice in homeowner packs and on information boards regarding dormouse and responsible enjoyment of the countryside. NB public access is prevented to key habitats suitable for dormouse.

⁴⁶ <https://ptes.org/wp-content/uploads/2019/09/White-Hughes-2019-dormouse-bridge.pdf>

⁴⁷ Forestry Commission. 2019. A Protocol for Undertaking Woodland Management in England Where Dormice Are Present. Protocol Version 4.

⁴⁸ <https://hampshiredormousegroup.co.uk/resources/woodland-habitat-management/>



Invasive species	CONSTRUCTION AND OPERATION – ALL PHASES AU - An invasive species management plan will be implemented to control the existing populations of Japanese Knotweed, Himalayan Balsam, Variegated Yellow Archangel, Rhododendron , Mink and other non-native species, present on site.
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10.8 RESIDUAL ENVIRONMENTAL IMPACTS & EFFECTS

River Itchen Special Area of Conservation (SAC) and Constituent River Itchen SSSI

Baseline Conditions

10.8.1 The River Itchen SAC comprises the River Itchen SSSI. SSSI are designated for national (as opposed to international) nature conservation interest. However, SSSI boundaries often coincide with European sites and therefore can provide an indication of the conservation status of European sites as many of the ecological conditions that help to support site integrity are shared across the designations.

10.8.2 A summary of the SSSI condition as specified by Natural England⁴⁹ is presented below:

- Favourable Condition – 10.37%
- Unfavourable Recovering – 55.74%
- Unfavourable No Change – 27.99%
- Unfavourable Declining – 5.51 %
- Destroyed- 0.39%.

10.8.3 Key reasons for more adverse conditions include: inappropriate water levels, siltation, nutrient enrichment, water abstraction, forestry and woodland management, agriculture – undergrazing, inappropriate cutting/mowing.

Predicted Effects and Their Significance

10.8.4 NE has identified key objectives that need to be met in order to maintain or restore the integrity of the site, and that contributes to achieving the Favourable Conservation Status of its Qualifying Features of Interest by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;

⁴⁹ <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>

- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

10.8.5 Consideration of how the development proposals could affect these objectives and therefore cause a negative effect on the Favourable Conservation Status of the SAC and/or SSSI is set out below, separated into constructional and operational effects and for the OPA Phase 1 application and Wider OPA Application and Link Road.

Construction OPA Phase 1

10.8.6 The site preparation and construction activities associated with OPA Phase 1 will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ditches and other drainage features associated with the site. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter the watercourses draining the site, which in turn form a confluence with the River Itchen, upstream of Itchen Valley Country Park.

10.8.7 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including paints, solvents, plastics etc could be transported through soil and through water into the watercourses draining the site, and into the River Itchen.

10.8.8 The detailed design of the drainage system and site-wide water management plan will ensue that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there

is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.9 The adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.10 Consequently, taking into account the very high Sensitivity of the River Itchen SAC and SSSI, and the likely Low magnitude of change after the implementation of the inherent and adopted mitigation, Moderate effects, that could be significant are predicted.

10.8.11 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the River Itchen from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.12 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the River Itchen. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the Itchen from the site.

10.8.13 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of

bare soil are minimised in extent and duration. The development of permeant vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.14 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the Sensitivity of the Itchen remains the same, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant) effects could arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a **Not Significant Likely Construction Effect** will occur to the River Itchen SAC and SSSI from sediment or other associated pollution during construction associated with the OPA Phase 1.

10.8.15 During the implementation of each phase of the development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease. Inputs of these nutrients to the soil or water environment as part of construction will not occur. At the start of the phased construction works i.e. the duration of the OPA Phase 1 construction, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Itchen would not occur. This would result in a **Not Significant Likely Construction Effect** occurring from a reduction in nutrient inputs.

10.8.16 No air quality effects from emissions associated with the construction of (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the OPA Phase 1 will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Construction Wider OPA

10.8.17 The site preparation and construction activities associated with OPA Phase 1 will act as a proof of evidence for the Wider OPA and associated Link Road. They will demonstrate that the

inherent and adopted mitigation set out in Table 10.7 in Section 10.7 of this Chapter of the ES and the Additional Mitigation set out in Table 10.11 are a robust set of pollution and erosion prevention measures, that will continue to be prescribed in a site wide and multi-phase Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.18 The development will also result in the phased cessation of agricultural activities across the whole of the site, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the River Itchen. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural and progressive reduction in baseline sediment input to the Itchen from the site.

10.8.19 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from each specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.20 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.21 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the Sensitivity of the Itchen is Very High, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant) effects could arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a **Not Significant Likely Construction Effect** will occur to the River Itchen SAC and SSSI from sediment or other associated pollution during construction associated with the Wider OPA and Link Road.

10.8.22 During the implementation of each successive phase of the wider development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease and existing areas of bare soil largely associated with arable fields and localised areas of cattle poaching including along watercourses will also cease to be present. Inputs of these nutrients to the soil or water environment as part of construction will not occur. During the predicted 10 year phased construction works i.e. the duration of the Wider OPA, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Itchen will be Low (e.g. after year 5 of no new inputs occurring to each phase), thereby resulting in a **Significant positive likely construction effect** from a reduction in site baseline nutrient effects occurring.

10.8.23 No air quality effects from emissions associated with the construction of the Wider OPA (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, **no significant construction likely effects** associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Occupation OPA Phase 1

10.8.24 The developed OPA Phase 1 will result in a change from the agricultural land use to maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable

e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1 and the Link Road. Soil erosion from these areas is considered to be negligible.

10.8.25 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1 and Link Road.

10.8.26 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.27 Specifications in The SuDS Manual⁵⁰ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details). With regards to potential criticism of SuDS in treating fine sediment, the OHH water specialists consider it is not appropriate to assess the performance of the proposed SuDS scheme at OHH against other SuDS schemes that have been designed and built in recent years.

10.8.28 Until very recently, surface water drainage systems that were being offered for adoption by sewerage undertakers were required to be designed in accordance with Sewers for Adoption (SfA). SfA required the system being offered for adoption to comprise a continuous pipe system from inlet to outfall. This led to SuDS features being moved 'offline' such that the treatment processes associated with them were bypassed in the most polluting events. Southern Water implemented this by requiring all SuDS and above ground storage features to have no hydraulic link back in to the system being offered for adoption. The effect of this was that attenuation storage for rainfall events up to the 1 in 30 year return period had to be located within the underground system being offered for adoption.

10.8.29 The issue was exacerbated by SfA's requirement for surface water pipe systems to be 'self-cleansing'. These requirements forced designers to produce surface water drainage systems that transported sediment through the drainage system to the outfall to avoid siltation of

⁵⁰ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

underground assets. With OFWAT's approval of the Code for Adoption in October 2019, and its implementation in April 2020, designers now have much more flexibility to utilise the treatment processes within SuDS features.

10.8.30 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.31 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.32 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.33 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption of Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver (not the Itchen) within a consented discharge limit. The on-

site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients.

10.8.34 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England⁵¹ and confirmed that the project achieves nutrient neutrality. The SUDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.35 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.36 No air quality effects from emissions associated with the operation/occupation of the OPA Phase 1 (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, **no significant operational/occupational likely effects** associated with the OPA Phase 1 will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Occupation Wider OPA

10.8.37 The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving,

⁵¹ Advice on Achieving Nutrient Neutrality for New Development in the Solent Region (Natural England, 2020)

amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible.

10.8.38 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the Wider OPA and Link Road and these have been discussed in detail in the previous Section associated with the OPA Phase 1 and Link Road. The implementation and successful monitoring and management of these will act as a incrementally growing proof of evidence for each reserved matter application associated with the Wider OPA as they come forward and are completed and occupied. As such there will be a robust phase by phase increment of both site occupation and treatment and management of sediments, other contaminants and nutrients.

10.8.39 As previously discussed, sediment generated from the Wider OPA will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.40 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance.

10.8.41 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore

No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions. Please refer to Chapter 11 of this ES for full details.

10.8.42 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen. Please refer to Chapter 11 of this ES for full details.

10.8.43 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver (not the Itchen) within a consented discharge limit. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients. Please refer to Chapter 11 of this ES for full details.

10.8.44 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SuDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions. Please refer to Chapter 11 of this ES for full details.

10.8.45 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.46 No air quality effects from emissions associated with the operation/occupation of the Wider OPA (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, no significant operational/occupational likely effects associated with the Wider OPA and Link Road will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Solent Maritime SAC (and other constituent designated sites)

Baseline Conditions

10.8.47 The Solent Maritime SAC comprises a large number of constituent SSSI that are listed in Table 10.8 of this Chapter of the ES, alongside a number of Local Nature Reserves, National Nature Reserves and a Marine Conservation Zone. SSSI and NNR are designated for national (as opposed to international) nature conservation interest, with LNR being of more local interest. However, SSSI boundaries often coincide with European sites and therefore can provide an indication of the conservation status of European sites as many of the ecological conditions that help to support site integrity are shared across the designations.

10.8.48 A summary of the SSSI condition for each of the constituent SSSIs as specified by Natural England⁵² is presented below in Table 10.12:

Table 10.12. Summary of SSSI Condition for Solent Maritime SAC

Bouldnor and Hamstead Cliffs SSSI
• Favourable Condition – 82.93% • Unfavourable Recovering – 14.48%
Chichester Harbour SSSI
• Favourable Condition – 6.77% • Unfavourable Recovering – 3.10% • Unfavourable No Change – 9.69% • Unfavourable Declining – 80.44 %

⁵² <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>

Eling and Bury Marshes SSSI
• Favourable Condition – 11.45% • Unfavourable No Change – 88.55%
Hythe to Calshot Marshes SSSI
• Unfavourable Recovering – 89.35% • Unfavourable No Change – 10.65%
King's Quay Shore SSSI
• Favourable Condition – 86.15% • Unfavourable Recovering – 4.62% • Partially Destroyed- 0.2%.
Langstone Harbour SSSI
• Favourable Condition – 8.39% • Unfavourable Recovering – 91.05% • Unfavourable No Change – 0.56%
Lee on Solent to Itchen Estuary SSSI
• Favourable Condition – 73.40% • Unfavourable No Change – 26.60%
Lincegrove and Hacketts Marshes SSSI
• Unfavourable No Change – 100%
Lower Test Valley SSSI
• Favourable Condition – 65.15% • Unfavourable Recovering –34.85%
Medina Estuary SSSI
• Favourable Condition – 14.25% • Unfavourable No Change – 85.75%
Newtown Harbour SSSI
• Favourable Condition – 55.95% • Unfavourable Recovering – 9.16% • Unfavourable No Change – 34.55% • Unfavourable Declining – 0.35 %

North Solent SSSI
• Favourable Condition – 67.39% • Unfavourable Recovering – 30.87% • Unfavourable No Change – 0.83% • Unfavourable Declining – 0.91 %
Thorness Bay SSSI
• Favourable Condition – 30.18% • Unfavourable Declining – 69.82 %
Upper Hamble Estuary and Woods SSSI
• Favourable Condition – 86.01% • Unfavourable Recovering – 11.23% • Unfavourable No Change – 2.76%
Yar Estuary SSSI
• Favourable Condition – 31.52% • Unfavourable Recovering – 2.01% • Unfavourable No Change – 66.47%

10.8.49 Key reasons for more adverse conditions relevant to OHH include water pollution, freshwater pollution, high nutrient status, agriculture runoff.

Predicted Effects and Their Significance

10.8.50 NE has identified key objectives that need to be met in order to maintain or restore the integrity of the site, and that contributes to achieving the Favourable Conservation Status of its Qualifying Features of Interest by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;

- The populations of qualifying species; and
- The distribution of qualifying species within the site.

10.8.51 Consideration of how the development proposals could affect these objectives and therefore cause a negative effect on the Favourable Conservation Status of the SAC and/or SSSI is set out below, separated into constructional and operational effects and for the OPA Phase 1 application and Wider OPA Application and associated Link Road.

Construction OPA Phase 1

10.8.52 The site preparation and construction activities associated with OPA Phase 1 will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ditches and other drainage features associated with the site. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter the watercourses draining the site, which in turn form a confluence with the River Itchen, upstream of Itchen Valley Country Park and flow downstream to the Itchen Estuary and the wider Solent Maritime SAC.

10.8.53 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including paints, solvents, plastics etc could be transported through soil and through water into the watercourses draining the site, and into the River Itchen and then downstream to the wider Solent Maritime SAC.

10.8.54 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.55 The inherent and adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan and implemented, that will adopt

all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success. Please refer to Chapter 11 of this ES for full details.

10.8.56 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the Solent Maritime SAC and constituent SSSI, NNR, LLN, MCZ etc from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.57 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the Solent. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the Itchen from the site.

10.8.58 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.59 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction

phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the Sensitivity of the Solent is very high, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant) effects could arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a **Not Significant Likely Construction Effect** will occur to the Solent Maritime SAC and SSSI from sediment or other associated pollution during construction associated with the OPA Phase 1.

10.8.60 During the implementation of each phase of the development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease. Inputs of these nutrients to the soil or water environment as part of construction will not occur. At the start of the phased construction works i.e. the duration of the OPA Phase 1 and Link Road construction, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Solent Maritime SAC would not occur. This would result in a **Not Significant Likely Construction Effect** occurring from a reduction in nutrient inputs.

10.8.61 No air quality effects from emissions associated with the construction of (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the OPA Phase 1 and Link Road will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Construction Wider OPA

10.8.62 The site preparation and construction activities associated with OPA Phase 1 and the Link Road will act as a proof of evidence for the Wider OPA and associated Link Road that the inherent and adopted mitigation set out in Table 10.7 in Section 10.7 of this Chapter of the ES and the Additional Mitigation set out in Table 10.11 are a robust set of pollution and erosion prevention measures, that will continue to be prescribed in a site wide and multi-phase Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of

the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.63 The development will also result in the phased cessation of agricultural activities across the whole of the site, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the Solent Maritime SAC. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural and progressive reduction in baseline sediment input to the Itchen from the site.

10.8.64 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from each specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.65 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the downstream Solent Maritime SAC.

10.8.66 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent Maritime SAC is Very High, the Magnitude of change is Very Low and therefore Moderate (could be significant) effects could arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a **Not Significant Likely**

Construction Effect will occur to the Solent Maritime SAC and SSSI from sediment or other associated pollution during construction associated with the Wider OPA.

10.8.67 During the implementation of each successive phase of the wider development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease and existing areas of bare soil largely associated with arable fields and localised areas of cattle poaching including along watercourses will also cease to be present. Inputs of these nutrients to the soil or water environment as part of construction will not occur. During the predicted 10 year phased construction works i.e. the duration of the Wider OPA, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Solent Maritime will be Low (e.g. after year 5 of no new inputs occurring to each phase), thereby resulting in a **Significant positive likely construction effect** from a reduction in site baseline nutrient effects would occur.

10.8.68 No air quality effects from emissions associated with the construction of the Wider OPA (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the SPA (or constituent SSSIs) as a result of changes in air quality.

Occupation OPA Phase 1

10.8.69 The developed OPA Phase 1 will result in a change from the agricultural land use to a maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1. Soil erosion from these area is considered to be negligible.

10.8.70 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1 and Link Road.

10.8.71 Sediment generated from the OPA Phase 1 will enter the formal SuDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.72 Specifications in The SuDS Manual⁵³ prepared for professional SuDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details).

10.8.73 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details.

10.8.74 Taking into account the change in land use and Additional Measures set out in Table 10.7 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent Maritime SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.75 The detailed design of the drainage system and site-wide water management plan will ensue that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance

⁵³ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

of the greenfield runoff rate, factoring in changes attributed to climate change. As a result there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.76 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver within a consented discharge limit which then flows into the Solent maritime SAC between Gosport and Lee on the Solent. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients.

10.8.77 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SuDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.78 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent Maritime SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.79 No air quality effects from emissions associated with the operation/occupation of the OPA Phase 1 (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, **no significant operational/occupational likely effects** associated with the OPA Phase 1 and Link Road will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Occupation Wider OPA

10.8.80 The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA. Soil erosion from these areas is considered to be negligible.

10.8.81 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the Wider OPA and Link Road and these have been discussed in detail in the previous Section associated with the OPA Phase 1. The implementation and successful monitoring and management of these will act as an incrementally growing proof of evidence for each reserved matter application associated with the Wider OPA as they come forward and are completed and occupied. As such there will be a robust phase by phase increment of both site occupation and treatment and management of sediments, other contaminants and nutrients.

10.8.82 As previously discussed, sediment generated from the Wider OPA will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.83 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any

SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details.

10.8.84 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent Maritime SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.85 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen and Solent Maritime OPA.

10.8.86 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver within a consented discharge limit and the Solent Maritime SAC between Gosport and Lee on the Solent. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients. Please refer to Chapter 11 of this ES for full details.

10.8.87 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SuDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.88 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent Maritime SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.89 No air quality effects from emissions associated with the operation/occupation of the Wider OPA (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, **no significant operational/occupational likely effects** associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the SAC (or constituent SSSIs) as a result of changes in air quality.

Solent SPA (and other constituent designated sites)

Baseline Conditions

10.8.90 The Solent SPA comprises a large number of component SSSI, NNR, LNR and MCZ. SSSI are designated for national (as opposed to international) nature conservation interest. However, SSSI boundaries often coincide with European sites and therefore can provide an indication of the conservation status of European sites as many of the ecological conditions that help to support site integrity are shared across the designations.

10.8.91 A summary of the SSSI condition as specified by Natural England⁵⁴ is presented below in Table 10.13.

⁵⁴ <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>

Table 10.13 SSSI Condition for the Solent SPA

Brading Marshes to St. Helen's Ledges SSSI • Favourable Condition – 32.18% • Unfavourable Recovering – 46.69% • Unfavourable No Change – 9.32% • Unfavourable Declining – 11.80 %
Eling and Bury Marshes SSSI • See Table 10.12
Hurst Castle and Lymington River Estuary SSSI • See Table 10.12
Hythe to Calshot Marshes SSSI • See Table 10.12
King's Quay Shore SSSI • See Table 10.12
Lee-on-The Solent to Itchen Estuary SSSI • See Table 10.12
Lincegrove and Hackett's Marshes SSSI • See Table 10.12
Lower Test Valley SSSI • See Table 10.12
Lymington River Reedbeds SSSI • Favourable Condition – 35.50% • Unfavourable Recovering – 64.50%

Lymington River SSSI

- Unfavourable No Change – 100%

Medina Estuary SSSI

- See Table 10.12

Newtown Harbour SSSI

- See Table 10.12

North Solent SSSI

- See Table 10.12

River Test SSSI

- Favourable Condition – 17.91%
- Unfavourable Recovering – 37.53%
- Unfavourable No Change – 43.52%
- Unfavourable Declining – 1.03 %

Ryde Sands and Wootton Creek SSSI

- Favourable Condition – 71.92%
- Unfavourable Recovering – 22.25%
- Unfavourable No Change – 5.84%

Sowley Pond SSSI

- Favourable Condition – 66.62%
- Unfavourable No Change – 33.38%

The New Forest SSSI - Favourable Condition – 54.82% - Unfavourable Recovering – 41.63% - Unfavourable No Change – 2.11% - Unfavourable Declining – 1.43 %
Thorness Bay SSSI - Favourable Condition – 26.04% - Unfavourable Declining – 69.82 %
Titchfield Haven SSSI - Favourable Condition – 17.91% - Unfavourable Recovering – 37.53% - Unfavourable No Change – 43.52% - Unfavourable Declining – 1.03 %
Upper Hamble Estuary and Woods SSSI See Table 10.12
Whitecliff Bay and Bembridge Ledges SSSI - Favourable Condition – 99.07% - Unfavourable No Change – 0.93%
Yar Estuary SSSI See Table 10.12

10.8.92 Key reasons for more adverse conditions relevant to OHH include: General public disturbance, public access-disturbance, coastal squeeze, freshwater pollution, water pollution, agriculture/runoff, pollution discharge, nutrients-nitrogen.

Predicted Effects and Their Significance

10.8.93 NE has identified key objectives that need to be met in order to maintain or restore the integrity of the site, and that contributes to achieving the Favourable Conservation Status of its Qualifying Features of Interest by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

10.8.94 Consideration of how the development proposals could affect these objectives and therefore cause a negative effect on the Favourable Conservation Status of the SPA and/or SSSI etc is set out below, separated into constructional and operational effects and for the OPA Phase 1 application and Wider OPA Application and associated Link Road.

Construction OPA Phase 1

10.8.95 The site preparation and construction activities associated with OPA Phase 1 will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ditches and other drainage features associated with the site. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter the watercourses draining the site, which in turn form a confluence with the River Itchen, upstream of Itchen Valley Country Park and flow downstream to the Itchen Estuary and the wider Solent and Southampton Water SPA and associated SSSI.

10.8.96 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including paints,

solvents, plastics etc could be transported through soil and through water into the watercourses draining the site, and into the River Itchen and then downstream to the wider Solent and Southampton Water SPA and associated SSSI.

10.8.97 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.98 The inherent and adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.99 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the wider Solent and Southampton Water SPA and associated SSSI etc from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.100 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil

that can feed sediment into the receiving watercourses and the Solent. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the Itchen from the site.

10.8.101 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.102 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the Sensitivity of the Solent is very high, the Magnitude of change reduces to negligible and therefore **No Likely Significant Effect** will occur to the wider Solent and Southampton Water SPA and associated SSSI from sediment or other associated pollution during construction associated with the OPA Phase 1.

10.8.103 During the implementation of each phase of the development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease. Inputs of these nutrients to the soil or water environment as part of construction will not occur. At the start of the phased construction works i.e. the duration of the OPA Phase 1 construction, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the wider Solent and Southampton Water SPA and associated SSSI would be negligible. This would result in a **Not Significant Likely Construction Effect** occurring from a reduction in nutrient inputs.

10.8.104 No air quality effects from emissions associated with the construction of (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the OPA Phase 1 and Link Road will occur to the habitats or species that comprise the designated features of interest of the SPA (or constituent SSSIs) as a result of changes in air quality.

Construction Wider OPA

10.8.105 The site preparation and construction activities associated with OPA Phase 1 will act as a proof of evidence for the Wider OPA and associated Link Road that the inherent and adopted mitigation set out in Table 10.7 in Section 10.7 of this Chapter of the ES and the Additional Mitigation set out in Table 10.11 are a robust set of pollution and erosion prevention measures, that will continue to be prescribed in a site wide and multi-phase Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.106 The development will also result in the phased cessation of agricultural activities across the whole of the site, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the Solent and Southampton Water SPA. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural and progressive reduction in baseline sediment input to the Itchen from the site.

10.8.107 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from each specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.108 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As

a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the downstream Solent Maritime SAC. Please refer to Chapter 11 of this ES for full details.

10.8.109 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water SPA and constituent SSSIs remains the same, the Magnitude of change reduces to negligible and therefore **No Significant Likely Construction Effect** will occur to the Solent and Southampton Water and constituent SSSIs from sediment or other associated pollution during construction associated with the Wider OPA and associated Link Road.

10.8.110 During the implementation of each successive phase of the wider development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease and existing areas of bare soil largely associated with arable fields and localised areas of cattle poaching including along watercourses will also cease to be present. Inputs of these nutrients to the soil or water environment as part of construction will not occur. During the predicted 10 year phased construction works i.e. the duration of the Wider OPA and associated Link Road, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Solent and Southampton Water SPA and constituent SSSIs will be Low (e.g. after year 5 of no new inputs occurring to each phase), thereby resulting in a **Significant positive likely construction effect** from a reduction in site baseline nutrient effects would occur.

10.8.111 No air quality effects from emissions associated with the construction of the Wider OPA (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the SPA (or constituent SSSIs) as a result of changes in air quality.

Occupation OPA Phase 1

10.8.112 The developed OPA Phase 1 will result in a growth in 400 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere. The Solent coast, particularly its mudflats, shingle and saltmarshes, provide essential winter feeding and roosting grounds for birds that spend the winter here. The Solent and Southampton Water SPA is designated for its feeding and roosting estuarine birds.

10.8.113 A wide range of recreational activities which take place on the Solent coast (including those areas associated with the Solent and Southampton Water SPA, Ramsar Site and associated SSSI) can disturb birds. Birds may need to be more alert, reducing the amount of food that they eat. They may move away from the disturbance, reducing their feeding time and using energy to fly. Substantial disturbance may cause food-rich areas to be little used by the birds or avoided altogether, leading to other areas hosting a higher density of birds and intensifying the competition for the available food. Cumulatively this can lead to increased bird mortality, or to a bird having less energy available at the end of the winter period to fly back to its breeding grounds. If birds cannot complete their migratory journey or are not in sufficiently good condition to breed when they arrive, then the bird population can drop⁵⁵.

10.8.114 Research carried out in 2009-2013 found that by far the most popular activity taking place at the Solent coast is walking. Along with jogging and cycling, this accounted for 91% of all recreational activity. Other types of recreational use included surfing, horse riding and rowing. Dogs off lead accounted for 47% of all incidents where birds flew more than 50m to escape disturbance. The research predicted a 13% increase in visitor numbers to the Solent coast as a result of planned new housing⁵⁶.

10.8.115 The Phase 1 OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and in high quality green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities (including connected Public Rights of Way linking to other greenspace) and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access

⁵⁵ Bird Aware Solent (2017) *Solent Recreation Mitigation Strategy*, https://solent.birdaware.org/media/29372/Bird-Aware-Solent-Strategy/pdf/Solent_Recreation_Mitigation_Strategy.pdf

⁵⁶ Ibid.

and dog walking. Please refer to Chapter 14 of this ES for full details of these measures and how they meet the requirements of formal SANG. These would be delivered as part of the Wider OPA application.

10.8.116 The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys, residents of One Horton Heath will wish to also visit the Solent and Southampton SPA / Solent Maritime SAC. This is because many people who visit the Solent coast do so for the sea views and the feeling of 'being beside the sea'. In a survey of visitors to the Solent, one-third of respondents stated that nothing could be done to make an alternative site more attractive to them⁵⁷. The Phase 1 OPA part of One Horton Heath, comprising 300 homes, is located within the Solent Mitigation and Disturbance Zone. The journey from parts of One Horton Heath to the SPA/SAC is relatively direct, on B roads, and less than 5.6km.

10.8.117 Eastleigh Borough Council is in ongoing negotiations with Natural England with respect to the effectiveness of the on-site recreational provision. Should these negotiations conclude that further measures are required, a financial contribution to the Solent Recreation Mitigation Strategy SPD will be made to removing this additional pressure from the Solent SAC/SPA and Ramsar sites.

10.8.118 With the inclusion of the additional on site (and local connected) recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES and set out in more detail in Chapter 14 of this ES, together with any necessary payments to the Solent Recreational Mitigation Strategy SPD, it is considered reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water SPA and constituent SSSIs remains the same, the Magnitude of change reduces to negligible and therefore **No Significant Likely Occupational/Operational Effect** will occur to the Solent and Southampton Water SPA/Ramsar from recreational pressure associated with the Phase 1 OPA.

⁵⁷ Ibid.



- 10.8.119 The developed OPA Phase 1 will result in a change from the agricultural land use to a maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1 Road. Soil erosion from these areas is considered to be negligible.
- 10.8.120 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1.
- 10.8.121 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.
- 10.8.122 Specifications in The SuDS Manual⁵⁸ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details).
- 10.8.123 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced

⁵⁸ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91> (accessed 20.11.20)

performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details.

10.8.124 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water SPA and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.125 The detailed design of the drainage system and site-wide water management plan will ensue that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.126 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption of Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver within a consented discharge limit which then flows into the Solent and Southampton Water SPA between Gosport and Lee on the Solent. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients.

10.8.127 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SuDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.128 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water SPA and associated SSSIs has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.129 No air quality effects from emissions associated with the operation/occupation of the Wider OPA (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, **no significant operational/occupational likely effects** associated with the OPA Phase 1 and Link Road will occur to the habitats or species that comprise the designated features of interest of the SPA (or constituent SSSIs) as a result of changes in air quality.

Occupation Wider OPA

10.8.130 The developed Wider will result in a growth in up to 2500 local housing units, directly associated with the OHH project together with the associated Link Road. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere. The Solent coast, particularly its mudflats, shingle and saltmarshes, provide essential winter feeding and roosting grounds for birds that spend the winter here. The Solent and Southampton Water SPA is designated for its feeding and roosting estuarine birds.

10.8.131 A wide range of recreational activities which take place on the Solent coast (including those areas associated with the Solent and Southampton Water SPA, Ramsar Site and associated SSSI) can disturb birds. Birds may need to be more alert, reducing the amount of food that they eat. They may move away from the disturbance, reducing their feeding time and using energy to fly. Substantial disturbance may cause food-rich areas to be little used by the birds or avoided altogether, leading to other areas hosting a higher density of birds and intensifying the competition for the available food. Cumulatively this can lead to increased bird mortality, or to a bird having less energy available at the end of the winter period to fly back to

its breeding grounds. If birds cannot complete their migratory journey or are not in sufficiently good condition to breed when they arrive, then the bird population can drop⁵⁹.

10.8.132 Research carried out in 2009-2013 found that by far the most popular activity taking place at the Solent coast is walking. Along with jogging and cycling, this accounted for 91% of all recreational activity. Other types of recreational use included surfing, horse riding and rowing. Dogs off lead accounted for 47% of all incidents where birds flew more than 50m to escape disturbance. The research predicted a 13% increase in visitor numbers to the Solent coast as a result of planned new housing⁶⁰.

10.8.133 The Wider OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking. A detailed comparison of the on site provision against SANG criteria has been completed. Please refer to Chapter 14 for full details.

10.8.134 The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys. However, residents of One Horton Heath will wish to also visit the New Forest SPA.

10.8.135 Eastleigh Borough Council is in ongoing negotiations with Natural England with respect to the effectiveness of the on-site recreational provision. Should these negotiations conclude that further measures are required, a financial contribution to the Solent Recreation Mitigation Strategy SPD will be made to removing this additional pressure from the Solent SAC/SPA and Ramsar sites.

10.8.136 With the inclusion of the additional on site (and local connected) recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES and set out in more detail in Chapter 14 of this ES, together with any necessary payments to the Solent Recreational

⁵⁹ Bird Aware Solent (2017) *Solent Recreation Mitigation Strategy*, https://solent.birdaware.org/media/29372/Bird-Aware-Solent-Strategy/pdf/Solent_Recreation_Mitigation_Strategy.pdf

⁶⁰ Ibid.

Mitigation Strategy SPD, it is considered reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water SPA and constituent SSSIs remains the same, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant effects) could arise. Subject to final negotiations with Natural England, financial contribution to the Solent Bird Aware SPD fund to support specific recreation mitigation measures at the SPD would be made, and therefore **No Significant Likely Occupational/Operational Effect** will occur to the Solent and Southampton Water SPA/Ramsar from recreational pressure associated with the Wider OPA.

10.8.137 The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA. Soil erosion from these areas is considered to be negligible.

10.8.138 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the Wider OPA and Link Road and these have been discussed in detail in the previous Section associated with the OPA Phase 1. The implementation and successful monitoring and management of these will act as an incrementally growing proof of evidence for each reserved matter application associated with the Wider OPA as they come forward and are completed and occupied. As such there will be a robust phase by phase increment of both site occupation and treatment and management of sediments, other contaminants and nutrients.

10.8.139 As previously discussed, sediment generated from the Wider OPA will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.140 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details.

10.8.141 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water SPA and associated SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.142 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen and Solent and Southampton Water SPA and constituent SSSIs from the Wider OPA.

10.8.143 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver within a consented discharge limit and the Solent and Southampton Water SPA and constituent SSSIs between Gosport and Lee on the Solent. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient

inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients. Please refer to Chapter 11 of this ES for full details.

10.8.144 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SUDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.145 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water SPA and constituent SSSIs has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.146 No air quality effects from emissions associated with the operation/occupation of the Wider OPA (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Please refer to Chapter 7 for full details. Consequently, **no significant operational/occupational likely effects** associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the SPA (or constituent SSSIs) as a result of changes in air quality.

Solent and Southampton Water Ramsar (and other constituent designated sites)

Baseline Conditions

10.8.147 The Solent and Southampton Water Ramsar comprises a large number of component SSSI. SSSI are designated for national (as opposed to international) nature conservation interest. However, SSSI boundaries often coincide with European sites and therefore can provide an indication of the conservation status of European sites as many of the ecological conditions that help to support site integrity are shared across the designations.

10.8.148 A summary of the SSSI condition as specified by Natural England⁶¹ is presented below in Table 10.14.

Table 10.14 SSSI Condition for the Solent and Southampton Water Ramsar Site

Brading Marshes to St. Helen's Ledges SSSI • See Table 10.12
Eling and Bury Marshes SSSI • See Table 10.12
Gilkicker Lagoon SSSI • Favourable - 100%
Hurst Castle and Lymington River Estuary SSSI • See Table 10.12
Hythe to Calshot Marshes SSSI • See Table 10.12
King's Quay Shore SSSI • See Table 10.12
Lee-on-The Solent to Itchen Estuary SSSI • See Table 10.12
Lincegrove and Hackett's Marshes SSSI • See Table 10.12
Lower Test Valley SSSI • See Table 10.12
Lymington River Reedbeds SSSI • Favourable Condition – 35.50% • Unfavourable Recovering – 64.50%
Lymington River SSSI • Unfavourable No Change – 100%

⁶¹ <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>

Medina Estuary SSSI • See Table 10.12
Newtown Harbour SSSI • See Table 10.12
North Solent SSSI • See Table 10.12
River Test SSSI • See Table 10.12
Ryde Sands and Wootton Creek SSSI • See Table 10.12
Sowley Pond SSSI • See Table 10.12
The New Forest SSSI • See Table 10.12
Thorness Bay SSSI • See Table 10.12
Titchfield Haven SSSI • See Table 10.12
Upper Hamble Estuary and Woods SSSI • See Table 10.12
Whitecliff Bay and Bembridge Ledges SSSI • See Table 10.12
Yar Estuary SSSI • See Table 10.12

10.8.149 Key reasons for more adverse conditions relevant to OHH include: General public disturbance, public access-disturbance, coastal squeeze, freshwater pollution, water pollution, agriculture/runoff, pollution discharge, nutrients-nitrogen.

Predicted Effects and Their Significance

10.8.150 NE has identified key objectives that need to be met in order to maintain or restore the integrity of the site, and that contributes to achieving the Favourable Conservation Status of its Qualifying Features of Interest by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

10.8.151 Consideration of how the development proposals could affect these objectives and therefore cause a negative effect on the Favourable Conservation Status of the SPA and/or SSSI etc is set out below, separated into constructional and operational effects and for the OPA Phase 1 and Link Road application and Wider OPA Application.

Construction OPA Phase 1

10.8.152 The site preparation and construction activities associated with OPA Phase 1 will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ditches and other drainage features associated with the site. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter the watercourses draining the site, which in turn form a confluence with the River Itchen, upstream of Itchen Valley Country Park and flow downstream to the Itchen Estuary and the wider Solent and Southampton Water Ramsar and associated SSSI.

10.8.153 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including

paints, solvents, plastics etc could be transported through soil and through water into the watercourses draining the site, and into the River Itchen and then downstream to the wider Solent and Southampton Water Ramsar and associated SSSI.

10.8.154 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.155 The inherent and adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success. Please refer to Chapter 11 for full details.

10.8.156 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the wider Solent and Southampton Water Ramsar and associated SSSI etc from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats. Please refer to Chapter 11 for full details.

10.8.157 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the Solent. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the Itchen from the site.

10.8.158 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment. Please refer to Chapter 11 for full details.

10.8.159 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the Sensitivity of the Solent is very high, the Magnitude of change reduces to negligible and therefore **No Likely Significant Effect** will occur to the wider Solent and Southampton Water Ramsar and associated SSSI from sediment or other associated pollution during construction associated with the OPA Phase 1 and Link Road.

10.8.160 During the implementation of each phase of the development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease. Inputs of these nutrients to the soil or water environment as part of construction will not occur. At the start of the phased construction works i.e. the duration of the OPA Phase 1 and Link Road construction, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the wider Solent and Southampton Water Ramsar and associated SSSI would be negligible. This would result in a **Not Significant Likely Construction Effect** occurring from a reduction in nutrient inputs.

10.8.161 No air quality effects from emissions associated with the construction of (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the OPA Phase 1 and Link Road will occur to the habitats or

species that comprise the designated features of interest of the Ramsar (or constituent SSSIs) as a result of changes in air quality.

Construction Wider OPA

10.8.162 The site preparation and construction activities associated with OPA Phase 1 will act as a proof of evidence for the Wider OPA that the inherent and adopted mitigation set out in Table 10.7 in Section 10.7 of this Chapter of the ES and the Additional Mitigation set out in Table 10.11 are a robust set of pollution and erosion prevention measures, that will continue to be prescribed in a site wide and multi-phase Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success. Please refer to Chapter 11 for full details.

10.8.163 The development will also result in the phased cessation of agricultural activities across the whole of the site, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the Solent and Southampton Water Ramsar. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural and progressive reduction in baseline sediment input to the Itchen from the site.

10.8.164 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permanent vegetation will aid the gradual cessation of net sediment transport from each specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.165 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into

account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the downstream Solent and Southampton Water Ramsar. Please refer to Chapter 11 of the ES for full details.

10.8.166 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water Ramsar and constituent SSSIs remains the same, the Magnitude of change reduces to negligible and therefore **No Significant Likely Construction Effect** will occur to the Solent and Southampton Water and constituent SSSIs from sediment or other associated pollution during construction associated with the Wider OPA.

10.8.167 During the implementation of each successive phase of the wider development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease and existing areas of bare soil largely associated with arable fields and localised areas of cattle poaching including along watercourses will also cease to be present. Inputs of these nutrients to the soil or water environment as part of construction will not occur. During the predicted 10 year phased construction works i.e. the duration of the Wider OPA, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Solent and Southampton Water Ramsar and constituent SSSIs will be Low (e.g. after year 5 of no new inputs occurring to each phase), thereby resulting in a **Significant positive likely construction effect** from a reduction in site baseline nutrient effects would occur.

10.8.168 No air quality effects from emissions associated with the construction of the Wider OPA (including dust) are predicted as a result of the implementation of inherent and adopted, as well as additional mitigation and management measures as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7: Air Quality. Consequently, no significant construction likely effects associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the Ramsar (or constituent SSSIs) as a result of changes in air quality.

Occupation OPA Phase 1

10.8.169 The OPA Phase 1 will result in a growth in 400 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere. The Solent coast, particularly its mudflats, shingle and saltmarshes, provide essential winter feeding and roosting grounds for birds that spend the winter here. The Solent and Southampton Water SPA is designated for its feeding and roosting estuarine birds.

10.8.170 A wide range of recreational activities which take place on the Solent coast (including those areas associated with the Solent and Southampton Water SPA, Ramsar Site and associated SSSI) can disturb birds. Birds may need to be more alert, reducing the amount of food that they eat. They may move away from the disturbance, reducing their feeding time and using energy to fly. Substantial disturbance may cause food-rich areas to be little used by the birds or avoided altogether, leading to other areas hosting a higher density of birds and intensifying the competition for the available food. Cumulatively this can lead to increased bird mortality, or to a bird having less energy available at the end of the winter period to fly back to its breeding grounds. If birds cannot complete their migratory journey or are not in sufficiently good condition to breed when they arrive, then the bird population can drop⁶².

10.8.171 Research carried out in 2009-2013 found that by far the most popular activity taking place at the Solent coast is walking. Along with jogging and cycling, this accounted for 91% of all recreational activity. Other types of recreational use included surfing, horse riding and rowing. Dogs off lead accounted for 47% of all incidents where birds flew more than 50m to escape disturbance. The research predicted a 13% increase in visitor numbers to the Solent coast as a result of planned new housing⁶³.

10.8.172 The Phase 1 OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG

⁶² Bird Aware Solent (2017) *Solent Recreation Mitigation Strategy*, https://solent.birdaware.org/media/29372/Bird-Aware-Solent-Strategy/pdf/Solent_Recreation_Mitigation_Strategy.pdf

⁶³ Ibid.

(suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking. A detailed comparison of the on-site provision against SANG criteria has been completed. Please refer to Chapter 14 for full details.

10.8.173 The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys, residents of One Horton Heath will wish to also visit the Solent and Southampton SPA / Solent Maritime SAC. This is because many people who visit the Solent coast do so for the sea views and the feeling of 'being beside the sea'. In a survey of visitors to the Solent, one-third of respondents stated that nothing could be done to make an alternative site more attractive to them⁶⁴. The Phase 1 OPA part of One Horton Heath, comprising 100 homes, is located within the Solent Mitigation and Disturbance Zone (see Figure 4). The journey from parts of One Horton Heath to the SPA/SAC is relatively direct, on B roads, and less than 5.6km.

10.8.174 Eastleigh Borough Council is in ongoing negotiations with Natural England with respect to the effectiveness of the on-site recreational provision. Should these negotiations conclude that further measures are required, a financial contribution to the Solent Recreation Mitigation Strategy SPD will be made to removing this additional pressure from the Solent SAC/SPA and Ramsar sites.

10.8.175 With the inclusion of the additional on site (and local connected) recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES and set out in more detail in Chapter 14 of this ES, together with any necessary payments to the Solent Recreational Mitigation Strategy SPD, it is considered reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water Ramsar and constituent SSSIs remains the same, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant effects) could arise. Subject to final negotiations with Natural England, financial contribution to the Solent Bird Aware SPD fund to support specific recreation mitigation measures at the SPD would be made, and therefore **No**

⁶⁴ Ibid.

Significant Likely Occupational/Operational Effect will occur to the Solent and Southampton Water SPA/Ramsar from recreational pressure associated with the OPA Phase 1.

10.8.176 The developed OPA Phase 1 will result in a change from the agricultural land use to a maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1. Soil erosion from these areas is considered to be negligible.

10.8.177 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1.

10.8.178 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.179 Specifications in The SuDS Manual⁶⁵ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details).

10.8.180 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows

⁶⁵ <https://www.ciria.org/ItemDetail?ProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. See Chapter 11 of this ES for full details.

10.8.181 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water Ramsar and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.182 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.183 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver within a consented discharge limit which then flows into the Solent and Southampton Water Ramsar between Gosport and Lee on the Solent. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients.

10.8.184 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SuDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.185 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water Ramsar and associated SSSIs has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.186 No air quality effects from emissions associated with the operation/occupation of the Wider OPA (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, **no significant operational/occupational likely effects** associated with the OPA Phase 1 and Link Road will occur to the habitats or species that comprise the designated features of interest of the Ramsar (or constituent SSSIs) as a result of changes in air quality.

Occupation Wider OPA

10.8.187 The developed Wider OPA will result in a growth in up to 2500 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere. The Solent coast, particularly its mudflats, shingle and saltmarshes, provide essential winter feeding and roosting grounds for birds that spend the winter here. The Solent and Southampton Water SPA is designated for its feeding and roosting estuarine birds.

10.8.188 A wide range of recreational activities which take place on the Solent coast (including those areas associated with the Solent and Southampton Water SPA, Ramsar Site and associated SSSI) can disturb birds. Birds may need to be more alert, reducing the amount of food that they eat. They may move away from the disturbance, reducing their feeding time and using energy to fly. Substantial disturbance may cause food-rich areas to be little used by the birds or avoided altogether, leading to other areas hosting a higher density of birds and intensifying the competition for the available food. Cumulatively this can lead to increased bird mortality, or to a bird having less energy available at the end of the winter period to fly back to

its breeding grounds. If birds cannot complete their migratory journey or are not in sufficiently good condition to breed when they arrive, then the bird population can drop⁶⁶.

10.8.189 Research carried out in 2009-2013 found that by far the most popular activity taking place at the Solent coast is walking. Along with jogging and cycling, this accounted for 91% of all recreational activity. Other types of recreational use included surfing, horse riding and rowing. Dogs off lead accounted for 47% of all incidents where birds flew more than 50m to escape disturbance. The research predicted a 13% increase in visitor numbers to the Solent coast as a result of planned new housing⁶⁷.

10.8.190 The Wider OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking.

10.8.191 The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys, residents of One Horton Heath will wish to also visit the Solent and Southampton SPA / Solent Maritime SAC. This is because many people who visit the Solent coast do so for the sea views and the feeling of 'being beside the sea'. In a survey of visitors to the Solent, one-third of respondents stated that nothing could be done to make an alternative site more attractive to them⁶⁸. The Wider OPA part of One Horton Heath, comprising up to 2500 homes, is located within the Solent Mitigation and Disturbance Zone (see Figure 4). The journey from parts of One Horton Heath to the SPA/SAC is relatively direct, on B roads, and less than 5.6km.

10.8.192 Eastleigh Borough Council is in ongoing negotiations with Natural England with respect to the effectiveness of the on-site recreational provision. Should these negotiations conclude that further measures are required, a financial contribution to the Solent Recreation Mitigation

⁶⁶ Bird Aware Solent (2017) *Solent Recreation Mitigation Strategy*, https://solent.birdaware.org/media/29372/Bird-Aware-Solent-Strategy/pdf/Solent_Recreation_Mitigation_Strategy.pdf

⁶⁷ Ibid.

⁶⁸ Ibid.

Strategy SPD will be made to removing this additional pressure from the Solent SAC/SPA and Ramsar sites.

10.8.193 With the inclusion of the additional on site (and local connected) recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES and set out in more detail in Chapter 14 of this ES, together with any necessary payments to the Solent Recreational Mitigation Strategy SPD, it is considered reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water Ramsar and constituent SSSIs remains the same, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant effects) could arise. Subject to final negotiations with Natural England, financial contribution to the Solent Bird Aware SPD fund to support specific recreation mitigation measures at the SPD would be made, and therefore **No Significant Likely Occupational/Operational Effect** will occur to the Solent and Southampton Water Ramsar from recreational pressure associated with the Wider OPA.

10.8.194 The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA. Soil erosion from these areas is considered to be negligible.

10.8.195 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1 and Link Road and these have been discussed in detail in the previous Section associated with the OPA Phase 1 and Link Road. The implementation and successful monitoring and management of these will act as a incrementally growing proof of evidence for each reserved matter application associated with the Wider OPA as they come forward and are completed and occupied. As such there will be a robust phase by phase increment of both site occupation and treatment and management of sediments, other contaminants and nutrients.

10.8.196 As previously discussed, sediment generated from the Wider OPA will enter the formal SuDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.197 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance.

10.8.198 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water Ramsar and associates SSSIs has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of sediment (or other associated contaminant) emissions.

10.8.199 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen and Solent and Southampton Water Ramsar and constituent SSSIs from the Wider OPA.

10.8.200 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption Peel Common WwTW as the location where any foul effluent

associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver within a consented discharge limit and the Solent and Southampton Water Ramsar and constituent SSSIs between Gosport and Lee on the Solent. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients. Please refer to Chapter 14 of this ES for full details.

10.8.201 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England and confirmed that the project achieves nutrient neutrality. The SuDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.202 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the Solent and Southampton Water Ramsar and constituent SSSIs has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore **No Significant occupation likely effect** will occur as a result of nutrient emissions.

10.8.203 No air quality effects from emissions associated with the operation/occupation of the Wider OPA (including NoX, nitrogen nutrient, or acidity) are predicted as a result of the outcome of the air quality modelling (including traffic emissions) as documented in Chapter 7: Air Quality. Consequently, **no significant operational/occupational likely effects** associated with the Wider OPA will occur to the habitats or species that comprise the designated features of interest of the Ramsar (or constituent SSSIs) as a result of changes in air quality.

New Forest SPA/Ramsar (and other constituent designated sites)

Baseline Conditions

10.8.204 The New Forest SPA/Ramsar comprises a large number of component SSSI. SSSI are designated for national (as opposed to international) nature conservation interest. However, SSSI boundaries often coincide with European sites and therefore can provide an indication of

the conservation status of European sites as many of the ecological conditions that help to support site integrity are shared across the designations.

10.8.205 A summary of the SSSI condition as specified by Natural England⁶⁹ is presented below in Table 10.15.

Table 10.15 SSSI Condition of the New Forest SPA / Ramsar

Lymington River SSSI • Unfavourable No Change – 100%
Norley Copse and Meadow SSSI • Favourable – 58.67% • Unfavourable Recovering – 41.33%
River Avon System SSSI • Favourable – 3.48% • Unfavourable Recovering – 36.96% • Unfavourable No Change – 56.76% • Unfavourable Declining – 2.8%
The New Forest SSSI • Favourable – 54.82% • Unfavourable recovering – 41.63% • Unfavourable No Change – 2.11% • Unfavourable Declining – 1.43%

10.8.206 Key reasons for more adverse conditions relevant to OHH include nutrient input.

Predicted Effects and Their Significance

⁶⁹ <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>

10.8.207 NE has identified key objectives that need to be met in order to maintain or restore the integrity of the site, and that contributes to achieving the Favourable Conservation Status of its Qualifying Features of Interest by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Construction OPA Phase 1 and Link Road

10.8.208 Although the New Forest SPA/Ramsar and its constituent SSSIs are of Very High Importance, it is considered reasonable to conclude that there are no construction phase environmental pathways that would result in any Magnitude of Effect occurring at this site, and as such no construction Likely Significant Effects will occur from the Phase 1 OPA and Link Road.

Construction Wider OPA

10.8.209 Although the New Forest SPA/Ramsar and its constituent SSSIs are of Very High Importance, it is considered reasonable to conclude that there are no construction phase environmental pathways that would result in any Magnitude of Effect occurring at this site, and as such no construction Likely Significant Effects will occur from the Wider OPA and Link Road.

Occupation OPA Phase 1 and Link Road

10.8.210 The OPA Phase 1 will result in a growth in 100 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere.

10.8.211 Like the Solent and Southampton Water SPA, the New Forest SPA/Ramsar hosts a range of birds that are sensitive to disturbance. Of these, ground and near-ground nesting birds

such as the Dartford warbler, nightjar and woodlark are particularly sensitive. The breeding success of nightjar is significantly lower close to paths, and nightjar populations decrease with proximity of housing. Dartford warblers in heavily disturbed areas delay the start of their breeding, preventing multiple breeds. Most of this disturbance is from dogs running through vegetation. Removal of human disturbance results in an increase of 13 – 48% in the breeding population of woodlark. Other impacts from visitor pressure include arson, litter and fly-tipping, trampling and soil compaction, localised nutrient and predation by people and pets.⁷⁰ In addition, consideration needs to be given to localised nutrient increased from dog urine/faeces and emissions to air and associated deposition from road traffic.

10.8.212 The New Forest National Park received 15.2 million recreation and leisure visitor-days (one person coming for at least part of one day) in 2017⁷¹. A telephone survey of 2000 people – including 138 from Eastleigh Borough Council – was carried out in late 2018 to investigate factors that lead to tourism visits to the New Forest. Of the 138 interviewees from Eastleigh:

10.8.213 About two-thirds (64%) had visited the New Forest heaths and woods in the past year

10.8.214 The proportion of people visiting the New Forest, and the number of visits, declined the further people lived from the New Forest, as did the proportion of visits to the New Forest compared with other green space locations

10.8.215 The most common frequency of visits from people living 10-25km away was less than once a month, followed by once a month

10.8.216 The most common activity carried out by interviewees in the New Forest was walking and dog walking. The proportion of dog walking generally declined with distance, but dog walkers tended to visit more frequently than other users. ⁷²

⁷⁰ Urban Edge (2019) Habitats Regulations Assessment for the Eastleigh Borough Local Plan 2016-2036, <https://www.eastleigh.gov.uk/media/5477/ed12a-41-hra-main-report.pdf>.

⁷¹ <https://www.newforestnpa.gov.uk/conservation/managing-recreation/future-forest/recent-changes-affecting-forest/>

⁷² Eastleigh Borough Council (2019) Eastleigh Borough Local Plan 2016-2036, Interim New Forest Recreation Mitigation, <https://www.eastleigh.gov.uk/media/5479/ed12c-update-44-new-forest-interim-mitigation.pdf>

10.8.217 The Phase 1 OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking, which will be delivered through the Wider OPA.

10.8.218 The on-site recreational provision at One Horton Heath is expected to cater for most day-to-day walking and cycling journeys, however, residents of One Horton Heath may also wish to visit the New Forest SAC.

10.8.219 Eastleigh Borough Council has therefore provided further local recreational resources within the OHH site in line with the requirements for SANG to maximise the local opportunities for absorbing any increase in recreational pressure from One Horton Heath, removing this additional pressure from the New Forest (please refer to Chapter 14 of this ES for full details). One Horton Heath will therefore provide high quality green infrastructure, open space and a strong network of footpaths and associated amenity features, including provision for dog walking, that will help to draw in the residents of One Horton Heath to use the on-site facilities and minimise the need to visit the New Forest SPA/Ramsar on a regular basis (e.g. for daily dog walking), which is also accentuated by the distance from the boundary of these designated sites.

10.8.220 The provision of the significant on site recreational resources (see Chapter 14) within the high quality green infrastructure at One Horton Heath, characterised by woodland, grassland and wetlands, together with the connected wider Public Right of Way Network provides an extensive resource for walking, exercising dogs and other recreational activities that will be both immediately available and of value to the new residents of One Horton Heath. These on-site facilities will help limit the number and frequency of visits to the New Forest SPA, reducing the magnitude of any disturbance to features of interest that are sensitive to recreational disturbance.

10.8.221 With the inclusion of the additional on site and local recreational resources set out in Chapter 14 of this ES and summarised in Table 10.11 of Section 10.7 of this Chapter of the ES, it is considered reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such,

whilst the sensitivity of the New Forest SPA and constituent SSSIs remains Very High, the Magnitude of change will be Negligible and therefore **No Significant Likely Occupational/Operational Effect** will occur to the New Forest SPA/Ramsar from recreational pressure associated with the Phase 1 OPA.

10.8.222 Results from Chapter 7: Air Quality confirms that No Significant Likely Occupational/Operational Effect will occur to the New Forest SPA/Ramsar from a change in air quality arising from an increase in road traffic associated with the Phase 1 OPA.

Occupation Wider OPA

10.8.223 The Wider OPA will result in a growth in up to 2500 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere.

10.8.224 Like the Solent and Southampton Water SPA, the New Forest SPA/Ramsar hosts a range of birds that are sensitive to disturbance. Of these, ground and near-ground nesting birds such as the Dartford warbler, nightjar and woodlark are particularly sensitive. The breeding success of nightjar is significantly lower close to paths, and nightjar populations decrease with proximity of housing. Dartford warblers in heavily disturbed areas delay the start of their breeding, preventing multiple breeds. Most of this disturbance is from dogs running through vegetation. Removal of human disturbance results in an increase of 13 – 48% in the breeding population of woodlark. Other impacts from visitor pressure include arson, litter and fly-tipping, trampling and soil compaction, localised nutrient and predation by people and pets.⁷³ In addition, consideration needs to be given to localised nutrient increased from dog urine/faeces and emissions to air and associated deposition from road traffic.

10.8.225 The New Forest National Park received 15.2 million recreation and leisure visitor-days (one person coming for at least part of one day) in 2017⁷⁴. A telephone survey of 2000 people – including 138 from Eastleigh Borough Council – was carried out in late 2018 to investigate factors that lead to tourism visits to the New Forest. Of the 138 interviewees from Eastleigh:

⁷³ Urban Edge (2019) Habitats Regulations Assessment for the Eastleigh Borough Local Plan 2016-2036, <https://www.eastleigh.gov.uk/media/5477/ed12a-41-hra-main-report.pdf>.

⁷⁴ <https://www.newforestnpa.gov.uk/conservation/managing-recreation/future-forest/recent-changes-affecting-forest/>



- 10.8.226 About two-thirds (64%) had visited the New Forest heaths and woods in the past year
- 10.8.227 The proportion of people visiting the New Forest, and the number of visits, declined the further people lived from the New Forest, as did the proportion of visits to the New Forest compared with other green space locations
- 10.8.228 The most common frequency of visits from people living 10-25km away was less than once a month, followed by once a month
- 10.8.229 The most common activity carried out by interviewees in the New Forest was walking and dog walking. The proportion of dog walking generally declined with distance, but dog walkers tended to visit more frequently than other users. ⁷⁵
- 10.8.230 The Wider OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking. A detailed comparison of the on-site provision against SANG criteria has been completed. Please refer to Chapter 14 for full details.
- 10.8.231 The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys, however, residents of One Horton Heath may wish to also visit the New Forest SPA.
- 10.8.232 Eastleigh Borough Council has therefore provided further local recreational resources within the OHH site in line with the requirements for SANG to maximise the local opportunities for absorbing any increase in recreational pressure from One Horton Heath, removing this additional pressure from the New Forest (please refer to Chapter 14 of this ES for full details). One Horton Heath will therefore provide high quality green infrastructure, open space and a strong network of footpaths and associated amenity features, including provision for dog walking, that will help to draw in the residents of One Horton Heath to use the on-site facilities

⁷⁵ Eastleigh Borough Council (2019) Eastleigh Borough Local Plan 2016-2036, Interim New Forest Recreation Mitigation, <https://www.eastleigh.gov.uk/media/5479/ed12c-update-44-new-forest-interim-mitigation.pdf>

and minimise the need to visit the New Forest SPA/Ramsar on a regular basis (e.g. for daily dog walking), which is also accentuated by the distance from the boundary of these designated sites.

10.8.233 The significant on-site recreational resources (See Chapter 14) within the high quality green infrastructure designed in line with recognized SANG criteria at One Horton Heath is characterised by woodland, grassland and wetlands. These features, together with the connected wider Public Right of Way Network provides an extensive resource for walking, exercising dogs and other recreational activities that will be both immediately available and of value to the new residents of One Horton Heath. These on-site facilities will help limit the number and frequency of visits to the New Forest SPA/Ramsar, reducing the magnitude of any disturbance to features of interest that are sensitive to recreational disturbance.

10.8.234 With the inclusion of the additional on-site resources set out in Chapter 14 of this ES and summarised in Table 10.11 of Section 10.7 of this Chapter of the ES, it is considered reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the New Forest SPA/Ramsar and constituent SSSIs is Very High same, the Magnitude of change will be Negligible and therefore **No Significant Likely Occupational/Operational Effect** will occur to the New Forest from recreational pressure associated with the Phase 1 OPA. Results from Chapter 7: Air Quality confirms that No Significant Likely Occupational/Operational Effect will occur to the New Forest SPA/Ramsar from a change in air quality arising from an increase in road traffic associated with the Phase 1 OPA.

New Forest SAC (and other constituent designated sites)

Baseline Conditions

10.8.235 The Solent and Southampton Water SAC comprises a large number of component SSSI. SSSI are designated for national (as opposed to international) nature conservation interest. However, SSSI boundaries often coincide with European sites and therefore can provide an indication of the conservation status of European sites as many of the ecological conditions that help to support site integrity are shared across the designations.

10.8.236 A summary of the SSSI condition as specified by Natural England⁷⁶ is presented below in Table 10.16.

Table 10.16 SSSI Condition of New Forest SAC

Landford Bog SSSI • Favourable – 73.097% • Unfavourable Recovering – 26.93%
Langley Wood and Homan's Copse SSSI • Unfavourable No Change – 98.88% • Unfavourable Declining – 1.12%
Loosehanger Copser and Meadows SSSI • Favourable Condition – 11.07% • Unfavourable Recovering – 11.07% • Unfavourable Declining – 88.93%
Royden Woods SSSI • Favourable – 100%
The New Forest SSSI • Favourable – 54.82% • Unfavourable Recovering – 41.63% • Unfavourable No Change – 2.11% • Unfavourable Declining – 1.43%
Whiteparish Common SSSI • Favourable – 93.11% • Unfavourable Recovering – 6.89%

10.8.237 Key reasons for more adverse conditions relevant to OHH include: Nutrients.

⁷⁶ <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>

Predicted Effects and Their Significance

10.8.238 NE has identified key objectives that need to be met in order to maintain or restore the integrity of the site, and that contributes to achieving the Favourable Conservation Status of its Qualifying Features of Interest by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Construction OPA Phase 1

10.8.239 Although the New Forest SAC and its constituent SSSIs are of Very High Sensitivity, it is considered reasonable to conclude that there are no construction phase environmental pathways that would result in any Magnitude of Effect occurring at this site, and as such no construction Likely Significant Effects will occur from the Phase 1 OPA.

Construction Wider OPA and Associated Link Road

10.8.240 Although the New Forest SAC and its constituent SSSIs are of Very High Sensitivity, it is considered reasonable to conclude that there are no construction phase environmental pathways that would result in any Magnitude of Effect occurring at this site, and as such no construction Likely Significant Effects will occur from the Wider OPA and Link Road.

Occupation OPA Phase 1

10.8.241 The OPA Phase 1 will result in a growth in 400 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere.



10.8.242 The New Forest SAC hosts a range of habitats and species that are sensitive to disturbance or related effects such as trampling. Most of this disturbance is from dogs running through vegetation. Other impacts from visitor pressure include arson, litter and fly-tipping, trampling and soil compaction, localised nutrient and predation by people and pets.⁷⁷ In addition, consideration needs to be given to localised nutrient increased from dog urine/faeces and emissions to air and associated deposition from road traffic.

10.8.243 The New Forest National Park received 15.2 million recreation and leisure visitor-days (one person coming for at least part of one day) in 2017⁷⁸. A telephone survey of 2000 people – including 138 from Eastleigh Borough Council – was carried out in late 2018 to investigate factors that lead to tourism visits to the New Forest. Of the 138 interviewees from Eastleigh:

- About two-thirds (64%) had visited the New Forest heaths and woods in the past year
- The proportion of people visiting the New Forest, and the number of visits, declined the further people lived from the New Forest, as did the proportion of visits to the New Forest compared with other green space locations
- The most common frequency of visits from people living 10-25km away was less than once a month, followed by once a month
- The most common activity carried out by interviewees in the New Forest was walking and dog walking. The proportion of dog walking generally declined with distance, but dog walkers tended to visit more frequently than other users.⁷⁹

10.8.244 The Phase 1 OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG

⁷⁷ Urban Edge (2019) Habitats Regulations Assessment for the Eastleigh Borough Local Plan 2016-2036, <https://www.eastleigh.gov.uk/media/5477/ed12a-41-hra-main-report.pdf>.

⁷⁸ <https://www.newforestnpa.gov.uk/conservation/managing-recreation/future-forest/recent-changes-affecting-forest/>

⁷⁹ Eastleigh Borough Council (2019) Eastleigh Borough Local Plan 2016-2036, Interim New Forest Recreation Mitigation, <https://www.eastleigh.gov.uk/media/5479/ed12c-update-44-new-forest-interim-mitigation.pdf>

(suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking, which will be delivered through the Wider OPA.

10.8.245 The on-site recreational provision at One Horton Heath is expected to cater for most day-to-day walking and cycling journeys, residents of One Horton Heath may wish to also visit the New Forest SAC.

10.8.246 Eastleigh Borough Council will therefore provide further local recreational resources within the Borough focusing on land it owns and to the equivalent value of the financial contributions to the Solent Recreation Mitigation Strategy to maximise the local opportunities for absorbing any increase in recreational pressure from One Horton Heath, but in locations not susceptible to recreational pressure, removing this additional pressure from the New Forest. One Horton Heath will provide high quality green infrastructure, open space and a strong network of footpaths and associated amenity features, including provision for dog walking, that will help to draw in the residents of One Horton Heath to use the on-site facilities and minimise the need to visit the New Forest SAC on a regular basis (e.g. for daily dog walking), which is also accentuated by the distance from the boundary of these designated sites.

10.8.247 The provision of the significant on site recreational resources (see Chapter 14) within the high quality green infrastructure at One Horton Heath (set out in Chapter 14 of this ES), characterised by woodland, grassland and wetlands, together with the connected wider Public Right of Way Network provides an extensive resource for walking, exercising dogs and other recreational activities that will be both immediately available and of value to the new residents of One Horton Heath. These on-site facilities will help limit the number and frequency of visits to the New Forest SAC, reducing the magnitude of any disturbance to features of interest that are sensitive to recreational disturbance.

10.8.248 With the inclusion of the additional on site and local recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES, it is considered reasonable to conclude that any changes in recreational pressure on the SAC (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the New Forest SAC and constituent SSSIs is Very High, the Magnitude of change will be Negligible and therefore **No Significant Likely Occupational/Operational Effect** will occur to the New Forest from recreational pressure associated with the Phase 1 OPA.



10.8.249 Results from Chapter 7: Air Quality confirms that **No Significant Likely Occupational/Operational Effect** will occur to the New Forest SAC from a change in air quality arising from an increase in road traffic associated with the Phase 1 OPA.

Occupation Wider OPA and Associated Link Road

10.8.250 The Wider OPA will result in a growth in up to 2500 local housing units, directly associated with the OHH project. This growth in local population will result in an associated growth in recreational need and recreational activities, both on site and elsewhere.

10.8.251 The New Forest SAC hosts a range of habitats and species that are sensitive to disturbance or related effects such as trampling. Most of this disturbance is from dogs running through vegetation. Other impacts from visitor pressure include arson, litter and fly-tipping, trampling and soil compaction, localised nutrient and predation by people and pets.⁸⁰ In addition, consideration needs to be given to localised nutrient increased from dog urine/faeces and emissions to air and associated deposition from road traffic.

10.8.252 The New Forest National Park received 15.2 million recreation and leisure visitor-days (one person coming for at least part of one day) in 2017⁸¹. A telephone survey of 2000 people – including 138 from Eastleigh Borough Council – was carried out in late 2018 to investigate factors that lead to tourism visits to the New Forest. Of the 138 interviewees from Eastleigh:

- About two-thirds (64%) had visited the New Forest heaths and woods in the past year
- The proportion of people visiting the New Forest, and the number of visits, declined the further people lived from the New Forest, as did the proportion of visits to the New Forest compared with other green space locations
- The most common frequency of visits from people living 10-25km away was less than once a month, followed by once a month
- The most common activity carried out by interviewees in the New Forest was walking and dog walking. The proportion of dog walking generally declined with distance, but dog walkers

⁸⁰ Urban Edge (2019) Habitats Regulations Assessment for the Eastleigh Borough Local Plan 2016-2036, <https://www.eastleigh.gov.uk/media/5477/ed12a-41-hra-main-report.pdf>.

⁸¹ <https://www.newforestnpa.gov.uk/conservation/managing-recreation/future-forest/recent-changes-affecting-forest/>

tended to visit more frequently than other users. 82

10.8.253 The Wider OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking. A detailed comparison of the on-site provision against SANG criteria has been completed. Please refer to Chapter 14 for full details.

10.8.254 The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys, residents of One Horton Heath may also wish to also visit the New Forest SAC.

10.8.255 Eastleigh Borough Council has therefore provided further local recreational resources within the OHH site in line with the requirements for SANG to maximise the local opportunities for absorbing any increase in recreational pressure from One Horton Heath, removing this additional pressure from the New Forest (please refer to Chapter 14 of this ES for full details). One Horton Heath will therefore provide high quality green infrastructure, open space and a strong network of footpaths and associated amenity features, including provision for dog walking, that will help to draw in the residents of One Horton Heath to use the on-site facilities and minimise the need to visit the New Forest SAC on a regular basis (e.g. for daily dog walking), which is also accentuated by the distance from the boundary of these designated sites.

10.8.256 The significant on-site recreational resources (see Chapter 14) within the high quality green infrastructure designed in line with recognized SANG criteria at One Horton Heath is characterised by woodland, grassland and wetlands. These features, together with the connected wider Public Right of Way Network provides an extensive resource for walking, exercising dogs and other recreational activities that will be both immediately available and of value to the new residents of One Horton Heath. These on-site facilities will help limit the number

82 Eastleigh Borough Council (2019) Eastleigh Borough Local Plan 2016-2036, Interim New Forest Recreation Mitigation, <https://www.eastleigh.gov.uk/media/5479/ed12c-update-44-new-forest-interim-mitigation.pdf>

and frequency of visits to the New Forest SAC, reducing the magnitude of any disturbance to features of interest that are sensitive to recreational disturbance.

10.8.257 With the inclusion of the additional on site and local recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES, it is considered reasonable to conclude that any changes in recreational pressure on the SAC (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the New Forest SAC and constituent SSSIs is Very High, the Magnitude of change will be Negligible and therefore **No Significant Likely Occupational/Operational Effect** will occur to the New Forest SAC from recreational pressure associated with the Wider OPA.

10.8.258 Results from Chapter 7: Air Quality confirms that **No Significant Likely Occupational/Operational Effect** will occur to the New Forest SAC from a change in air quality arising from an increase in road traffic associated with the Phase 1 OPA.

Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.259 The Chalcroft Distribution Park woodlands comprise a complex series of (mainly) recent semi-natural woodland, situated in the edges of, and to the immediate west of, the Distribution Park grounds, Botley, South Hampshire. The woodland on the site appears to have developed around what was most probably a Second World War rail yard, and this has developed a diverse wooded cover as the site's use has changed over the last 60 years. This includes supporting at least 21 ancient woodland indicator species. BAP Priority Habitats include Wet Woodland and Lowland Mixed Deciduous Woodland.

10.8.260 No further information pertaining to the current condition of this SINC was available to inform this assessment although views into the site from the OHH land has been possible. A 'reasonable' scenario position has been adopted and it has been assumed that the site is in an 'unfavourable recovering' condition despite a lack of management due to strong natural regeneration and the absence of deer.

Potential Effects and Their Significance

10.8.261 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;
- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.262 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.263 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.264 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.265 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Table s 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.266 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.267 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.268 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Chalcroft Distribution Park SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.269 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.270 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Table s 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.271 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.272 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.273 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Chalcroft Distribution Park SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.274 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES conclude that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.275 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Chalcroft Distribution Park SINC.

10.8.276 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Chalcroft Distribution Park SINC.

Occupation Wider OPA and Link Road

10.8.277 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.278 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Chalcroft Distribution Park SINC.

10.8.279 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Chalcroft Distribution Park SINC.

Round Copse, West End Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.280 Round Copse is a small and predominantly ancient semi-natural Oak-Hazel woodland located against the eastern boundary of the Chalcroft Distribution Park, West End, Hampshire. The site is structurally diverse and is known to support at least 15 ancient woodland indicator species.

10.8.281 No further information pertaining to the current condition of this SINC was available to inform this assessment although views into the site from the OHH land has been possible. A 'reasonable' scenario position has been adopted and it has been assumed that the site is in an 'unfavourable recovering' condition.

Potential Effects and Their Significance

10.8.282 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;
- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.283 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.284 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.285 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.286 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.287 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.288 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.289 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction effects** will occur to Round Copse, West End SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.290 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.291 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.292 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.293 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.294 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Round Copse, West End SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.295 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES conclude that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.296 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Round Copse, West End SINC.

10.8.297 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and associated 35m green infrastructure corridor, therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Round Copse, West End SINC.

Occupation Wider OPA and Link Road

10.8.298 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.299 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Round Copse, West End SINC.

10.8.300 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Round Copse, West End SINC.

Hearts Copse, West End, Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.301 Hearts Copse is a small and predominantly W8 ancient semi-natural *Fraxinus excelsior* – *Acer campestre* – *Mercurialis perennis* woodland located against the south western boundary of the site. The majority of the site is open to cattle grazing and pheasant pens are present. Only 12 ancient woodland indicator species have been recorded but this site is listed in the County Ancient Woodland Inventory.

10.8.302 No information pertaining to the current condition of this SINC was available to inform this assessment and therefore a 'worse-case' scenario position has been adopted and it has been assumed that the site is in an unfavourable recovering condition.

Potential Effects and Their Significance

10.8.303 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;
- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.304 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.305 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.306 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.307 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.308 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.309 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.310 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Hearts Copse, West End SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.311 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.312 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.313 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.314 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.315 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Hearts Copse, West End SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.316 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES conclude that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.317 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Hearts Copse, West End SINC.

10.8.318 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Hearts Copse, West End SINC.

Occupation Wider OPA and Link Road

10.8.319 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.320 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Hearts Copse, West End SINC.

10.8.321 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Hearts Copse, West End SINC.

Treeline Break Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.322 Treeline Break is a narrow strip of ancient semi-natural woodland, situated in a small and quite deeply incised stream valley, on the north-western edge of the solar farm, south of Allington Lane, Eastleigh. The woodland is unmanaged, although there is some limited evidence of former game management.

10.8.323 No further information pertaining to the current condition of this SINC was available to inform this assessment although views into the site from the OHH land has been possible. A 'reasonable' scenario position has been adopted and it has been assumed that the site is in an 'unfavourable recovering' condition.

Potential Effects and Their Significance

10.8.324 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;
- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.325 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.326 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.327 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.328 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.329 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.330 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.331 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction effects** will occur to Treeline Break SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.332 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.333 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or

commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Table s 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.334 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.335 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.336 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Treeline Break SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.337 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.338 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Treeline Break SINC.

10.8.339 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Treeline Break SINC.

Occupation Wider OPA and Link Road

10.8.340 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.341 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Treeline Break SINC,

10.8.342 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Treeline Break SINC.

Field West of Treeline Break (Long Field) Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.343 Field West of Treeline Break (Long Field) is situated on the western side of the small stream valley south of Allington Lane, West End.

10.8.344 The dominant vegetation types are *Lolium perenne* – *Plantago major* grassland (MG7) and *Holcus lanatus* – *Juncus effusus* rush pasture (MG10)

10.8.345 Essentially this is a very poorly managed unimproved fen meadow with considerable restoration potential.

10.8.346 The northern section of the field (immediately south of the public footpath) has been subject to landfill in the recent past, but the remainder of the site, south to Heart's Row, remains largely

untouched and retains its original land form, with a distinct sandy river terrace dominating the western half of the valley, sloping down abruptly to the damp valley bottom.

10.8.347 There has been extensive historic scrub (and wet woodland) removal.

10.8.348 No further information pertaining to the current condition of this SINC was available to inform this assessment and therefore a 'worse-case' scenario position has been adopted and it has been assumed that the site is in an unfavourable condition.

Potential Effects and Their Significance

10.8.349 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;
- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.350 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.351 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.352 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.353 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.354 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.355 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.356 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Field West of Treeline Break (Long Field) SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.357 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.358 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.359 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.360 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.361 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction effects** will occur to Field West of Treeline Break (Long Field) SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.362 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.363 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Field West of Treeline Break (Long Field) SINC.

10.8.364 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates **no likely significant effects** on Field West of Treeline Break (Long Field) SINC.

Occupation Wider OPA and Link Road

10.8.365 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on biodiversity.

10.8.366 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects** on ecology and Field West of Treeline Break (Long Field) SINC.

10.8.367 Whilst there is no restriction to public access into the site, the nature of the site and ground conditions are not ideal for recreational access and therefore the impact of unrestricted access to this area is likely to be limited.

10.8.368 Subject to agreement with the landowner, consideration will be given to the erection of fencing to exclude public access from the sensitive areas of the site. Therefore, only a low magnitude of change associated with local recreational pressure in the nearby vicinity is

predicted that generates **no likely significant effects on Field West of Treeline Break (Long Field) SINC.**

Quobleigh Pond and Woods Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.369 This site is an area of mixed habitats located on the edge of Fair oak. Woodland is the main habitat and the majority of the woodland is wet and ancient. There is a high diversity of woodland species including an excellent 31 ancient woodland indicators. There are two ponds within the site. The southern pond is old and has become scrubbed over. Open area contains improved grassland and scrub which add to the diversity of the site.

10.8.370 No further information pertaining to the current condition of this SINC was available to inform this assessment although views into the site from the OHH land has been possible. A 'reasonable' scenario position has been adopted and it has been assumed that the site is in an 'unfavourable recovering' condition.

Potential Effects and Their Significance

10.8.371 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;
- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.372 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.373 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.374 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites (other than Felton Common) from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.375 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.376 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.377 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.378 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction effects** will occur to Quobleigh Ponds and Wood SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.379 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites (other than Felton Common) from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.380 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.381 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.382 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.383 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area (including the restoration of two ponds and creation of two new ponds) and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Quobleigh Ponds and Wood SINC as a result of the Proposed Development.

10.8.384 In addition, the pond within the woodland on site will be restored/enhanced to deliver functional priority habitat. The areas around these ponds will be enhanced for amphibians to provide habitat features, foraging resources and resting places. Non-native plants will be controlled, and a native aquatic/marginal planting scheme delivered.

Occupation OPA Phase 1

10.8.385 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.386 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and Chalcroft Distribution Park SINC.

10.8.387 Public access to the more valuable areas of the SINC will be restricted through fencing and dense hedgerow and woodland creation along the boundary of the woodland and the residential areas. There will be no direct public access to this SINC from the site, other than via existing public rights of way and it is protected by an ecological buffer of 15m and associated 35m green infrastructure corridor. Therefore, only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates no likely significant effects on Quobleigh Ponds and Wood SINC.

Occupation Wider OPA and Link Road

10.8.388 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.389 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and Quobleigh Ponds and Wood SINC.

10.8.390 There is no public access to this SINC, and it is protected by an ecological buffer of 15m and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates no likely significant effects on Quobleigh ponds and Wood SINC.

Wyvern Technology College Meadow Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.391 The site is a field and woodland strip located on the outskirts of Fair oak. The site is adjacent to Quobleigh Pond Wood SINC. Within the field there is an excellent range of unimproved grassland communities, both dry and marshy. The sward is rather rough and scrubbed over in places, but despite this, there is very good species diversity with over 100 species noted including an excellent 10 acid/neutral grassland indicators. The woodland strip along the south edge is not ancient but there is some wet woodland present. There is also a small pond on site which was dry during GCN surveys in 2019.

10.8.392 No further information pertaining to the current condition of this SINC was available to inform this assessment although views into the site from the OHH land has been possible. A 'reasonable' scenario position has been adopted and it has been assumed that the site is in an 'unfavourable recovering' condition.

Potential Effects and Their Significance

10.8.393 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was

designated;

- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.394 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.395 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.396 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.397 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.398 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity.**

10.8.399 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity.**

10.8.400 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Wyvern Technology College Meadow SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.401 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity.**

10.8.402 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity.**



10.8.403 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.404 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.405 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Wyvern Technology College Meadow SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.406 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.407 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and Wyvern Technology College Meadow SINC.

10.8.408 The sensitivity of the receptor is medium and, considering the distance the magnitude of the change is very low and therefore **no likely significant effects** are predicted to the Wyvern Technology College Meadow SINC.

Occupation Wider OPA and Link Road

10.8.409 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.410 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and Wyvern Technology College Meadow SINC.

10.8.411 Whilst public access exists to this SINC, the provision of on-site recreation and greenspace is expected to absorb a large proportion of recreation and to satisfy the required needs of the local residents for local greenspace. Only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates no likely significant effects on Wyvern Technology College Meadow SINC.

Ponds and Meadow Adjacent to Wyvern Technical College Site of Importance for Nature Conservation (SINC)

Baseline Conditions

10.8.412 This site is comprised of a continuation of the Quobleigh woodland habitat as it transitions into scrub and grassland. The pond present was confirmed as a GCN breeding pond in 2019.

10.8.413 No information pertaining to the current condition of this SINC was available to inform this assessment and therefore a 'worse-case' scenario position has been adopted and it has been assumed that the site is in an unfavourable condition.

Potential Effects and Their Significance

10.8.414 The potential effects associated with the Development has on non-statutory sites could occur in the following ways:

- The extent and distribution of the natural habitats and species for which the site was designated;

- The structure and function (including typical species) of habitats for which the site was designated;
- The structure and function of the habitats of species for which the site was designated;
- The supporting processes on which the habitats and species rely on (for example, maintenance of current hydrological conditions); and
- The populations of the species for which the site was designated and the distribution of those species within the site.

10.8.415 Consideration of how the Proposed Development proposals could affect this site and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.416 There will be no temporary or permanent habitat loss within the non-statutory site as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.417 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance of all sites from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.418 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.419 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.420 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.421 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Ponds and Meadow Adjacent to Wyvern Technical College Meadow SINC as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.422 No air quality effects from emissions associated with construction (including dust) are predicted as a result of the distance from the individual phases of the construction activities and the implementation of adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 7 of this ES associated with Air Quality. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.423 Similarly, no receptors have been identified that will be subject to significant noise or vibration effects during the construction phase of the development, that are not already habituated to existing and ongoing noise and vibration associated with agricultural or commercial activities, and/or as a result of the implementation of the integrated mitigation measures set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in

Chapter 12 of this ES associated with Noise and Vibration. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.424 No significant effects on hydrology arising from construction activities have been predicted as a result of the Proposed Development after taking into account adopted and additional mitigation as set out in Tables 10.7 and 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.425 The measures to avoid and minimise pollution from construction are set out in Table 10.7 and Table 10.11 of this Chapter of the ES and as documented in Chapter 11 of this ES associated with Hydrology and Flood Risk. Consequently, only a low magnitude of change is predicted that generates **no likely significant effects on biodiversity**.

10.8.426 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant construction** effects will occur to Ponds and Meadow Adjacent to Wyvern Technical College Meadow SINC as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.427 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.428 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and Ponds and Meadow Adjacent to Wyvern Technical College Meadow SINC.

10.8.429 This site is located 1.5km north of phase 1 and therefore only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that **generates no likely significant effects** on Ponds and Meadow Adjacent to Wyvern Technical College Meadow SINC.

Occupation Wider OPA and Link Road

10.8.430 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.431 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and Ponds and Meadow Adjacent to Wyvern Technical College Meadow SINC.

10.8.432 Whilst public access exists to this SINC, the provision of on-site recreation and greenspace is expected to absorb a large proportion of recreation and to satisfy the required needs of the local residents for local greenspace. Only a low magnitude of change associated with local recreational pressure in the nearby vicinity is predicted that generates no likely significant effects on

10.8.433 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing located in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant** effects will occur to Ponds and Meadow Adjacent to Wyvern Technical College Meadow SINC as a result of the Proposed Development.

Watercourses (other than those listed or associated with designated sites listed above) – Priority Habitat

Baseline Conditions

10.8.434 Chapter 11: Hydrology of this ES provides a good overview of the watercourses associated with the One Horton Heath Site and is reproduced below.

10.8.435 A number of drainage features and watercourses are present within the Wider OPA Site. The watercourses within the Wider OPA Site are tributaries of the River Itchen which is located approximately 1.5km to the west of the Wider OPA Site's boundary.

10.8.436 The watercourse on the western boundary of the Site is classified as a 'Main River' and flows from south to north under Allington Lane and into the River Itchen to the south of Chickenhall Lane Wastewater Treatment Works (WwTW). All other onsite watercourses discharge into this unnamed 'Main River'. This is referred to as the western boundary stream in this Appendix.

10.8.437 An ordinary watercourse is present on the Wider OPA Site's southern boundary to the north of Chalcroft Business Park and drains from southeast to north. A second ordinary watercourse bisects the southern area of the Site and flows from southeast (adjacent to Burnetts Lane) to west (running north of Chalcroft Farm, and south of the Solar Farm). A third ordinary watercourse bisects the central area of the Wider OPA Site and flows from east (in the vicinity of Horton Heath) to west (to the north of the Solar Farm). A number of smaller ditches drain into the onsite watercourses and are adjacent to existing highways which cross the Wider OPA Site located within hedgerows.

10.8.438 A second 'Main River' bisects the northwestern area of the Wider OPA Site and flows from northeast to the west to the north of Firtree Farm. This watercourse is known locally as the Fair Oak Stream.

10.8.439 The natural catchments of the onsite watercourses are defined by the Wider OPA Site's topography.

10.8.440 The unnamed Main River on the Wider OPA Site's western boundary is assessed by the Environment Agency against WFD quality targets. The area where the data is applicable is across the length of the Lower Itchen and its tributaries from Winchester in the north to Swaythling in the south. The overall status in 2019 was assessed as Moderate. The latest monitoring data is summarised in Table 10.17 below.

Table 10.17: River Quality (based on Environment Agency data)

Classification Item	2019
Overall Water Body	Moderate

Classification Item	2019
Ecological	Good
Biological quality elements	Good
Macrophytes and Phytobenthos Combined	Good
Fish	High
Invertebrates	High
Hydromorphological Supporting Elements	Supports Good
Hydrological Regime	Does Not Support Good
Physico-chemical quality elements	High
Acid Neutralising Capacity	High
Ammonia (Phys-Chem)	High
Biochemical Oxygen Demand (BOD)	High
Dissolved oxygen	High
pH	High
Phosphate	High
Temperature	High
Specific pollutants	High
Chemical	Fail
Priority substances	Good
Other Pollutants	Good
Priority hazardous substances	Fail
Polybrominated diphenyl ethers (PBDE)	Fail
Benzo(g-h-i)perylene	Fail
Mercury and Its Compounds	Fail
Other Priority hazardous substances	Good

10.8.441 The reasons for not achieving 'Good' status and the reasons for deterioration in the River Itchen are listed as 'Physical modification' and 'Suspect data' affecting the Hydrological Regime Element.

10.8.442 The Wider OPA Site is located within the catchment of the River Itchen. The River Itchen corridor is designated as a Special Area of Conservation (SAC) and as a Site of Special Scientific Interest (SSSI). The boundary of the designated site is approximately 0.9km downstream of the Wider OPA Site.

10.8.443 Based on the surveys conducted in 2020, it is clear that the watercourses associated with One Horton Heath and in a generally poor condition with limited habitat diversity. This arises from a range of influencing factors including:

- Low flows/dry channels dominated by largely terrestrial vegetation;
- Contamination from agricultural inputs (silts, nutrients, chemicals), urban and road runoff (a range of potential contaminants);
- A lack of management of the dominant woodland and hedgerow/scrub cover;
- Barriers to fish migration and the presence of artificial channel, structures and features;
- Modification to channel form and connectivity (in the south)
- Disturbance from cattle poaching.

Potential Effects and Their Significance

10.8.444 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- The extent and distribution of the natural habitats and species associated with this type of habitat
- The structure and function (including typical species) of this habitat;
- The supporting processes on which the habitat relies (for example, maintenance of current hydrological conditions).

10.8.445 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.446 There will be no temporary or permanent habitat loss as a result of the proposals. Therefore, only potential effects arising from disturbance effects (from construction activities, people and dogs), pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.447 The site preparation and construction activities associated with OPA Phase 1 will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ordinary watercourse associated with this Phase, which also drains to the west into the western watercourse. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter these watercourses draining the site.

10.8.448 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including paints, solvents, plastics etc could be transported through soil and through water into the watercourses.

10.8.449 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.450 The adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.451 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the watercourses from construction phase effects. These include the protection of all

watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.452 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the River Itchen. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the watercourses from the site.

10.8.453 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permeant vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.454 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of this Priority Habitat. As such, whilst the Sensitivity of the Ordinary Watercourse is Low and the Main River is Medium) remains the same, the Magnitude of change reduces to Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a Not Significant Likely Construction Effect will occur to the watercourse Priority Habitat from sediment or other associated pollution during construction associated with the OPA Phase 1.

10.8.455 During the implementation of each phase of the development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease. Inputs of these nutrients to the soil or water environment as part of construction will not occur. At the start of the phased construction works i.e. the duration of the OPA Phase 1 construction, it is likely that the magnitude of change in

nutrients already present in the soil from being mobilised and transported into receiving watercourses and the Itchen would not occur. This would result in a Not Significant Likely Construction Effect occurring from a reduction in nutrient inputs.

- 10.8.456 Improvements in habitat quality, diversity and structure to the Ordinary Watercourse will be implemented as part of a comprehensive mitigation and enhancement plan, resulting in its value/sensitivity increasing from low to medium with a High Magnitude of Change resulting in a positive Significant Likely Construction Effect. Enhancements to the wider watercourses will be implemented through the Wider OPA.

Construction Wider OPA and Link Road

- 10.8.457 The site preparation and construction activities associated with Wider OPA and Link Road will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the remaining Ordinary Watercourse and two Main Rivers associated with the wider site. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter these watercourses draining the site.

- 10.8.458 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including paints, solvents, plastics etc could be transported through soil and through water into the watercourses.

- 10.8.459 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

- 10.8.460 The adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local

geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success.

10.8.461 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the watercourses from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.462 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and the River Itchen. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the watercourses from the site.

10.8.463 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permeant vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.464 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of this Priority Habitat. As such, whilst the Sensitivity of the Ordinary Watercourses is

Low and the Main Rivers is Medium) remains the same, the Magnitude of change reduces to Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a Not Significant Likely Construction Effect will occur to the watercourse Priority Habitat from sediment or other associated pollution during construction associated with the OPA Phase 1.

10.8.465 During the implementation of each phase of the development, agricultural inputs of nutrients (e.g. nitrates and phosphates) will cease. Inputs of these nutrients to the soil or water environment as part of construction will not occur. After 5 years of construction associated with the Wider OPA, it is likely that the magnitude of change in nutrients already present in the soil from being mobilised and transported into receiving watercourses an would not occur. This would result in a positive but Not Significant Likely Construction Effect occurring from a reduction in nutrient inputs.

10.8.466 Road crossings of the watercourse will require the retention of the channel, banks and sufficient riparian corridor to be retained intact to prevent a reduction in flow conveyance and flooding, as well as changes to channel geomorphology and habitats). Further details can be found in Chapter 11 of this ES. Taking into account the measures set out in Table 10.11 of this Chapter and details set out in Chapter 11 of this ES, road crossings of the watercourses are considered to result in Low and Medium Sensitivity watercourse receptors experiencing a Medium Magnitude of change and therefore a negative but Not Significant Likely Construction Effect.

10.8.467 Improvements in habitat quality, diversity and structure to the Ordinary Watercourse will be implemented as part of a comprehensive mitigation and enhancement plan, resulting in its value/sensitivity increasing from low to medium with a High or Medium Magnitude of Change resulting in a positive Significant Likely Construction Effect. Enhancements to the wider watercourses will be implemented through the Wider OPA.

Occupation OPA Phase 1

10.8.468 The developed OPA Phase 1 will result in a change from the agricultural land use to maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable

comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1 and the Link Road. Soil erosion from these areas is considered to be negligible.

10.8.469 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1 and Link Road.

10.8.470 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.471 Specifications in The SuDS Manual⁸³ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details). With regards to potential criticism of SuDS in treating fine sediment, the OHH water specialists consider it is not appropriate to assess the performance of the proposed SuDS scheme at OHH against other SuDS schemes that have been designed and built in recent years.

10.8.472 Until very recently, surface water drainage systems that were being offered for adoption by sewerage undertakers were required to be designed in accordance with Sewers for Adoption (SfA). SfA required the system being offered for adoption to comprise a continuous pipe system from inlet to outfall. This led to SuDS features being moved 'offline' such that the treatment processes associated with them were bypassed in the most polluting events. Southern Water implemented this by requiring all SuDS and above ground storage features to have no hydraulic link back in to the system being offered for adoption. The effect of this was that attenuation storage for rainfall events up to the 1 in 30 year return period had to be located within the underground system being offered for adoption.

10.8.473 The issue was exacerbated by SfA's requirement for surface water pipe systems to be 'self-cleansing'. These requirements forced designers to produce surface water drainage systems that transported sediment through the drainage system to the outfall to avoid siltation

⁸³ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

of underground assets. With OFWAT's approval of the Code for Adoption in October 2019, and its implementation in April 2020, designers now have much more flexibility to utilise the treatment processes within SuDS features.

10.8.474 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.475 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the most sensitive watercourse (the western watercourse Main River) has a Medium level of sensitivity, the Magnitude of change will be Very Low and therefore No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions.

10.8.476 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.477 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption of Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated

and discharged to the River Alver (not the watercourses draining the site) within a consented discharge limit. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular though the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients.

10.8.478 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England⁸⁴ and confirmed that the project achieves nutrient neutrality. The SUDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.479 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the watercourses have a low to medium level of sensitivity, the Magnitude of change will be Very Low and therefore No Significant occupation likely effect will occur as a result of nutrient emissions.

10.8.480 Public access to watercourses associated with the woodlands will be prevented and all other areas will be limited to access on adjacent paths.

Occupation Wider OPA and Link Road

10.8.481 The Wider OPA and Link Road will result in a change from the agricultural land use to maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure. Soil erosion from these areas is considered to be negligible.

⁸⁴ Advice on Achieving Nutrient Neutrality for New Development in the Solent Region (Natural England, 2020)

10.8.482 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1 and Link Road.

10.8.483 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.484 Specifications in The SuDS Manual⁸⁵ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details). With regards to potential criticism of SuDS in treating fine sediment, the OHH water specialists consider it is not appropriate to assess the performance of the proposed SuDS scheme at OHH against other SuDS schemes that have been designed and built in recent years.

10.8.485 Until very recently, surface water drainage systems that were being offered for adoption by sewerage undertakers were required to be designed in accordance with Sewers for Adoption (SfA). SfA required the system being offered for adoption to comprise a continuous pipe system from inlet to outfall. This led to SuDS features being moved 'offline' such that the treatment processes associated with them were bypassed in the most polluting events. Southern Water implemented this by requiring all SuDS and above ground storage features to have no hydraulic link back in to the system being offered for adoption. The effect of this was that attenuation storage for rainfall events up to the 1 in 30 year return period had to be located within the underground system being offered for adoption.

10.8.486 The issue was exacerbated by SfA's requirement for surface water pipe systems to be 'self-cleansing'. These requirements forced designers to produce surface water drainage systems that transported sediment through the drainage system to the outfall to avoid siltation of underground assets. With OFWAT's approval of the Code for Adoption in October 2019, and its implementation in April 2020, designers now have much more flexibility to utilise the treatment processes within SuDS features.

⁸⁵ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

10.8.487 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.488 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the most sensitive watercourse (the western watercourse Main River) has a Medium level of sensitivity, the Magnitude of change will be Very Low and therefore No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions.

10.8.489 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.490 A robust approach to managing nutrients has been integrated in the project design. This includes the adoption of Peel Common WwTW as the location where any foul effluent associated with the site will be conveyed via pumped sewerage system before being treated and discharged to the River Alver (not the watercourses draining the site) within a consented discharge limit. The on-site SuDS train is also designed to remove nitrates and phosphates (in particular through the provision of managed wetlands within the SuDS basins and operational monitoring and management). Furthermore, after a period of time from the cessation of

agricultural nutrient inputs (e.g. 5 years) residual nutrient emissions from the underlying soils to receiving watercourses is likely to cease. The provision of robust green infrastructure and additional ecological buffers will also contribute to the onsite capture and treatment of nutrients.

10.8.491 The assessment of nutrient changes and the development of a nutrient strategy, including Nitrate Neutrality is set out in full in Chapter 11 of this ES. This has adopted the standard method provided by Natural England⁸⁶ and confirmed that the project achieves nutrient neutrality. The SUDS measures, notably the vegetated wetlands, in combination with further habitat provision including additional wetlands will ensure minimal phosphate emissions.

10.8.492 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the watercourses have a low to medium level of sensitivity, the Magnitude of change will be Very Low and therefore No Significant occupation likely effect will occur as a result of nutrient emissions.

10.8.493 Public access to watercourses associated with the woodlands will be prevented and all other areas will be limited to access on adjacent paths.

Ponds – Priority Habitat - see also bats, birds, amphibians and reptiles

Baseline Conditions

10.8.494 Two ponds are present on site (ponds 38 and 47) with a further pond (pond 90) immediately downstream of the site boundary on Quobleigh Stream:

10.8.495 Pond 38 is a large, man-made pond located within Quobleigh Woods in the north of the Site. It is an online pond connected to Quobleigh stream and created through the construction of a large earth bund. No submerged or emergent vegetation is present, with turbid water being shaded at a cover of 40% by overhanging grey willow and alder *Alnus glutinosa*. Waterfowl are present within the pond. Marginal vegetation is dominated by Himalayan balsam. The banks of the pond are steep. No GCN were recorded in 2019. This pond is in very poor condition.

10.8.496 Pond 47 is located at Chalcroft Farm covered in duckweed *Lemna minor* with a central island scrubbed over with grey willow *Salix cinerea*, bramble and buddleja *Buddleia davidii*.

⁸⁶ Advice on Achieving Nutrient Neutrality for New Development in the Solent Region (Natural England, 2020)

Surrounding trees at the pond margin result in at least 50% cover of shade over the pond surface. Stands of bulrush *Typha latifolia* and yellow flag iris are present at the south, east and west edge of the pond. Emergent vegetation is approximated to cover 20% of the pond's surface. The banks of the pond and island are composed of stone/blockwork in places, resulting in potential refuges for amphibians. A breeding pair of moorhen are present within the pond. This pond is also a confirmed breeding pond for GCN, supporting a low population. However, the water is very turbid, polluted from nearby agricultural and other activities and there is a notable absence of invertebrates or a structured aquatic ecosystem. This pond is in very poor condition.

10.8.497 Pond 90 is an artificial on-line pond formed within the channel of the Quobleigh Stream created by an impounding structure within the curtilage of the adjacent residential property. There is a notable absence of aquatic vegetation and it supports a colony of domestic wildfowl. This pond is in poor condition and delivers little in terms of biodiversity.

Potential Effects and Their Significance

10.8.498 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- The extent and distribution of the natural habitats and species associated with this type of habitat
- The structure and function (including typical species) of this habitat;
- The supporting processes on which the habitat relies (for example, maintenance of current hydrological conditions).

10.8.499 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.500 There will be no temporary or permanent habitat loss as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.501 The ponds present on site are sufficiently distant from this phase and there is no pathway for pollution, therefore there is **no likely significant effect**.

Construction Wider OPA and Link Road

10.8.502 All ponds will be retained and protected and enhanced for wildlife.

10.8.503 No ponds will be directly affected by the construction of the wider OPA and robust tried and tested construction management measures will prevent pollution occurring (see Table 10.7 of this Chapter of the ES). A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **a moderate positive non-significant effect** will occur to pond habitats as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.504 The ponds present on site are sufficiently distant from this phase and there is no pathway for pollution. The ponds are also fenced, and public and dog access is restricted. Therefore, there is **no likely significant effect**.

Occupation Wider OPA and Link Road

10.8.505 The ponds present on site are sufficiently distant from this phase and there is no pathway for pollution, with a wide range of high quality SUDS measures being implemented (see Chapter 11 of this ES for full details). The ponds are also fenced, and public and dog access is restricted.

10.8.506 The results of the detailed air quality modelling work reported in Chapter 7: Air Quality of this ES concluded that no environmental air quality standards for the protection of vegetation will be exceeded from ground transport emissions. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on biodiversity.

10.8.507 Similarly, potential impacts arising from noise/ vibration as set out in Chapter 12 of this ES, changes to hydrology, surface water quality and/or flood risk as set out in Chapter 11 of

this ES have all been assessed as not significant. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology and pond habitats.

10.8.508 In addition, the ponds on site will be restored/enhanced to deliver functional priority habitat. The areas around these ponds will be enhanced for amphibians to provide habitat features, foraging resources and resting places. Non-native plants will be controlled, and a native aquatic/marginal planting scheme delivered.

10.8.509 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant effects** will occur to pond habitats as a result of the Proposed Development.

Parkland – Priority Habitat

Baseline Conditions

10.8.510 A small area of mature parkland is located south of Chalcroft Farm (denoted by TN27, see **Error! Reference source not found.**). The habitat comprises approximately 20 mature oak trees located within an area of improved grassland. This habitat should be classified under wood-pasture and Parkland BAP priority habitat. However, this parkland area is considered to be in overall poor condition due to grassland being intensively cattle-grazed, this has created a very poor and improved sward which is not recognizable as an associated NVC community for this habitat type. The heavy cattle grazing has prevented a scrub layer developing inhibiting the ability for new tree saplings to grow and develop, as a result only one age class of tree is present. Although there is fallen and standing deadwood evident in this area; and the habitat is likely to have some value for saproxylic invertebrates, bats and hole-nesting birds.

10.8.511 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- The extent and distribution of the natural habitats and species associated with this type of habitat

- The structure and function (including typical species) of this habitat;
- The supporting processes on which the habitat relies (for example, maintenance of current hydrological conditions).

10.8.512 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.513 There will be no temporary or permanent habitat loss as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

10.8.514 This habitat will be enhanced through adapting the management regime to increase the diversity of herb species. This habitat will be extended by 0.2ha (~50%) through the planting of heavy, specimen trees that will be protected.

Construction OPA Phase 1

10.8.515 No parkland is present within the Phase 1 residential construction area and the construction area is located 125m from any construction activities.

10.8.516 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant effects** will occur to parkland habitats as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.517 No parkland is present within the Phase 1 residential construction area and the construction area is located 150m from any construction activities at the closest point.



10.8.518 The proposed sensitive and positive management of the retained areas of this habitat will deliver an increased biodiversity value in excess of this loss.

10.8.519 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant effects** will occur to parkland habitat as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.520 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.521 These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on parkland.

10.8.522 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Minor Non-Significant effect**.

Occupation Wider OPA and Link Road

10.8.523 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.524 These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on hedgerows.

10.8.525 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Minor Non-Significant effect**.

Marshy Grassland – see bats, birds, amphibians and reptiles as well – Priority Habitat

Baseline Conditions

10.8.526 Fields within the site where the topography of the ground is lower lying and subject to wetter ground conditions throughout much of the year typically comprises species poor marshy grassland with more than 25% cover of rushes. Typically, these areas support abundant soft rush *Juncus effusus* with frequent common ragwort *Senecio jacobaea*, Yorkshire fog, tufted hair-grass *Deschampsia cespitosa*, creeping buttercup *Ranunculus repens*, broad-leaved dock, water pepper *Persicaria hydropiper*, creeping bent, common fleabane, short-fruited willowherb *Epilobium obscurum*, marsh foxtail and marsh thistle *Cirsium palustre*.

10.8.527 The majority of the marshy grassland habitat on Site has been highlighted as areas of 'Coastal and Floodplain Grazing Marsh' (which is a BAP priority habitat type) on MAGIC maps which is managed by Natural England. This assessment has been made using aerial imagery from 1993 and that the area is located within the Environment Agency Flood Zone 3 containing network of river channels, ditches or drainage channels according to OS Master maps. Throughout the Site none of the marshy grassland habitats have been observed inundated with water, including throughout the winter months, therefore congregations of waders and larger waterfowl are absent from Site and the marshy grassland habitat within the Site is not considered to constitute areas of floodplain grazing marsh

10.8.528 The BAP priority habitat for lowland meadows also includes floodplain meadow grassland. The Phase 1 Habitat Survey of the Site highlighted that overall the marshy grassland present was dominated by soft rush *Juncus effusus* and Yorkshire fog *Holcus lanatus* representing a likeness to a MG10 grassland community which is ubiquitous habitat throughout the British lowlands which is generally a species poor grazed habitat. Given the grassland is not known to be seasonally inundated coupled with the community assemblages present, including those of the more species rich areas, the marshy grassland habitats do not constitute that of a floodplain meadow grassland assemblage (MG4 grassland).

10.8.529 The species poor marshy grassland is dominated by rank tussock forming grasses and rushes with low numbers of forb species present due to agricultural improvement and is in generally poor condition. One small area immediately north of Quobleigh stream is in good condition as it has not been subject to poor management practise and overgrazing. However, this is considered to be an opportunity as changes to the grazing and hydrological regime could create the conditions for a more diverse habitat.

Potential Effects and Their Significance

10.8.530 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- The extent and distribution of the natural habitats and species associated with this type of habitat
- The structure and function (including typical species) of this habitat;
- The supporting processes on which the habitat relies (for example, maintenance of current hydrological conditions).

10.8.531 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.532 There will be no temporary or permanent habitat loss as a result of the proposals. Therefore, only potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.533 No marshy grassland is present within the Phase 1 residential construction area.

10.8.534 Construction activities associated with the SuDS features have the potential to affect the hydrological regime and water quality.

10.8.535 Recreational disturbance to this habitat could degrade the habitat during occupation.

10.8.536 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant

effects on ecology. Consequently, in summary, **no likely significant effects** will occur to marshy grassland habitats as a result of the Proposed Development.

Construction Wider OPA and Link Road

10.8.537 Construction activities associated with the Link Road and SuDS features have the potential to affect the hydrological regime and water quality, particularly where the link road crossed this habitat.

10.8.538 The construction of the wider OPA will result in the permanent loss of 0.22 ha (2.63% of existing extent) of poor quality marshy grassland habitat to accommodate the SuDS feature north of Fir Tree Lane and the link road crossing to the south west of the solar park. This is measures for the post construction extent and therefore additional areas of temporary habitat loss may be required during construction for access and land forming. This is undefined at present.

10.8.539 The proposed sensitive and positive management of the retained areas of this habitat will deliver an increased biodiversity value in excess of this loss.

10.8.540 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant effects** will occur to pond habitats as a result of the Proposed Development.

Occupation OPA Phase 1

10.8.541 The marshy grassland habitats are largely inaccessible to the public across the site. The large area of marshy grassland to the southwest of the site will be subject to restricted access via the existing PRow and implementing measures to control unmanaged access by dogs. These measures are described in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant effects** will occur to pond habitats as a result of the Proposed Development.

Occupation Wider OPA and Link Road

10.8.542 The marshy grassland habitats are largely inaccessible to the public across the site. The large area of marshy grassland to the southwest of the site and along the Quobleigh stream corridor will be subject to restricted access via the existing PRoWs and implementing measures to control unmanaged access by dogs. These measures are described in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology. Consequently, in summary, **no likely significant effects** will occur to pond habitats as a result of the Proposed Development.

10.8.543 Hedgerows – Priority Habitat – see also bats, birds, amphibians and reptiles

Baseline Conditions

10.8.544 Detailed descriptions of the hedgerow habitats present on site can be found in Appendix 10.2 Phase 1 Habitats and a detailed description of the change in this habitat from the development in Appendix 10.13. These have been summarised below:

Habitat Type	Length (Km)
J2.1.2 - Intact hedge - species-poor	0.08
J2.2.1 - Defunct hedge - native species-rich	4.70
J2.2.2 - Defunct hedge - species-poor	1.97
J2.3.1 - Hedge with trees - native species-rich	5.12
J2.3.2 - Hedge with trees - species-poor	0.71
Grand Total	12.58

10.8.545 Hedgerows are generally in good condition despite annual management and occasional livestock damage. The hedgerows with trees are typically mature oaks and are a valuable landscape feature for wildlife in terms of both foraging and connective functions.

10.8.546 The defunct species poor hedgerow to the north of the solar park (the majority of this particular habitat on site) has been severely impacted by cattle grazing and is in very poor condition.

Potential Effects and Their Significance

10.8.547 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- The extent and distribution of the natural habitats and species associated with this type of habitat
- The structure and function (including typical species) of this habitat;
- The supporting processes on which the habitat relies (for example, maintenance of current hydrological conditions).

10.8.548 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

10.8.549 There will be minimal temporary habitat loss as a result of the proposals. This temporary loss will be mainly associated with the construction of the link road. Temporary losses will be minimised as it is envisaged that construction access will follow the link road route.

10.8.550 The majority of losses will be permanent within the development areas and at the road severance locations.

10.8.551 In addition, potential effects arising from changes to air quality, noise and vibration, disturbance effects (from construction activities, people and dogs), changes in lighting, pollution and surface water quality, and changes in hydrology have been considered further in the remainder of this section.

Construction OPA Phase 1

10.8.552 Phase 1 will result in the loss of ~0.5km of hedgerow, the retention of ~0.7km and the creation of ~1km. This will ultimately deliver a net increase of ~0.5km (a gain of ~50%) of native species rich hedgerow.

10.8.553 Retained and newly planted hedgerows will be protected by a 5m ecological buffer comprising a grassland habitat to compliment the hedgerow habitat. This will be managed to maximise the ecological benefit.

10.8.554 Retained hedgerows will not be subject to artificial light levels in excess of 0.5 lux increase on baseline.

10.8.555 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on ecology.

10.8.556 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Moderate Non-Significant effect**.

Construction Wider OPA and Link Road

Hedgerow - Indicative Habitat Balance Sheet (inclusive of Phase 1 to provide cumulative assessment)

Phase 1 Habitat Type	Baseline (km)	Lost (km)	Retained (km)	Created (km)	Enhanced (km)
J2.1.2 - Intact hedge - species-poor	0.08	0.03	0	0	0.05
J2.2.1 - Defunct hedge - native species-rich	4.70	0.30	3.58	0	0
J2.2.2 - Defunct hedge - species-poor	1.97	0.15	0	0	1.02
J2.3.1 - Hedge with trees - native species-rich	5.12	0.19	4.93	5.18	N/A
J2.3.2 - Hedge with trees - species-poor	0.71	0	0	0	0.71
Grand Total	12.58	1.17	9.21	6.24	2.2

10.8.557 The table above demonstrates the approach to masterplan design, avoiding key habitats and seeking to enhance retained hedgerows and to create new species rich hedgerows wherever possible.

10.8.558 The OPA net position shows:

- Loss of 1.17 km of hedgerow (9.3% of baseline)
- Retention of 9.21km of hedgerow (73 % of baseline)
- Creation of 6.24 km of new species rich hedgerows This results in a post construction figure of 15.45 km resulting a total species rich hedgerow net gain of 22.8%.
- Enhancement of 2.2km of retained hedgerow from species poor to species rich hedgerows, with standard trees where appropriate. This is in addition to the 22.8% gain in extent.

Occupation OPA Phase 1

10.8.559 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.560 The measures include a 5m minimum ecological buffer for all hedgerows on site.

10.8.561 These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on hedgerows.

10.8.562 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Moderate Non-Significant effect**.

Occupation Wider OPA and Link Road

10.8.563 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.564 These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on hedgerows.

10.8.565 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Moderate Non-Significant effect**.

Woodland - Broadleaved Semi-Natural – Priority Habitat

Baseline Conditions

10.8.566 The northern, western and southern boundaries of the site lie immediately adjacent to a number of woodland SINC's, including two woodlands classified as ancient woodland. In addition, a central riparian woodland corridor is present.

10.8.567 The site supports 6.47 ha of mature woodland, with no ancient woodland present.

10.8.568 Broad-leaved woodland within and immediately adjacent to the Site can be broadly divided into two types (as described in detail in Appendix 10.2): wet woodland and dry woodland. Areas of wet woodland are found within Quobleigh woods (denoted by TN17) and in linear strips along stream corridors (e.g. components of the wooded corridors denoted by TNs 29 and 30). The wet woodland is typically dominated by alder *Alnus glutinosa* with some grey willow *Salix cinerea* and birch *Betula sp.* The ground flora is characterised by remote sedge *Carex remota*, nettle *Urtica dioica*, hemlock water-dropwort and locally-frequent Himalayan balsam.

10.8.569 Drier woodland occurs on the upper slopes of the stream valleys and in blocks adjacent to the southern and western Site boundary (Round Copse, Hearts Copse, Hearts Row and Treeline Break). This woodland is dominated by mature oak *Quercus robur* with frequent ash *Fraxinus excelsior* and a well-developed understorey of hazel *Corylus avellana*, hawthorn *Crataegus monogyna*, field maple *Acer campestre*, and bramble (*Rubus fruticosus* agg.). The ground flora typically comprises bramble, bracken *Pteridium aquilinum*, wood dock *Rumex sanguineus*, ivy *Hedera helix*, wood avens *Geum urbanum*, enchanter's nightshade *Circaea lutetiana*, wood false-brome *Brachypodium sylvaticum*, male fern *Dryopteris filix-mas* and broad buckler-fern *Dryopteris dilatata*.

Construction OPA Phase 1

10.8.570 This phase is outside of 50m from the nearest woodland and is considered unlikely to directly affect this habitat. Nonetheless, an element of the SuDS system for this phase discharges into a ditch adjacent to woodland (Round Copse SINC). Changes in water quality or the hydrological regime have the potential to impact on the condition of trees and vegetation within this woodland.

10.8.571 Measures described above for the protection of Round Copse SNCI will also apply to this habitat for this phase.

Construction Wider OPA and Link Road

10.8.572 The construction of the link road and local road sections will result in the unavoidable loss of 0.8ha (12.3%) of semi-natural broadleaved woodland on site, at either end of the central woodland belt.

10.8.573 Design measures have been taken to minimise the impact of this and locations have been chosen where the fewest mature trees will be affected. The approach of the road in these locations is perpendicular to the woodland, resulting in the lowest possible area of habitat loss. Additional measure will be incorporated into the crossing design to ensure that there are no changes to the hydrological regime during or post construction.

10.8.574 Measures described in 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES are considered adequate to mitigate for construction phase effects.

10.8.575 The development will result in the creation of 5.6ha of semi-natural broadleaved woodland in areas designed to effectively extend the existing mature woodland and designated SINC sites. This results in a total of 11.3 ha of woodland across the site post construction, a net increase in this priority habitat of 164%. The location of these areas of new habitat will complement the existing habitats and will be more likely to succeed on an accelerated timescale due to the presence of a mature donor habitat immediately adjacent to these locations.

10.8.576 The existing areas of woodland on site will be enhanced through sensitive planting to promote greater species diversity in both species and structure of the woodlands by implementing a planting and management scheme to enhance herb, scrub and canopy layers and to account for the predicted loss of ash trees within the woodlands to Ash Dieback.

Occupation OPA Phase 1

10.8.577 No impacts on this habitat are expected during occupation as the water quality and hydrological regime will be maintained by the SuDS system, with a net decrease in nitrates and phosphates predicted.

Occupation Wider OPA and Link Road

10.8.578 Access is restricted to the majority of woodland sites and will continue to be as part of design measures to control access into sensitive habitats.

10.8.579 The measures described for the following SINC's will also protect the woodland habitats on and adjacent to the site.

10.8.580 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.581 These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on woodlands.

10.8.582 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Moderate Non-Significant effect**.

Bats

Baseline Conditions

10.8.583 Ten species have been confirmed to be present on Site through various surveys carried out (see Appendix 10.4 Bats). High levels of activity have been recorded in key areas across the site, particularly riparian habitats, woodland and major hedgerows with increased levels observed in the west of the site:

10.8.584 This assemblage is broadly consistent with that expected in this region.

Table 10.18 Bat Species – Automated Detector Data

Species	Total Count	Percentage of Total
Common pipistrelle	454154	89.08
Soprano pipistrelle	26082	5.12
Myotis (Whiskered, Daubenton's and Natterers all confirmed by trapping surveys)	19927	3.91
Noctule	3927	0.77
Long-eared	2291	0.45

Nyctalus spp.	2001	0.39
Serotine	1372	0.27
Nathusius pipistrelle	51	0.01
Barbastelle	43	0.01

10.8.585 Crossing point surveys observed 1966 crossing events within the anticipated road traffic collision risk range <5m including common pipistrelle (1752), soprano pipistrelle (120), myotis spp. (47), long eared bats (10), serotine (20) and noctule (17 including Nyctalus spp. (2)).

10.8.586 The following roosts are present on site:

Table 10.19 Bat Roosts

Species	Roosts	Retained	Modified	Lost	Gained
Brown Long Eared	2 maternity roosts, 1 satellite roost, 8 day roosts	1 maternity roost 1 day roost	1 maternity roost	1 satellite roost, 7 day roosts	2 satellite roosts 14 day roosts
Common Pipistrelle	13 day roosts	-	-	13 day roosts	26 day roosts
Soprano pipistrelle	2 day roosts	-	-	2 day roosts	4 day roosts
Natterers	1 day roost	-	-	1 day roost	2 day roosts
Noctule	1 mating roost	1 mating roost	-	-	2 mating roosts

10.8.587 Further detailed analysis of the location and timing of records, combined with direct observations of breeding status during trapping surveys indicate that the site is likely to support:

- a common pipistrelle breeding colony that is likely to be located to the north of the site (4 post-lactating females recorded on site).
- a natterers bat maternity roost/colony located to the east of Horton Heath (confirmed – lactating female radiotracked, lactating females recorded in Hearts Copse, Quobleigh Wood and the Central Woodland)
- Noctule maternity roost (post-lactating female bats recorded on site)
- Brown Long eared – an additional maternity/natal roost is present in Hearts Copse

(radiotracked) associated with the maternity roost/colony at Chalcroft Farm

Potential Effects and Their Significance

10.8.588 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- Construction
- Direct loss of roost habitat and killing/injury during building demolition and tree felling operations
- Direct loss of key foraging habitat and/or the indirect loss of foraging resource due to habitat degradation through pollution or inappropriate management.
- Severance of key habitat connecting breeding and foraging locations
- Operation
- Road collision mortality
- Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss and/or degradation of the foraging resource provided by the affected habitat)
- Increased predation from growth in resident cat population

10.8.589 Consideration of how the Proposed Development proposals could affect this receptor and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.590 No bat roosts are present within the construction area of this phase; therefore, no roosts will be directly affected by construction activities.

- 10.8.591 The hedgerows in the residential areas that will be removed in this phase (see hedgerow section of this chapter) have been monitored and bats have been recorded using these features but at very low levels. The data does not indicate the presence of a roost of high conservation value within the vicinity of this phase that is likely to be reliant on these hedgerows as key connective habitat. The hedgerows proposed to be removed are in the centre of the site and suitable alternative routes along retained hedgerows are present to maintain landscape connectivity across this phase.
- 10.8.592 Higher levels of activity, particularly for Myotis bats, were recorded along the hedgerow to the north of the access track in autumn 2020. The timing of these recordings indicate that this is likely to be foraging activity, likely to be associated with grazing and prevailing weather conditions rather than the hedgerow itself.
- 10.8.593 The effect of the severance of the hedgerow in this location by a narrow, low speed limit estate road is not considered to be significant given that these bats currently feed alongside a track which is accessed by vehicles throughout a 24 hour period. These bats are considered to be highly likely to cross this feature and continue to forage in this area despite this severance. The foraging resource in this area is expected to be directly related to the presence of livestock and this is expected to decrease in this locale and adapt to the changes in the grazing regime toward other areas of the site. There is considerable alternative foraging resource across the site that will be retained throughout the development.
- 10.8.594 The areas north of the access track will be enhanced to provide a mosaic of wet features including ecologically designed SuDS that will increase the diversity and abundance of prey species in this area.
- 10.8.595 The grassland on site is of very low value to foraging bats and therefore the loss of this habitat is considered to have a negligible negative effect.
- 10.8.596 The measures described to control lighting during construction in the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. As such, whilst the Sensitivity of the bat assemblage is considered to be Moderate (reflecting the absence of roosts present or supported by the habitats present on site and considering the status/rarity of the respective species foraging on site), the Magnitude of change would be Low and therefore a minor negative but **Not**

Significant Likely Construction Effect will occur to the bat assemblage during construction associated with the OPA Phase 1.

Construction Wider OPA and Link Road

10.8.597 Similar construction effects will be evident within the residential elements of the wider OPA. Specific design principles will be required to fully mitigate the potential severance and road collision effects of the link road construction at key habitat severance locations. These are described in Table 10.7 of this chapter. Measures to protect the habitats during construction, particularly riparian habitats, woodland and hedgerow are also relevant to bats.

10.8.598 The destruction of roosts on site will be delivered under European Protected Species mitigation licences ensuring that appropriate and timely mitigation is provided to permit this action to be delivered in a legally compliant manner and to avoid any effects on the favourable conservation status of the species affected.

10.8.599 As such, whilst the Sensitivity of the bat assemblage in the wider OPA is considered to be High (reflecting the roosts present and/or supported by the habitats present on site and considering the status/rarity of the respective species), the Magnitude of change would be Low and therefore a minor negative but **Not Significant Likely Construction Effect** will occur to the bat assemblage during construction associated with the OPA Phase 1.

Occupation OPA Phase 1

10.8.600 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.601 These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on the bat assemblage associated with Phase 1.

10.8.602 This receptor is of high sensitivity and the magnitude of change is considered to be Very Low resulting in a **Minor Non-Significant effect**.

Occupation Wider OPA and Link Road

10.8.603 A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development.

10.8.604 Measures implemented during construction and design to minimise severance and road collision mortality rates will minimise the occupation phase effects and the potential effect of an increase in cat predation will be addressed using the specific measures are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that generates no likely significant effects on the bat assemblage associated with the wider OPA development.

10.8.605 This receptor is of high sensitivity and the magnitude of change is considered to be Low resulting in a **Minor Non-Significant effect**.

Great Crested Newt

Baseline Conditions

10.8.606 Comprehensive great crested newt surveys have been conducted over a number of years at ponds associated with the One Horton Heath site and within 500m, and of related terrestrial habitats for this species. The surveys have confirmed the presence of two populations of great crested newt. One is a medium sized population and associated with ponds currently located off-site and using part of the north western area of the OHH site land. The second is a low sized population using a single poor condition pond associated with Chalcroft Farm in the centre south of the OHH site land. These are considered to be part of the same meta-population based on proximity between the breeding ponds and an absence of clear barriers to dispersion between ponds.

10.8.607 The northern population is considered to be of medium importance from a quantitative perspective, and of minor qualitative importance as there are no breeding habitats on site. It has a moderate functional importance as there is probably some dispersal to/from nearby populations and moderate contextual importance with a population size class typical of the local area. The southern population is considered to be of minor importance from a quantitative perspective, and of moderate qualitative importance as there are is a breeding habitat on site but that habitats are common in the area. It has a moderate functional importance as there is probably some dispersal to/from nearby populations and minor contextual importance with a population size class lower than in the surrounding area.

10.8.608 Habitat condition at a site level is generally considered to be in a poor and no better than sub-optimal condition because of the dominance of grazed and compacted improved grassland and arable cropped land. The site currently has a reasonable network of hedgerows and in places associated ditches. Barriers to wider migration exist in certain locations through the presence of flowing water (although some watercourses are impounded allowing movement across them) and urban development including roads with kerbs. Woodland belts associated with parts of the site and its boundaries also provide optimal terrestrial habitats for foraging, resting and potentially overwintering if frost free features are present. The pond at Chalcroft Farm used by the southern population is in poor condition and is relatively isolated due to its location in the centre of an actively used yard. The ponds used by the northern population are located off-site, although Eastleigh Borough Council is creating six new ponds in land it owns immediately to the north west of the OHH boundary. There are defunct ponds in Quobleigh Woods within the territory of the metapopulation suffering from siltation, near complete shading and poor water quality. Other suitable terrestrial habitats existing in the adjacent wider landscape particularly to the west and north east.

Potential Effects and Their Significance

10.8.609 The potential effects associated with the Development on great crested newt could occur in the following ways:

- Construction
 - Direct loss of great crested newt resting, overwintering and breeding habitat and risk of injury / killing
 - Direct loss of key foraging habitat
 - Severance of key habitat connecting breeding and foraging/resting/overwintering habitat
 - Pollution of breeding ponds and connecting ditches
- Operation
 - Road collision mortality
 - Entrapment in road and drainage infrastructure

- Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat)
- Increased predation from growth in resident cat population

10.8.610 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase

10.8.611 The OPA Phase 1 residential development will result in the loss of approximately 3.2ha of very low suitability terrestrial habitat within 250m of the single breeding pond at Chalcroft Farm and 14.5 ha of very low suitability habitats within 250-500m, therefore also having the potential to injure/kill any great crested newt within this terrestrial habitat.

10.8.612 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.

10.8.613 No effects are predicted to any breeding ponds.

10.8.614 A suitable exclusion fence will be installed around the perimeter of those areas within 500m of the pond falling within the OPA Phase 1 land. Pitfall traps will be installed every 10m along the internal side of the fence along with artificial refugia. These will be operated for a minimum of 30 days until no further captures are recorded when hand searches and destructive searches will be carried out. Great crested newt captured from this location will be translocated to a suitable receptor habitat, away from the effects of the development. Habitats in this receptor area will be enhanced (see Table 10.11) to ensure a full range of functional habitats are present and in optimal condition. The target habitat will be woodland with the presence of suitable breeding ponds, resting areas, suitable overwintering habitat and excellent opportunities for foraging and dispersal. The receptor habitat will be located within Quobleigh Woods, in the control of Eastleigh Borough Council, and is associated with the wider metapopulation therefore allowing ongoing breeding success. The habitat enhancement works will also include the restoration of two ponds within Quobleigh Woods. These mitigation works will be defined in full and delivered under a Natural England EPS great crested newt licence, and an associated

multi-plot great crested newt masterplan, ensuring OHH site wide habitat enhancement and connectivity, robust management, monitoring and legal compliance will be achieved. Semi-permanent exclusion fencing will also be installed along the boundary of the nearby development plots to avoid potential double-capture/handling of great crested newt.

10.8.615 The measures set out in Table 10.11 will ensure the enhancement of great crested newt habitat, which will be further provided through the wider measures to deliver biodiversity net gain. These include a network of ponds and SuDS basins together with new grassland, woodland, hedgerows and ditches, and features to ensure safe newt passage under/across roads, enabling an enhanced opportunity for connectivity and metapopulation growth across the OPA Phase 1 and Wider OPA land.

10.8.616 It is considered reasonable, therefore, to conclude that any construction phase effects on great crested newt from the OPA Phase 1 will be addressed through the inherent and additional mitigation/enhancement measures, suitable robust and licensed mitigation measures with overall enhancement of retained habitats that will benefit the local metapopulation. As such, whilst the Sensitivity of great crested newt is considered to be Medium (reflecting both the size and character of the southern population), the Magnitude of change would be Low and therefore a positive but Not Significant Likely Construction Effect will occur to the great crested newt during construction associated with the OPA Phase 1.

Construction Wider OPA1 and Link Road

10.8.617 The Wider OPA and Link Road construction will result in the loss of approximately 3.2ha of very low suitability terrestrial habitat within 250m of the single breeding pond at Chalcroft Farm and 14.5 ha of very low suitability habits within 250-500m, therefore also having the potential to injure/kill any great crested newt within this terrestrial habitat.

10.8.618 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.

10.8.619 The poor quality pond associated with Chalcroft Farm will be retained and restored, but the population associated with this pond will be captured and translocated to receptor habitat in Quobleigh Woods, together with the two waterbodies restored under the Phase 1 OPA. This will be achieved through a combination of conventional terrestrial trapping, associated with a small population (see below) and ring fencing and seasonal capture of great crested newt within the pond. Once the phase of construction by the pond has been completed the ring fence will

be removed. The Mitigation and enhancement set out in Table 10.11 will include the creation of wider connecting ponds and other connecting habitats (including integration with highways) promoting the wider dispersal of great crested newt south, from the enhanced northern habitat areas, including connectivity to Chalcroft Pond.

10.8.620 No effects are predicted to any other breeding ponds.

10.8.621 A suitable exclusion fence will be installed around the perimeter of those areas within 500m of the ponds falling within the Wider OPA and Link Road. Pitfall traps will be installed every 10m along the internal side of the fence along with artificial refugia. These will be operated for a minimum of 30 days until no further captures are recorded when hand searches and destructive searched will be carried out. Great crested newt captured from this location will be translocated to a suitable receptor habitat, away from the effects of the development. Habitats in this receptor area will be enhanced (see Table 10.11) to ensure a full range of functional habitats are present and in optimal condition. The target habitat will be woodland with the presence of suitable breeding ponds, resting areas, suitable overwintering habitat and excellent opportunities for foraging and dispersal. The receptor habitat will be located within Quobleigh Woods, in the control of Eastleigh Borough Council, and is associated with the wider metapopulation therefore allowing ongoing breeding success. The habitat enhancement works will also include the restoration of two ponds within Quobleigh Woods, These mitigation works will be defined in full and delivered under a Natural England EPS great crested newt licence, and an associated multi-plot great crested newt masterplan, ensuring OHH site wide habitat enhancement and connectivity, robust management, monitoring and legal compliance will be achieved. Semi-permanent exclusion fencing will also be installed along the boundary of the nearby development plots to avoid potential double-capture/handling of great crested newt.

10.8.622 The measures set out in Table 10.11 will ensure the enhancement of great crested newt habitat, which will be further provided through the wider measures to deliver biodiversity net gain. These include a network of ponds and SuDS basins together with new grassland, woodland, hedgerows and ditches, and features to ensure safe newt passage under/across roads, enabling an enhanced opportunity for connectivity and metapopulation growth across the Wider OPA land.

10.8.623 It is considered reasonable, therefore, to conclude that any construction phase effects on great crested newt from the Wider OPA and Link Road will be addressed through the inherent and additional mitigation/enhancement measures, suitable robust and licensed mitigation measures with overall enhancement of retained habitats that will benefit the local

metapopulation. As such, whilst the Sensitivity of great crested newt is considered to be Medium (reflecting both the size and character of the southern population), the Magnitude of change would be Low and therefore a positive but Not Significant Likely Construction Effect will occur to the great crested newt during construction associated with the Wider OPA and Link Road.

Occupation OPA Phase

10.8.624 A sensitive lighting scheme designed to avoid lighting of suitable retained habitats will be delivered to avoid effects on breeding ponds and optimal terrestrial habitats.

10.8.625 Homeowner information packs will be provided, alongside educational/information boards to provide guidance on how pets, such as cats will predate on wildlife, including amphibians and to encourage responsible decision making when choosing and owning these pets.

10.8.626 Habitat Management and monitoring will be implemented in accordance with both the future NE EPS licence requirements as well as ongoing biodiversity commitments under the project planning conditions and legal agreements.

Occupation Wider OPA1 and Link Road

10.8.627 A sensitive lighting scheme designed to avoid lighting of suitable retained habitats will be delivered to avoid effects on breeding ponds and optimal terrestrial habitats.

10.8.628 Homeowner information packs will be provided, alongside educational/information boards to provide guidance on how pets, such as cats will predate on wildlife, including amphibians and to encourage responsible decision making when choosing and owning these pets.

10.8.629 Habitat Management and monitoring will be implemented in accordance with both the future NE EPS licence requirements as well as ongoing biodiversity commitments under the project planning conditions and legal agreements.

Dormouse

Baseline Conditions

10.8.630 Comprehensive otter surveys have been conducted in 2018 and 2020 covering the woodland and significant hedgerow habitats across the One Horton Heath site to assess the

importance of the site for dormice. Survey methodologies and detailed results are described in detail in appendix 10.7 Dormouse.

10.8.631 Two nests and one live dormouse were found during the last survey visit in November 2020 within the central woodland corridor. No other signs of dormouse presence have been recorded on site.

10.8.632 Given the large volume of survey effort employed both historically and during the most recent surveys, this data does not indicate the presence of a significant population of dormouse on site. Nonetheless, the sensitivity of this receptor is assessed and Medium given that this is a European Protected Species (EPS) and therefore required a NE mitigation licence.

Potential Effects and Their Significance

10.8.633 The potential effects associated with the Development has on dormice could occur in the following ways:

- The extent and distribution of the natural habitats upon which species rely;
- The structure and function of habitats;
- Increase in mortality due to road collision
- The supporting processes on which the habitats and species rely (for example, maintenance of current hydrological conditions); and
- The distribution of those species within the site.

10.8.634 Consideration of how the Proposed Development proposals could affect dormice and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.635 No evidence of dormouse has been recorded within the ZOI of Phase 1 despite surveys of the area and adjacent woodland habitat. Two hedgerows are due to be removed during this phase, however the absence of dormouse in this area and the presence of suitable alternative connective habitat around the boundary of this phase to retain potential landscape permeability for this species.

10.8.636 The sensitivity of this receptor is high, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on dormice.**

Construction Wider OPA and Link Road

10.8.637 The construction of the link road requires the severance of the central woodland and the removal of highly suitable habitat on the vicinity of dormouse records. This will result in a small area of habitat loss and the severance of highly suitable habitat from further highly suitable habitat along the western site boundary.

10.8.638 The central woodland corridor lead into the existing Horton Heath development to the east and is therefore effectively limited in its functionality as a connective corridor across the wider landscape and functions as a habitat spur form the main riparian corridor along the western site boundary.

10.8.639 An additional severance location over the Quobleigh stream has the potential to sever connective habitat for this species between the wider high value Quobleigh woodland and the riparian corridor connecting the River Itchen to the north west and the railway corridor to the south. There are no records of dormouse in Quobleigh wood. However, given the very high suitability of this habitat for this species and the likely abundance of natural alternative nesting features to the artificial nest tubes used to survey for this species, there is a constraint on this survey that can make this survey method less effective. Quobleigh wood also has good connectivity to the central woodland via the western riparian woodland corridor and Quobleigh wood is therefore considered as dormouse habitat.

10.8.640 The construction of the link road will therefore require and EPS mitigation licence for this species.

10.8.641 It is considered reasonable, therefore, to conclude that any construction phase effects on dormice from the wider OPA and link road will be addressed through the inherent and additional mitigation/enhancement measures, suitable robust and licensed mitigation measures with overall enhancement of retained habitats that will benefit the local metapopulation. As such, whilst the Sensitivity of dormice is considered to be High the Magnitude of change would be Low and therefore a negative but **Not Significant Likely Construction Effect** will occur to the great crested newt during construction of the wider OPA and link road.

Occupation OPA Phase 1

10.8.642 No evidence of dormouse has been recorded within the ZOI of Phase 1 despite surveys of the area and adjacent woodland habitat. Access is restricted to the adjacent offsite woodland, preventing any recreational impacts on the high suitability habitats in close proximity to this phase.

10.8.643 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the protection of Chalcroft Business Park SINC will also protect the suitable habitat adjacent to this phase.

10.8.644 The sensitivity of this receptor is high, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on dormice.**

Occupation Wider OPA and Link Road

10.8.645 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the protection of wildlife from recreation and predation effects will also be applicable to dormice.

10.8.646 The sensitivity of this receptor is high, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on dormice.**

Otter

Baseline Conditions

10.8.647 Comprehensive otter surveys have been conducted in 2018 and 2020 covering the riparian habitats across the One Horton Heath site to assess the importance of the site for otter. Survey methodologies and detailed results are described in detail in appendix 10.6 Otter and Water Vole.

10.8.648 There are no desk study records of Otter within the site boundary. There are however five historical records of Otter within the last ten years approximately 1.8km north west of the Site near Bishopstoke along riparian habitats linked to the site. Previous surveys conducted by Ecologica Associates Ltd in 2014 found only one set of footprints in the northwest corner of the

site. Repeat surveys done in 2015 found no evidence of otter. Otter surveys conducted by Johns Associated Ltd in 2018 and 2020 found no signs of otter.

10.8.649 The value of the site for otter is considered to be limited to the potential use of the site as connective habitat within the wider landscape between the catchments of the Itchen and Hamble rivers. Nonetheless, this function is considered important and should be maintained throughout the development.

10.8.650 This receptor is therefore considered to be of high sensitivity.

Potential Effects and Their Significance

10.8.651 The potential effects associated with the Development has on otter could occur in the following ways:

- Construction
- Direct loss of landscape connectivity
- Pollution of tributary of River Itchen
- Operation
- Road collision mortality

10.8.652 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.653 The riparian corridor in the north of this phase is considered to be connective habitat for otter and is a minor tributary of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons.

10.8.654 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.655 Construction measures in this area are extremely limited in this phase and the likelihood of and effect is considered to be very low.

10.8.656 The sensitivity of this receptor is high and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on otters**.

Construction Wider OPA and Link Road

10.8.657 The riparian corridors across the site are considered to be connective habitat for otter and are minor tributaries of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons.

10.8.658 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.659 Construction measures in this area are extremely limited in this phase and the likelihood of and effect is considered to be very low.

10.8.660 The sensitivity of this receptor is high, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on otters**.

Occupation OPA Phase 1

10.8.661 Enhancement and extension of riparian and grassland corridor containing a number of ecologically designed SuDS to the north of the Chalcroft track will retain the landscape connectivity along this key connective corridor. This area will be unlit.

10.8.662 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.663 The sensitivity of this receptor is high, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on otters**.

Occupation Wider OPA and Link Road

10.8.664 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.665 The sensitivity of this receptor is high, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on otters**.

Water Vole

Baseline Conditions

10.8.666 Comprehensive water vole surveys have been conducted in 2018 and 2020 covering the riparian habitats across the One Horton Heath site to assess the importance of the site for this species. Survey methodologies and detailed results are described in detail in appendix 10.6 Otter and Water Vole.

10.8.667 Data was provided by Hampshire Biodiversity Information Centre. There is one desk study record of water vole within the Site footprint in the last 10 years. There are also a number of other records approximately 1.8km north west of the Site near Bishopstoke.

10.8.668 The data shows that there no population of water voles on site.

10.8.669 Previous surveys undertaken by Ecologica Associates Ltd in 2014 recorded a number of signs of water vole. The majority of sightings were on a watercourse on western boundary and a stream running across the site further north. A repeat survey was done in 2015 and found no signs of water vole. There was also one recorded sighting of water vole on 21/04/2018 along the northern watercourse (See **Error! Reference source not found.**).

10.8.670 Water vole surveys conducted by Johns Associated Ltd in 2018 and 2020 found no signs of water vole and this species is therefore considered to be absent from the site. A notable sparsity of high quality habitat was evident, with potentially suitable areas in the south west of the site subject to poaching and intensive grazing.

10.8.671 The value of the site for water vole is considered to be limited to the potential use of the site as connective habitat within the wider landscape between the catchments of the Itchen

and Hamble rivers. Nonetheless, this function is considered important and should be maintained throughout the development.

10.8.672 This receptor is therefore considered to be of low sensitivity.

Potential Effects and Their Significance

10.8.673 The potential effects associated with the Development has on water vole could occur in the following ways:

- The extent and distribution of the natural habitats upon which species rely;
- The structure and function of habitats, primarily for dispersal;
- Increase in mortality due to road collision
- Alteration of behaviour due to artificial lighting
- The supporting processes on which the habitats and species rely (for example, maintenance of current hydrological conditions); and
- The distribution of those species within the site.

10.8.674 Consideration of how the Proposed Development proposals could affect water vole and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.675 The riparian corridor in the north of this phase is considered to be connective habitat for water vole and is a minor tributary of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons.

10.8.676 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to water vole in the wider river catchment during construction.

10.8.677 Construction measures in this area are extremely limited in this phase and the likelihood of and effect is considered to be very low.

10.8.678 The sensitivity of this receptor is low, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on water vole.**

Construction Wider OPA and Link Road

10.8.679 The riparian corridors across the site are considered to be long distance connective habitat for water vole and are minor tributaries of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons.

10.8.680 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.681 Construction measures in this area are extremely limited in this phase and the likelihood of and effect is considered to be very low.

10.8.682 The sensitivity of this receptor is low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on water vole.**

Occupation OPA Phase 1

10.8.683 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.684 The sensitivity of this receptor is medium, and the magnitude of this change is considered to be negligible given that this species is absent from the site and there is, therefore, **no likely significant effect on water vole.**

Occupation Wider OPA and Link Road

10.8.685 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.

10.8.686 The sensitivity of this receptor is medium, and the magnitude of this change is considered to be negligible given that this species is absent from the site and there is, therefore, **no likely significant effect on water vole.**

Reptiles

Baseline Conditions

Wider OPA Area

10.8.687 Comprehensive reptile surveys have been conducted over a number of years covering the most suitable habitats across the One Horton Heath site to assess the importance of the site for reptiles. The survey design adopted a targeted approach whereby the habitats of highest suitability were sampled. Survey methodologies and detailed results are described in detail in appendix 10.10 Reptiles.

10.8.688 The surveys recorded the following:

- Slow worm – Good Population (5 adults peak count - Quobleigh Wood boundary)
- Grass snake – Low Populations (single juvenile recorded in 2020 – Quobleigh Wood boundary)
- Common lizard- Low Population (single record during 2020 surveys – eastern end of central woodland belt)

10.8.689 The suitability of habitats across the site is locally restricted and patchy with reptile presence largely restricted to the boundaries of the site, particularly in areas adjacent to woodland or domestic gardens.

10.8.690 The hedgerow, marshy grassland, woodland, riparian and scrub habitats present on site are suitable to support this species.

OPA Phase 1 Area

10.8.691 Historic surveys in 2014 show a single common lizard recorded within the southern boundary of this area. Update surveys in 2020 along the northern boundary of this phase did not record any reptiles. In addition, sensitive vegetation clearance works conducted under an Ecological Clerk of Works immediately adjacent to this phase did not encounter any reptiles despite clearing 200m of suitable habitat. The population of reptiles in this phase is therefore considered to be limited to the southern site boundary only.

10.8.692 The proposed retention and enhancement of the habitat buffer between the site and the adjacent Chalcroft Distribution Park SINC. This majority of this phase will result in the loss of suboptimal habitats for this species with the loss of suitable habitat

Potential Effects and Their Significance

10.8.693 The potential effects associated with the Development on these of receptors could occur in the following ways:

- Construction
- Direct loss of reptile resting, overwintering and breeding habitat and risk of injury / killing
- Direct loss of key foraging habitat
- Severance of key habitat connecting breeding and foraging/resting/overwintering habitat
- Operation
- Road collision mortality
- Entrapment in road and drainage infrastructure
- Increased predation from growth in resident cat population

10.8.694 Consideration of how the Proposed Development could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.695 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable

measures to avoid these effects will be successfully implemented. The measures as described for GCN also afford protection to reptiles during construction.

10.8.696 The sensitivity of this receptor is low, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on reptiles.**

Construction Wider OPA and Link Road

10.8.697 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for GCN also afford protection to reptiles during construction.

10.8.698 The sensitivity of this receptor is low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on reptiles.**

Occupation OPA Phase 1

10.8.699 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for GCN also afford protection to reptiles during occupation. The sensitivity of this receptor is low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on reptiles.**

Occupation Wider OPA and Link Road

10.8.700 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for GCN also afford protection to reptiles during occupation. The sensitivity of this receptor is low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on reptiles.**

Badger

Baseline Conditions



10.8.701 Comprehensive badger surveys have been conducted over a number of years covering the One Horton Heath site and within 30m to assess the presence of setts and field signs of foraging activity. Survey methodologies and detailed results are described in detail in appendix 10.9.

10.8.702 The surveys have confirmed the absence of any significant setts or activity levels to indicate the presence of core habitat. The site is therefore not considered to provide an important function for this species.

10.8.703 Two partially active setts have been identified on site during the most recent surveys, located in areas that are not expected to be directly affected by the development.

10.8.704 The habitats present on site are suitable to support this species and the survey results are below the expectation of activity levels typically associated with these habitats. Given the extent of retained high value habitats and propensity for this species to occupy urban fringe habitats, the potential exists to incorporate measures into this scheme to the benefit of this species.

10.8.705 This receptor is therefore assessed as **low value**.

Potential Effects and Their Significance

10.8.706 The potential effects associated with the Development on badgers could occur in the following ways:

- Construction
- Direct disturbance and/or loss of setts
- Direct loss of key foraging habitat
- Severance of key habitat connecting resting places to key foraging habitats
- Operation
- Road collision mortality
- Increased lighting levels associated with new link road, estate roads and additional external

and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat)

- Increased disturbance through direct or indirect interactions with dogs

10.8.707 Consideration of how the Proposed Development could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.708 No evidence of the use of the OPA Phase 1 area has been recorded.

10.8.709 The construction of the link road will potentially sever connective habitats and could constrain the capacity of the area to support this species. However, the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid this effect will be successfully implemented. The sensitivity of this receptor is low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on badgers.**

Construction Wider OPA and Link Road

10.8.710 The construction of the wider OPA areas will result in the loss of approximately 70ha of suitable foraging habitat. However, site does not currently support a badger population.

10.8.711 The potential for direct or indirect impacts on setts (either on site or within 30m of construction areas or haul routes) will be avoided through the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid this effect will be successfully implemented. The sensitivity of this receptor is low, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on badgers.**

Occupation OPA Phase 1

10.8.712 No evidence of the use of the OPA Phase 1 area has been recorded. The sensitivity of this receptor is low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on badgers.**

Occupation Wider OPA and Link Road

10.8.713 The increase in the likelihood of road collision mortality is not considered to be significant due to the very low levels of badger activity recorded on site. The incorporated mitigation measures to ensure safe passage across the link road will further reduce this likelihood.

10.8.714 Increased encounters between badgers, their resting places and humans and dogs is not considered to affect the current low level of use of the site by this species and absence of permanent resting places.

10.8.715 The future colonisation of the site by badgers will be limited in areas in close proximity to designated dog exercise areas by their capacity to tolerate this disturbance. Capacity will be provided on site to support any future colonisations within areas of high quality habitat, into which public access will be restricted.

10.8.716 The sensitivity of this receptor is low, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect** on badgers.

Breeding Birds

Baseline Conditions

10.8.717 Comprehensive breeding bird and barn owl surveys have been conducted over a number of years covering the One Horton Heath site. Survey methodologies and detailed results are described in detail in appendix 10.8 Birds.

10.8.718 A breeding pair of barn owl are present, successfully nesting in the nest box south of Chalcroft Farm in 2020. Evidence of roosting was also observed in the stables building at the far southern extent of the Chalcroft Farm complex. The site is considered to support one home range for these birds.

10.8.719 No other birds listed under Schedule 1 of the Wildlife and Countryside Act (as amended) were recorded.

10.8.720 25 species were recorded on site in 2020, comprised predominantly of common and more generalist species, typical of the interface between urban and agricultural habitats.

10.8.721 Passerine species of note are:



- Species of Principal Importance in England under s41 of the Natural Environment and Rural Communities (NERC) Act (2006):
- Skylark (also Hampshire BAP Priority Species)
- One singing male was observed in the areas both north and south of the Chalcroft farm track. A possible pair was observed in this area during the second survey visit but these were absent during the third visit and are unlikely to have bred in this area in 2020.
- Retained areas of grassland habitat are suitable for this species and the site will continue to have the capacity to support low numbers of skylark. In addition, the sensitive management of these areas will result in an increased quality of foraging resource.
- House Sparrow
- Seven house sparrow nests were recorded in 2020 clustered around Chalcroft Farm and the unoccupied Fir Tree Farm. Additional activity was observed associated with the gardens and properties immediately adjacent to the site on the eastern boundary.
- These nest sites will be lost as part of the demolition of existing buildings. Suitable nesting opportunities for this species will be incorporated into retained habitats and also into buildings constructed within the scheme. This will increase the capacity of the site to support this species.
- Hampshire Biodiversity Action Plan Priority Species
- Song Thrush
- Three singing males were recorded on site with one confirmed nest identified in a hedgerow just north of Quobleigh stream containing 4 chicks.
- Retained areas of hedgerow and woodland habitats are suitable for this species and the site will continue to have the capacity to support a low density of song thrush. Whilst outside of the control of this application, domestic gardens are likely to provide a diverse foraging and nesting resource as is typical of urban areas where this species is commonly found. The enhancement of the diversity and quality of retained habitats will also benefit this species.
- Linnet

- One singing male was observed on two occasions singing from the hedgerow immediately to the north of the Chalcroft Farm track. A subsequent record of a pair with two juveniles in this area could indicate breeding but a direct link between these records, and therefore breeding on site, is uncertain. The habitats in this area are considered suitable nesting habitat for this species.
- This hedgerow is due to be retained, albeit subject to an increase in disturbance from the adjacent development. The retained habitats across the site have the potential to support several breeding pairs and, as such, the site will continue to have the capacity to support an increased population of this species. The enhancement of the diversity and quality of retained habitats, particularly hedgerows and associated grassland habitats further from the development areas will also benefit this species.
- BOCC Red list Species
- Starling
- Activity was dispersed over the site with multiple records of foraging and singing adults. Four nests were confirmed (including 2 within holes in telegraph poles and 2 in buildings) with a number of foraging sorties observed with adult birds returning to nests within the adjacent Horton Heath residential areas.
- Additional observations in late summer/autumn recorded small post breeding flocks of adults and juvenile birds with the largest group comprising 20 birds. No large murmurations or aggregations of this species have been recorded on site through the suite of 2018-2020 surveys delivered on site for multiple species however previous winter surveys conducted in 2014/15 observed post breeding groups of up to 20-30 birds
- Mistle Thrush
- A pair of mistle thrush were observed in the large dead oak tree in the south west of the site, flying into the Chalcroft distribution Park woodland on two separate visits in April and June. This pair is assumed to be breeding within this woodland.

Potential Effects and Their Significance

10.8.722 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

- Construction
- Loss of foraging and nesting habitat
- Direct impacts on active nests
- Occupation
- Increase in cat predation
- Road Collision Mortality (specifically Barn Owl)

Construction OPA Phase 1

Passerine species

10.8.723 The birds recorded breeding within Phase1 are common and ubiquitous species.

10.8.724 The potential for direct or indirect impacts on active bird nests (will be avoided through the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid this effect will be successfully implemented.

10.8.725 The sensitivity of this receptor is very low, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on breeding (passerine) birds.**

Barn Owl

10.8.726 The grassland habitat is improved and heavily grazed and is of very low foraging value to barn owls due to its limited capacity to support field voles. A wide swathe of ecological buffer and green infrastructure corridor will provide enhanced foraging habitat and serve to retain connectivity to foraging areas that may lie beyond the site to the south east.

10.8.727 The construction area is over 150m from the existing nest site separated by mature hedgerows and, as such poses no potential for disturbance of the existing nest site.

10.8.728 The sensitivity of this receptor is medium, and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on barn owl.**

Construction Wider OPA and Link Road

Passerine Species

10.8.729 The birds recorded breeding within on site are generally adaptable common and ubiquitous species. The loss of the habitats within the development footprint are largely of low value to breeding passerines and the retained and enhanced habitats on site will accommodate all of species present at similar densities, albeit with an altered distribution. There will be a temporary reduction in habitats (e.g. hedgerow) on site as there will be a period between the loss and the maturation of the newly created hedgerows. This is not expected to be of significant detriment to the species present as the habitats retained on site are considered adequate to accommodate these species at a higher density in the interim with the population capable of rapid colonisation of new habitats with the result being an increase in available, high quality habitat in the long term.

10.8.730 The potential for direct or indirect impacts on active bird nests (will be avoided through the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid this effect will be successfully implemented.

10.8.731 The sensitivity of this receptor is very low and the magnitude of this change is considered to be very low and there is, therefore, **no likely significant effect on breeding (passerine) birds.**

Barn Owl

10.8.732 The vast majority of grassland habitat to be lost is improved and heavily grazed and of very low foraging value to barn owls due to its limited capacity to support field voles.

10.8.733 The link road is likely to be categorised as a “Modern A Road” class according to the Barn Owl Trust⁸⁷

⁸⁷ Barn Owls and Major Roads: Results and Recommendations from a 15 year research project (Barn Owl Trust, 2004)

10.8.734 Whilst a modern A road, the link road will be designed to accommodate measures described within this report to reduce the road collision mortality rate including:

- Sections where the road is situated on an embankment present the highest risk followed by sections at existing ground levels. In these areas, the creation of obstacles (natural or artificial with a preference for natural) which force birds to fly higher across roads will be incorporated into the scheme.
- Areas where the road is situated in a cutting present a lower risk and will not require additional planting, although this will be considered as part of the wider road landscaping scheme.
- Verges south of the link road will be maintained in a short, thatchless condition to reduce the potential for field vole.

10.8.735 The existing nest location will be moved in a phased process whereby an identical box will be erected in the far south west of the site in winter 2020 (approx. 600m from the nearest link road section) with the existing box retained until the winter prior to the operational phase of the road (estimated 2022 – relocation in winter 2021). At which point the occupied box will be relocated (outside of breeding season) to a tree within 100m of the new nest box. This will recreate the current associated adult and nest roost configuration between the nest box and the roost in Chalcroft Farm. This relocation will seek to reduce collision risk and to reduce the potential for disturbance effects from the residential areas.

10.8.736 The marshy grassland areas in this vicinity of the nest box will be enhanced and managed to increase the population of field voles to provide an increased foraging resource.

Occupation OPA Phase 1

10.8.737 Homeowner information packs will be provided, alongside educational/information boards to provide guidance on the valued species on site and how disturbance and pets, such as cats and dogs will disturb/predate on wildlife to encourage responsible decision making when choosing and taking responsibility for the management of these pets.

Occupation Wider OPA and Link Road

10.8.738 Homeowner information packs will be provided, alongside educational/information boards to provide guidance on the valued species on site and how disturbance and pets, such as cats and dogs will disturb/predate on wildlife to encourage responsible decision making when choosing and taking responsibility for the management of these pets.

Invertebrates

Baseline Conditions

10.8.739 The Site offers habitats suitable for a range of invertebrate species. The grassland has limited floristic diversity and therefore offers limited suitability to invertebrates, whereas the hedgerows riparian corridors, woodland and marshy grassland offer better-quality habitat for this group. In addition, the dung from the grazing cattle will provide foraging opportunities for some invertebrate species which in turn will act as prey for animals foraging across the Site.

10.8.740 Overall, the Site is considered likely to support an invertebrate assemblage comprising predominantly common and widespread species, (owing to the grazed habitat that is dominant), although more floristically diverse and complex habitats (such as the riparian corridors) may support legally protected and/ or notable species.

Potential Effects and Their Significance

10.8.741 The potential effects associated with the Development has on this type of receptor could occur in the following ways:

- The extent and distribution of the natural habitats upon which species rely;
- The structure and function of habitats;
- Increase in mortality due to road collision
- Alteration of behaviour and predation risk due to artificial lighting
- The supporting processes on which the habitats and species rely (for example, maintenance of current hydrological conditions); and
- The distribution of those species within the site.

10.8.742 Consideration of how the Proposed Development proposals could affect this receptor and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.743 The habitats present within phase 1 are of very low suitability for rarer invertebrates.

10.8.744 It is therefore considered that the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the protection of designated sites and valuable habitats on and adjacent to the site are also relevant to invertebrates.

10.8.745 The sensitivity of this receptor is low, and the magnitude of this change is considered to be negligible given that this species is absent from the site and there is, therefore, **no likely significant effect on invertebrates.**

Construction Wider OPA and Link Road

10.8.746 The avoidance measures employed during the design of the development have largely avoided habitats with suitability for rarer invertebrates. These are primarily considered to be woodland, riparian habitats, ponds, hedgerows and marshy grassland. Some small extents of these habitats are to be lost where this has been unavoidable, however, the proportion lost is very small and very unlikely to affect invertebrate populations present on site.

10.8.747 This assessment has been supported by the Ecological Steering group and has resulted in the recommendation that no invertebrate surveys were required.

10.8.748 It is therefore considered that the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the protection of designated sites and valuable habitats on and adjacent to the site are also relevant to invertebrates.

Occupation OPA Phase 1

10.8.749 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the protection of designated sites and valuable habitats on and adjacent to the site are also relevant to invertebrates. The sensitivity of this receptor is low, and the magnitude of this change is considered to be negligible given that this species is absent from the site and there is, therefore, **no likely significant effect on invertebrates.**

Occupation Wider OPA and Link Road

10.8.750 The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the protection of designated sites and valuable habitats on and adjacent to the site are also relevant to invertebrates. The sensitivity of this receptor is low, and the magnitude of this change is considered to be negligible given that this species is absent from the site and there is, therefore, **no likely significant effect on invertebrates.**

Fish

Baseline Conditions

10.8.751 The walkover visual inspection of in-channel habitats concluded that the watercourses associated with the survey area and the One Horton Heath Site support a range of features that are promoting or limiting in terms of fish habitat. In particular, the following features were recorded:

- Effects of low flow were obvious and are unlikely to be unique to 2020.
- A number of the watercourses were dry and do not support habitat for fish during these conditions.
- Barriers to fish migration exist with no notable obstructions to fish passage recorded in survey cross sections out of 100. No riffles were recorded. This significantly restricts the suitability for a wide range of species recorded in the near vicinity.
- The lack of physical diversity is highly likely to reduce macro-invertebrate and fish prey diversity restricting the viability of self-sustaining fish populations for a range of species.
- The watercourses receive extensive agricultural runoff and inputs (likely to contain silts, nutrients, and other chemicals), alongside the discharge from the southern boundary business park, roads and urban development (also likely to contain a range of contaminants). This is likely to limit the presence of fish species sensitive to these conditions.
- The flow is dominated by smooth glides or no perceptible flow, indicative of the lower flow conditions observed. Higher flows do pass through these watercourses although these would not support a broad fish population throughout the year when flows are limited, depths low

and conditions unfavorable.

- The channels are dominated by trees, hedgerows and/or woodland with only reaches two 500m long survey reaches not being covered by woody vegetation.
- There is a paucity of in-channel vegetation and where this exists, it is dominated by marginal emergent species restricting the opportunities for fish spawning and food for a range of species.

10.8.752 Based on the surveys conducted in 2020, it is clear that the watercourses associated with One Horton Heath and in a generally poor condition with limited habitat diversity. This arises from a range of influencing factors including:

- Low flows/dry channels dominated by largely terrestrial vegetation;
- Contamination from agricultural inputs (silts, nutrients, chemicals), urban and road runoff (a range of potential contaminants);
- A lack of management of the dominant woodland and hedgerow/scrub cover;
- Barriers to fish migration and the presence of artificial channel, structures and features;
- Modification to channel form and connectivity (in the south)
- Disturbance from cattle poaching.

10.8.753 At the time of surveying, the only potentially viable fish habitat is associated with the southern boundary watercourse, the lower parts of the western boundary watercourse and in the upper parts of the Fairoak Stream, noting these would also be separated by barriers to migration.

10.8.754 Based on a comparison between the features recorded, fish habitat requirements for the species recorded in the local area, and in particular the constraints and opportunities present, it is considered unlikely that: stone loach, bullhead, pike, perch, Atlantic salmon, brown/sea trout, chub or grayling would be present, or if present, the absence of one of more critical features or presence of a key constraint will make it highly unlikely a sustainable population is currently present. The watercourses do provide better opportunities for minnow, brook lamprey, gudgeon, and European eel, although even for these species, constraints are also present.

Potential Effects and Their Significance

- 10.8.755 The potential effects associated with the Development has on this type of receptor could occur in the following ways:
- 10.8.756 The extent and distribution of the natural habitats upon which the species depend;
- 10.8.757 The structure and function (including typical species) of habitats upon which the species depend;
- 10.8.758 The structure and function of the habitats of species for which the site was designated;
- 10.8.759 The supporting processes on which the habitats and species rely (for example, maintenance of current hydrological conditions); and
- 10.8.760 The distribution of those species within the site.
- 10.8.761 Consideration of how the Proposed Development proposals could affect this habitat type and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

- 10.8.762 There is no fish habitat associated with the OPA Phase 1 area but it drains to the western watercourse, a Main River that is likely to support a restricted fish population on/adjacent to the site due to poor habitat conditions.
- 10.8.763 The site preparation and construction activities associated with OPA Phase 1 will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ordinary watercourse associated with this Phase, which also drains to the west into the western watercourse. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter these watercourses draining the site and be encountered by fish.
- 10.8.764 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including

paints, solvents, plastics etc could be transported through soil and through water into the watercourses.

10.8.765 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.766 The adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success, maintaining flow conditions for fish in the onsite watercourses and downstream.

10.8.767 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the watercourses from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.768 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and fish habitat. Soil and sediment

originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the watercourses from the site (noting that all receiving watercourses and on site fish habitat are dominated by silt and clay bed substrate (apart from those which are dry).

10.8.769 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permeant vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.770 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of fish habitat or the local fish population. As such, whilst the Sensitivity of the on site fish habitat and assumed population is Medium, the Magnitude of change is Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a **Not Significant Likely Construction Effect** will occur to the fish population associated with the onsite/adjacent watercourses (or further downstream) from sediment or other associated pollution during construction associated with the OPA Phase 1.

10.8.771 With the inclusion of the mitigation set out in Chapter 12 of this ES it is considered reasonable to conclude that any changes from construction phase noise or vibration would not affect the conservation status of habitat/species receptors or the integrity of fish habitat or the local fish population. As such, whilst the Sensitivity of the on site fish habitat and assumed population is Medium, the Magnitude of change is Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous monitoring and management intervention measures set out in Chapter 12, a **Not Significant Likely Construction Effect** will occur to the fish population associated with the onsite/adjacent watercourses (or further downstream) from noise or vibration during construction associated with the OPA Phase 1.

10.8.772 Improvements in habitat quality, diversity and structure to the Ordinary Watercourse will be implemented as part of a comprehensive mitigation and enhancement plan, resulting in

its value/sensitivity increasing from low to medium. If there is sufficient water flow, this may become accessible to fish but it will not result in a Likely Significant Effect. Enhancements to the wider watercourses will be implemented through the Wider OPA.

Construction Wider OPA and Link Road

10.8.773 Fish habitat associated with the Wider OPA is limited to the lower western watercourse, a Main River and the upper parts of the Fairoak Stream that is likely to support a restricted fish population on/adjacent to the site due to poor habitat conditions including obstacles to fish passage.

10.8.774 The site preparation and construction activities associated with the wider OPA and Link Road will result in the phased removal of vegetation and exposure and movement of soils, including temporary storage as stock piles, prior to their re-use and revegetation. During this process there is the potential for surface runoff to erode and transport sediment along lower lying flow paths, some of which could be propagated by vehicle tracks, and sediment laden water could enter the retained ordinary watercourse associated with this Phase, which also drains to the west into the western watercourse. In this manner, sediment (and any associated nutrients and contaminants associated with it) may enter these watercourses draining the site and be encountered by fish.

10.8.775 In a similar manner, accidental chemical or waste pollution from construction activities (e.g. leaking vehicle fuel tank, spillages or other accidental releases of contaminants including paints, solvents, plastics etc) could be transported through soil and through water into the watercourses.

10.8.776 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving watercourses, including the Itchen.

10.8.777 The adopted mitigation set out in Table 10.7 in Section 7 of this Chapter of the ES clearly identifies that a robust set of pollution and erosion prevention measures will be prescribed in a Construction Environmental Management Plan, that will adopt all best practice procedures, taking into account site and delivery phase specific conditions (including local

geology and soil typology, topography and environmental pathways). These measures will be implemented in a phase and multi-phase specific manner to ensure complete and consistent management of on and off-site environmental quality. A monitoring and intervention programme will also ensure the efficacy of the CEMP systems and that the quality of any surface runoff entering on site watercourses and that of the combined downstream flow, remains high and consistent. This reflects expected and tried and tested construction phase pollution management procedures and is considered to offer a high level of success, maintaining flow conditions for fish in the onsite watercourses and downstream.

10.8.778 Additional mitigation is set out in Table 10.11 in Section 10.7 of the ES that provides further reassurance of the measures to be implemented to minimise any change in water quality in the watercourses from construction phase effects. These include the protection of all watercourses with a habitat and green infrastructure buffer of between 10 and 50 metres. This will provide a rough surface to help force soil deposition (which would be naturally vegetated) should construction phase attenuation and sedimentation basins be overwhelmed. Formal SUDS basins will also be constructed early in the development phases providing additional attenuation and sediment management during construction, prior to post-construction maintenance, completion and creation of supporting habitats.

10.8.779 The development will also result in the phased cessation of agricultural activities, that includes cattle grazing and arable fields, with substantial areas of bare ground and eroding soil that can feed sediment into the receiving watercourses and fish habitat. Soil and sediment originating from these land uses would cease during each phase of construction and as such there will be a natural reduction in baseline sediment input to the watercourses from the site (noting that all receiving watercourses and on site fish habitat are dominated by silt and clay bed substrate (apart from those which are dry).

10.8.780 During the course of the construction phase impermeable and vegetated surfaces (including habitats and amenity areas) will be provided at the earliest opportunity to ensure that areas of bare soil are minimised in extent and duration. The development of permeant vegetation will aid the gradual cessation of net sediment transport from the specific development phase and the site, with hard surfaces being managed through the new drainage system that will include sediment forebays and other infrastructure, and wetland habitat creation, specifically designed to trap and retain sediment.

10.8.781 With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction

phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of fish habitat and the fish population. As such, whilst the Sensitivity of the on site fish habitat and assumed population is Medium, the Magnitude of change is Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a **Not Significant Likely Construction Effect** will occur to the fish population associated with the onsite/adjacent watercourses (or further downstream) from sediment or other associated pollution during construction associated with the wider OPA.

10.8.782 With the inclusion of the mitigation set out in Chapter 12 of this ES it is considered reasonable to conclude that any changes from construction phase noise or vibration would not affect the conservation status of habitat/species receptors or the integrity of fish habitat or the local fish population. As such, whilst the Sensitivity of the on site fish habitat and assumed population is Medium, the Magnitude of change is Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous monitoring and management intervention measures set out in Chapter 12, a **Not Significant Likely Construction Effect** will occur to the fish population associated with the onsite/adjacent watercourses (or further downstream) from noise or vibration during construction associated with the Wider OPA.

10.8.783 Improvements in habitat quality, diversity and structure to the western boundary watercourse and Fair Oak Stream will be implemented as part of a comprehensive mitigation and enhancement plan, resulting in its value/sensitivity increasing from medium to high and a **positive Significant Likely Effect to fish**. If there is sufficient water flow, the enhanced Ordinary watercourses may become accessible to fish but this will not result in a Likely Significant Effect.

Occupation OPA Phase 1

10.8.784 The developed OPA Phase 1 will result in a change from the agricultural land use to maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1 and the Link Road. Soil erosion from these areas is considered to be negligible.

- 10.8.785 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1.
- 10.8.786 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.
- 10.8.787 Specifications in The SuDS Manual⁸⁸ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details). With regards to potential criticism of SuDS in treating fine sediment, the OHH water specialists consider it is not appropriate to assess the performance of the proposed SuDS scheme at OHH against other SuDS schemes that have been designed and built in recent years.
- 10.8.788 Until very recently, surface water drainage systems that were being offered for adoption by sewerage undertakers were required to be designed in accordance with Sewers for Adoption (SfA). SfA required the system being offered for adoption to comprise a continuous pipe system from inlet to outfall. This led to SuDS features being moved 'offline' such that the treatment processes associated with them were bypassed in the most polluting events. Southern Water implemented this by requiring all SuDS and above ground storage features to have no hydraulic link back in to the system being offered for adoption. The effect of this was that attenuation storage for rainfall events up to the 1 in 30 year return period had to be located within the underground system being offered for adoption.
- 10.8.789 The issue was exacerbated by SfA's requirement for surface water pipe systems to be 'self-cleansing'. These requirements forced designers to produce surface water drainage systems that transported sediment through the drainage system to the outfall to avoid siltation of underground assets. With OFWAT's approval of the Code for Adoption in October 2019, and its implementation in April 2020, designers now have much more flexibility to utilise the treatment processes within SuDS features.

⁸⁸ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

10.8.790 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.791 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the most sensitive on site watercourse (the western watercourse Main River) has a Medium level of sensitivity, the Magnitude of change will be Very Low and therefore **No Significant occupation likely effect** will occur to fish as a result of sediment (or other associated contaminant) emissions. No significant effects are predicted for downstream watercourses.

10.8.792 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving fish habitat. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.793 Public access to watercourses associated with the woodlands will be prevented and all other areas will be limited to access on adjacent paths.

Occupation Wider OPA and Link Road

10.8.794 The developed Wider OPA and Link Road will result in a change from the agricultural land use to maturing mixed use development that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as areas of Green Infrastructure associated with OPA Phase 1 and the Link Road. Soil erosion from these areas into fish habitat is considered to be negligible.

10.8.795 The Additional Mitigation set out in Table 10.11 identifies a range of measures to avoid and minimise the emissions of sediment (and other associated contaminants) as well as nutrients from the operational/occupational stages of the OPA Phase 1.

10.8.796 Sediment generated from the OPA Phase 1 will enter the formal SUDS which is designed to attenuate and retain sediment (including fine particles) and treat and remove nutrients including nitrates and phosphates. The SuDS basins will include sediment forebays, permanently wet and vegetated over deepened wetland habitats, and marginal vegetation in contact with the water, transitioning to emergent and terrestrial habitats.

10.8.797 Specifications in The SuDS Manual⁸⁹ prepared for professional SUDS design by CIRIA will be used as the basis for this (please refer to Chapter 11 for full details). With regards to potential criticism of SuDS in treating fine sediment, the OHH water specialists consider it is not appropriate to assess the performance of the proposed SuDS scheme at OHH against other SuDS schemes that have been designed and built in recent years.

10.8.798 Until very recently, surface water drainage systems that were being offered for adoption by sewerage undertakers were required to be designed in accordance with Sewers for Adoption (SfA). SfA required the system being offered for adoption to comprise a continuous pipe system from inlet to outfall. This led to SuDS features being moved 'offline' such that the treatment processes associated with them were bypassed in the most polluting events. Southern Water

⁸⁹ <https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>

implemented this by requiring all SuDS and above ground storage features to have no hydraulic link back in to the system being offered for adoption. The effect of this was that attenuation storage for rainfall events up to the 1 in 30 year return period had to be located within the underground system being offered for adoption.

10.8.799 The issue was exacerbated by SfA's requirement for surface water pipe systems to be 'self-cleansing'. These requirements forced designers to produce surface water drainage systems that transported sediment through the drainage system to the outfall to avoid siltation of underground assets. With OFWAT's approval of the Code for Adoption in October 2019, and its implementation in April 2020, designers now have much more flexibility to utilise the treatment processes within SuDS features.

10.8.800 The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.801 Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the most sensitive on site watercourse (the western watercourse Main River) has a Medium level of sensitivity, the Magnitude of change will be Very Low and therefore **No Significant occupation likely effect** will occur to fish as a result of sediment (or other associated contaminant) emissions. No significant effects are predicted for downstream watercourses.

10.8.802 The detailed design of the drainage system and site-wide water management plan will ensure that there is no net change in discharge volume from the site, even when taking into account attenuation within ponds, lagoons, or other features. The Flood Risk Assessment for

the development proposals (see Chapter 11 of this ES) requires and demonstrates the maintenance of the greenfield runoff rate, factoring in changes attributed to climate change. As a result, there is no anticipated reduction or increase in runoff volume or rate from the site or within the receiving fish habitat. Please refer to Chapter 11 of this ES for full details on these measures.

10.8.803 Public access to watercourses associated with the woodlands will be prevented and all other areas will be limited to access on adjacent paths.

Invasive Species

Baseline Conditions

10.8.804 The distribution of invasive species on site is described in detail in Appendix 10.2 and summarised below.

10.8.805 Japanese Knotweed (*Fallopia japonica*) has been identified in two areas (adjacent to Chalcroft Farm pond and in the centre of the central woodland belt). These areas are not currently accessible to the public and are also not located within the anticipated construction areas.

10.8.806 Himalayan balsam (*Impatiens glandulifera*) is present in large areas of the lower reaches of Quobleigh wood, both on and off site, and is present throughout the Quobleigh stream corridor. This area is within the construction area of the northern link road crossing. A small additional area was identified on the southern boundary of the woodland where it meets the main hedgerow connecting Quobleigh wood to Fir Tree farm.

10.8.807 Patches of rhododendron (*Rhododendron ponticum*) have also been identified within Quobleigh wood on the site boundary north of the stream. This is outside the construction areas.

10.8.808 Japanese Rose (*Rosa rugosa*) has also been identified in localised patches within the hedgerows in the vicinity of Fir Tree farm.

Potential Effects and Their Significance

10.8.809 The potential effects associated with the Development has on this type of habitat could occur in the following ways:

10.8.810 The extent and distribution of invasive species that can compromise the structure and function (including typical species) of natural habitats;

10.8.811 Consideration of how the Proposed Development proposals could cause this receptor and therefore cause a negative effect on its ecological status is set out below, separated into construction and operational effects.

Construction OPA Phase 1

10.8.812 No invasive species are present within the working area of this phase and therefore there is no risk of spreading invasive species.

10.8.813 There is a risk that additional species will be transported to site in materials or machinery. Specific biosecurity measures will be described in a CEMP to mitigate for the risk of transfer of invasive species.

10.8.814 The sensitivity of receptor habitats on site are very low and the magnitude of this change is considered to be very low and there is, therefore, no likely significant effect on habitats due to the introduction of invasive species.

Construction Wider OPA and Link Road

10.8.815 There is a significant risk of spreading Himalayan balsam during works to construct the Quobleigh stream link road crossing. This could result in the spread of seed into the downstream tributaries and into the River Itchen SSSI. However, measures outlined in the CEMP and a separate invasive species strategy document will ensure that this plant is not caused to spread during works.

10.8.816 There is a risk that additional species will be transported to site in materials or machinery. Specific biosecurity measures will be described and implemented through a CEMP to mitigate for the risk of transfer of invasive species and through the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid this effect will be successfully implemented.

10.8.817 The sensitivity of receptor habitats that could be subject to the spread of invasive species (particularly the dispersal of Himalayan balsam into watercourses) are high but, with effective management and monitoring, the magnitude of this change is considered to be low

and there is, therefore, no likely significant effect on habitats or designated sites due to the introduction of invasive species.

Occupation OPA Phase 1

10.8.818 There is an inherent risk that additional species will be transported to site as domestic garden plants/pets and subsequently caused to spread into habitats adjacent to the development areas. This is outside the influence of this development to control; however, information will be provided to homeowners regarding common, known invasive plant and animal species that they should avoid.

10.8.819 Specific biosecurity measures will be described in a LEMP to minimise the risk of transfer of invasive species during routine habitat management, particularly the management of SuDs features and riparian habitats.

10.8.820 The sensitivity of the vulnerable receptors on site are considered to be low (although downstream receptors including the River Itchen are high) but the magnitude of this change (taking into account the best practice measures being implemented) is considered to be low and there is, therefore, no likely significant effect on habitats or designated sites due to the introduction of invasive species.

Occupation Wider OPA and Link Road

10.8.821 There is an inherent risk that additional species will be transported to site as domestic garden plants/pets and subsequently caused to spread into habitats adjacent to the development areas. This is outside the influence of this development to control; however, information will be provided to homeowners regarding common, known invasive plant and animal species that they should avoid.

10.8.822 Specific biosecurity measures will be described in a LEMP to minimise the risk of transfer of invasive species during routine habitat management, particularly the management of SuDs features and riparian habitats.

10.8.823 It is envisaged that the development will control invasive species on site through the delivery of an invasive species strategy.

10.8.824 The sensitivity of the vulnerable receptors on site are considered to be low (although downstream receptors including the River Itchen are high) but the magnitude of this change (taking into account the best practice measures being implemented) is considered to be low



and there is, therefore, **no likely significant effect on habitats or designated sites due to the introduction of invasive species.**

10.9 CUMULATIVE EFFECTS

10.9.1 This Section considers the likely cumulative impacts from the Proposed Development in combination with other schemes already submitted for consideration by the Local Planning Authority on those ecological receptors (and/or other legally protected species) considered in this Ecology Chapter.

10.9.2 This section considers cumulative impacts from other schemes alongside the OPA Phase 1 and Link Road and Wider OPA proposals.

10.9.3 Table 10.20 details the committed schemes identified and agreed with Eastleigh Borough Council. The schemes taken forward for further consideration are highlighted in bold text and grey shaded cells.

Table 10.20: Cumulative Impacts – Committed Schemes

Site Address	Application Reference	Description	Approximate Distance from Site Boundary (km)	LPA
One Horton Heath Utilities Enabling Works – Underground cabling	N/A	N/A	0	EBC
Allington Lane, Burnetts Lane and Bubb Lane access	O/14/75735 and O/16/79354	N/A	0	EBC
Chalcroft Business Park, Burnetts Lane, West End	F/18/83945	10,541m ²	0.025 (Adjacent)	EBC
Land off Botley Road, West End, Southampton	O/15/76418 F/19/85439	100 units plus 30 units	1.5	EBC
Land at Hedge End North, Winchester Road, Botley, Southampton (Land north west of Boorley Green)	O/15/75953 RM/17/81628	680 units	1.5	EBC
Land to North and East of Boorley Green, Winchester Road, Botley, Southampton SO32 2UA	O/12/71514 F/19/86233	704 units	1.7	EBC

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Site Address	Application Reference	Description	Approximate Distance from Site Boundary (km)	LPA
Pembers Hill Farm, Mortimers Lane, Fair Oak, Eastleigh SO50 7EA	O/15/77190	242 units	1.7	EBC
Land west of Woodhouse Lane	O/18/83634	605 units	2	EBC
Land South of Maddoxford Lane, Boorley Green, Botley, Southampton, SO32 2DB,	F/19/84937	86 units	2.4	EBC
Land to the south of Maddoxford Lane and west of Westfield, Boorley Green, Botley, SO32 2DB	F/19/85178	104 units	2.5	EBC
Southampton International Airport, Mitchell Way, Eastleigh,	F/19/86707	Runway extension	2.7	EBC
The Mount Hospital, Church Road, Bishopstoke	O/12/71007 F/13/73226 F/14/75061 F/17/80513	53 units	2.8	EBC
Land to the North and East of Winchester Street, Botley	O/18/83698	375 units	2.8	EBC
Land at Woodhouse Lane and to the North and East of Botley Village, Eastleigh	CS/17/81226	Construction of a bypass for Botley, providing a connection from Station Hill (A334/A3051 junction) to Woodhouse Lane	3.3	HCC
Eastleigh Police Station, 18-24 Leigh Road, Eastleigh, SO50 9DG	F/19/85332	2,686sqm	3.4	EBC
Land off St Johns Road, South of Foord Road, Hedge End, Southampton SO30 4DG	F/15/76804	109 units	4	EBC
Serenity, Heath House Lane, Hedge End, Southampton, SO30 0LE	F/19/86829	107	4	EBC

Site Address	Application Reference	Description	Approximate Distance from Site Boundary (km)	LPA
Land west of Waylands Place and north of Peewit Hill Close, Hedge End, SO31 1DJ	F/17/80651	106 units	4.2	EBC
Land at Park Farm/North Stoneham Park Stoneham Lane, Eastleigh, SO50 9HS	F/19/86946	15,731sqm	4.3	EBC
Land south of Chestnut Avenue north Stoneham Park, Chestnut Avenue, Stoneham Lane, Eastleigh	O/15/76023 F/17/81167 F/17/81165 F/19/87086	868 units (outstanding) plus 18 units, 39 units and 65 units	4.5	EBC
Land South of Bursledon Road, Bursledon, Southampton	O/15/77121 F/18/82322	178 (outstanding)	5	EBC

Construction phase – Phase 1 OPA and Wider OPA

10.9.4 Taking into account the conclusions that no significant effects are predicted in Chapter 7 (Air Quality), Chapter 11 (Hydrology), Chapter 12 (Noise and Vibration) and Chapter 14 (Landscape and Visual), together with the adopted and additional ecological mitigation and enhancement set out in Chapter 10: Ecology (Tables 10.7 and 10.11 of that Chapter), and the associated monitoring, management and (if necessary intervention) set out in Table 10:25 of Chapter 10: Ecology, the detailed assessment of effects in isolation has concluded that there will only be a 'negligible', 'very low' or 'low' magnitude of change predicted for all ecological effects. Consequently, no significant construction related effects are predicted for any of the ecological receptors being considered either in isolation, in combination or as inter-related effects.

10.9.5 Consequently, it is considered reasonable, and in accordance with guidance provided by PINS, that 'no significant inter-project related construction effects on ecology can therefore occur.

Operational phase – Phase 1 OPA and Wider OPA

10.9.6 Taking into account the conclusions that no significant effects are predicted in Chapter 7 (Air Quality), Chapter 11 (Hydrology), Chapter 12 (Noise and Vibration) and Chapter 14 (Landscape

and Visual), together with the adopted and additional ecological mitigation and enhancement set out in Chapter 10: Ecology (Tables 10.7 and 10.11 of that Chapter), and the associated monitoring, management and (if necessary intervention) set out in Table 10:25 of Chapter 10: Ecology, the detailed assessment of effects in isolation has concluded that there will only be a 'negligible', 'very low' or 'low' magnitude of change predicted for all ecological effects. Consequently, no significant construction related effects are predicted for any of the ecological receptors being considered either in isolation, in combination or as inter-related effects. Consequently, it is considered reasonable, and in accordance with guidance provided by PINS, that 'no significant inter-project related operational effects on ecology can therefore occur.

10.10 IMPACT OF CLIMATE CHANGE

10.10.1 Greenhouse gas (GHG) emissions contribute to climate change, which could affect the designated features of national and local sites, habitats and species considered in this Chapter. For example, climate change may lead to grassland management changes resulting in the loss of foraging habitat for bats and/ or badgers. Climate change may also lead to, for example, changes in the distribution of bats due to other areas in the UK and abroad becoming more suitable for the species, leading to a decline in local populations.

10.10.2 The Climate Change Adaptation Manual⁹⁰ supports practical and pragmatic decision making and guides reasonable judgement on the potential effects of climate change on the key habitats associated with the Site. The habitats that characterise the Site, for example, improved grassland and hedgerows, are of low relative vulnerability to climate change.

10.10.3 Climate change and its implications for ecology has been incorporated into the design of the inherent ecological design mitigation and enhancement habitats to reduce the risk of impact on legally protected and other species. Selection measures that are based on habitats that are known to be more resilient to climate change and provide extended ecological functionality for a range of species across the Site will be selected. These inherent design mitigation measures are listed in Table 10.7, with additional mitigation, compensation and enhancement measures given in Table 10.11 also relevant. Specific measures that have been included in these Tables that will help to mitigate the effects of climate change at the Site include the restoration and

⁹⁰ Natural England & Royal Society for the Protection of Birds (RSPB), 2015. Climate Change Adaptation Manual: Evidence to support nature conservation in a changing climate.



management of Priority Habitats, that generally have a low sensitivity to key climate change effects, and will provide enhanced and long terms suitability for the wide range of biodiversity associated with the One Horton Heath site and adjacent connected habitats.

10.10.4 This has largely been achieved through the retention, enhancement and creation of additional areas of replacement habitat that are considered to have a low level of sensitivity to climate change (subject to appropriate management). These measures are associated with the provision of trees, hedgerow and scrub, the creation of a new pond, provision of new bat roosts, amphibian/ reptile hibernacula and bird nesting habitat, and improvement in grassland species diversity. A Landscape and Ecological Management Plan will be produced to guide appropriate long-term care of these new and existing habitats.

10.10.5 It is considered that these measures also reduce the impact of climate change on ecology at the Site through the strengthening of habitat connectivity and ecological networks within and adjacent to the Site, and the allowance for climate change in drainage systems (i.e. the incorporation of SUDS into the Site proposals).

10.11 ASSESSMENT SUMMARY

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Table 10.21: Ecology Assessment Summary – OPA Phase 1 (Construction Effects)

Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Construction Effects – OPA Phase 1								
River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may affect designated features including macrophytes, macroinvertebrates, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate – could be significant	Retention, protection and restoration of watercourses and associated riparian corridors including bankside and in channel enhancement measures, promoting reconnection with the floodplain and Stage 0 features, delivered in accordance with a detailed long-term water features management plan. All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) with an associated 10-50m green infrastructure corridor (measured from the bank edge of water limit when watercourse is full i.e. bankfull). This buffer will be enhanced with appropriate habitat management and habitat creation measures that complement and enhance the watercourses. A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of	Very Low	No Likely Significant Effect
	Change in nutrients	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular	Low	No Likely Significant Effect		Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	affecting water quality		nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the River Itchen and associated features of interest.			these features is maintained. Please refer to Chapter 11 of this ES for full details. Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.		
	Modification of hydrological regime	V High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the Itchen at SU 46198 16665	Low	Moderate – could be significant	Inclusion of wetland/watercourse features within the GI and watercourse corridors to promote on-site attenuation of surface waters emerging from the OHH area to enable long-term high quality wetland/watercourse habitats, promoting physical habitat diversity, reconnection to the floodplain and Stage 0 headwater processes, to ensure no further downstream mobilisation of soil/riverine sediment and nutrients and to provide ecologically valuable natural filtration features within the development such as wetland areas reed beds etc that is above and beyond the net zero nutrient and sediment emission measures described in above.	Negligible	No Likely Significant Effect
Solent Maritime SAC (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may	Low	Moderate – could be significant	See measures for River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Very Low	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			affect designated features including macrophytes, macroinvertebrates, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects.					
	Change in nutrients affecting water quality	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the River Itchen and associated features of interest.	Low	Moderate – could be significant		Very Low	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Modification of hydrological regime	V High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the Itchen at SU 46198 16665	Low	Moderate – could be significant		Negligible	No Likely Significant Effect
Solent SPA (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and transported into the Solent resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate – could be significant	See measures for River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Negligible	No Likely Significant Effect
	Change in nutrients affecting water quality	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the Solent with potential effects on	Low	Moderate – could be significant		Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			eutrophication levels and associated features of interest.					
Solent and Southampton Water RAMSAR (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and transported into the Solent resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate – could be significant	See measures for River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Negligible	No Likely Significant Effect
	Change in nutrients affecting water quality	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the Solent with potential effects on eutrophication levels and associated features of interest.	Low	Moderate – could be significant		Negligible	No Likely Significant Effect
New Forest SPA (and other constituent designated sites)	No likely significant effects						Negligible	No Likely Significant Effect
New Forest SAC (and other constituent designated sites)	No likely significant effects						Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Emer Bog SAC (and other constituent designated sites)	No likely significant effects						Negligible	No Likely Significant Effect
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)	Design measures have been included within the SuDS scheme (see Chapter 11 of this ES) to avoid changes to the hydrological regime, water quality or soil levels that would negatively affect trees and shrubs. A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of these features is maintained. Please refer to Chapter 11 of this ES for full details.	Negligible	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)	Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.	Negligible	No Likely Significant Effect
Round Copse Site of Importance for Nature	Pollution	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	Production of a detailed Construction Environmental Management Plan	Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Conservation (SINC)			Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.			(CEMP) (see table 10.7 for detailed description of required components) A 50m wide green infrastructure corridor (measured from tree stems on outer edge of perimeter woodland) will separate the developed areas from areas of highly valuable woodland habitat, including ancient woodland. This 50m corridor includes a 15m ecological buffer in which the following specifications apply: • No excavation (except SuDS, respecting RPAs)		
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)	• No construction related activities or activities likely to have negative effect on habitat • Biodiversity Enhancement permitted • No additional lighting >0.5lux The 15m ecological buffer will be demarcated with a significant species rich hedgerow, fence earth bank and ditch features to prevent public access into these areas.	Negligible	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow	Low	Moderate (could be significant)	The ecological buffer will be designed to effectively extend the existing habitats within the SINC woodland and to provide a transitional habitat and structure, replicating natural woodland expansion/succession to increase diversity and to protect and enhance the existing habitat. The zone between 15-50m from the habitat boundary will be subject to the	Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			characteristics and quality entering the SINC			following restricted uses and constraints: • Footpaths • Cycleways • SuDS • Biodiversity enhancement permitted • Minimal additional lighting where this does not compromise ecological function, ideally >0.5lux. It is envisaged that ecological enhancement measures will be delivered at the earliest available opportunity. Design measures have been included to avoid changes to the hydrological regime or soil levels that would negatively affect trees and shrubs. A detailed long term habitat management plan will be implemented to deliver habitat management and enhancement. A robust habitat monitoring regime will be implemented to provide feedback on the efficacy of buffers and habitat creation measures and to inform a responsive system of remedial works to ensure that the condition of retained habitats is maintained, the intended habitat conditions of newly created habitats are realised and that the long-term function of these features is maintained. Public access is excluded from the majority of this SINC;		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						therefore, the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence.		
Treeline Break Site of Importance for Nature Conservation (SINC)	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)	Design measures have been included within the SuDS scheme (see Chapter 11 of this ES) to avoid changes to the hydrological regime, water quality or soil levels that would negatively affect trees and shrubs. A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of these features is maintained. Please refer to Chapter 11 of this ES for full details.	Negligible	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)	Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.	Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Watercourses (other than those listed or associated with designated sites listed above) – Priority Habitat	Direct damage	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) (measured from the bank edge of water limit when watercourse is full). Watercourse severance has been minimised through the development. See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Negligible	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the habitat through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the watercourse and associated features of interest.	Low	Moderate (could be significant)		Low	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature	Low	Moderate (could be significant)		Negligible	No Likely Significant Effect
	Pollution	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	See also measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Negligible	No Likely Significant Effect
Marshy Grassland – see bats, birds, amphibians and reptiles as well – Priority Habitat	Habitat Change	High	Construction activities will result in an unavoidable loss of 0.24ha of poor quality areas of marshy grassland	Low	Moderate (could be significant)	The retained habitat areas will be significantly enhanced and managed in perpetuity to increase species diversity through improvements to the hydrological and grazing regimes to increase the value of these habitats. Additional wetland habitat will also be	Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						provided in the form of ponds and wetland habitats to compliment these retained habitat areas.		
	Direct damage	High	Deposition of dust arising from construction activities. Damage to retained habitats through accidental access with machinery. Discharge of soil/sediment from construction activities into the feature from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the feature, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	Areas of this habitat will be immediately adjacent to areas of significant construction works. See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Negligible	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the feature through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the feature and associated features of interest.	Low	Moderate (could be significant)		Negligible	Significant positive likely effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with	Low	Moderate (could be significant)		Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature					
Hedgerows	Habitat Change	Medium	Construction activities will result in an unavoidable loss of 0.5 km of hedgerows.	Medium	Moderate (could be significant)	Phase 1 will result in the loss of ~0.5km of hedgerow, the retention of ~0.7km and the creation of ~1km. This will ultimately deliver a net increase of ~0.5km (a gain of ~50%) of native species rich hedgerow. Retained and newly planted hedgerows will be protected by a 5m ecological buffer comprising a grassland habitat to compliment the hedgerow habitat. This will be managed to maximise the ecological benefit. Retained hedgerows will not be subject to artificial light levels in excess of 0.5 lux increase on baseline. A wide range of additional ecological mitigation and enhancement measures will provide additional ecological functionality of habitats in the wider local area and these measures will be implemented as part of the Proposed Development. These are summarised in Section 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES. Consequently, only a low magnitude of change is predicted that	Very Low	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						generates no likely significant effects on ecology.		
	Direct Damage	High	Deposition of dust arising from construction activities. Damage to retained habitats through accidental access with machinery. Discharge of soil/sediment from construction activities into the feature from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the feature, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	Hedgerow removal and severance has been minimised through the design process. Where the removal or severance of hedgerows is unavoidable, compensatory native species rich hedgerows will be created on a minimum of a like for like basis. Suitable protection barriers will be installed to prevent accidental damage to retained hedgerows and their root protection areas. Areas of this habitat will be immediately adjacent to areas of significant construction works. See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Negligible	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature	Low	Moderate (could be significant)		Negligible	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Pollution	High	Deposition of dust arising from construction activities. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the feature including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)		V Low	No likely significant effect
Broadleaved Semi-Natural Woodland (off site)	Direct damage	High	Direct impact through plant movement in RPAs or accidental physical damage during construction of SuDS.	Low	Moderate (could be significant)	Measures described for Round Copse SINC, are also applicable to this habitat. Measures described in 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES are considered adequate to mitigate for construction phase effects.	Low	No likely significant effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime through modifications to soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction supply of water or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality supplying the feature.	Low	Moderate (could be significant)		Low	Likely positive minor non-significant effect
	Habitat Severance	Medium	Severance of key habitat connecting roost and feeding/breeding areas etc. Artificial lighting of habitat features during construction. Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat)	Low	Moderate (could be significant)		Low	Negligible Non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Bats	Direct loss/degradation of key foraging habitat	Medium	Reduction in available food source/diversity/abundance of foraging resource including through severance and lighting effects.	Low	Minor Non-significant likely effect	The effect of the severance of the hedgerow in this location by a narrow, low speed limit estate road is not considered to be significant given that these bats currently feed alongside a track which is accessed by vehicles throughout a 24 hour period. These bats are considered to be highly likely to cross this feature and continue to forage in this area despite this severance. The foraging resource in this area is expected to be directly related to the presence of livestock and this is expected to decrease in this locale and adapt to the changes in the grazing regime toward other areas of the site. There is considerable alternative foraging resource across the site that will be retained throughout the development. The areas north of the access track will be enhanced to provide a mosaic of wet features including ecologically designed SuDS that will increase the diversity and abundance of prey species in this area. The grassland on site is of very low value to foraging bats and therefore the loss of this habitat is considered to have a negligible negative effect. The boundary features will be protected and new woodland and hedgerow planting along the south western boundary will ensure landscape permeability. The measures described to control lighting during construction in the inherent and additional measures (all based on robust and tried and tested	Very Low	Negligible Non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. As such, whilst the Sensitivity of the bat assemblage is considered to be medium (reflecting the absence of roosts present or supported by the habitats present on site and considering the status/rarity of the respective species foraging on site), the Magnitude of change would be Low and therefore a minor negative but Not Significant Likely Construction Effect will occur to the bat assemblage during construction associated with the OPA Phase 1.		
	Pollution	High	Accidental pollution on site construction activities (e.g. hydrocarbons, herbicides, paints, solvents and other materials used) and discharge into habitats used including exposure to substances with chronic or acute consequential effects.	High	Major (significant)	The grassland on site is of very low value to foraging bats and therefore the loss of this habitat is considered to have a negligible negative effect. Additional habitat creation and enhancement measures described above for woodland (including woodland extensions), hedgerows, marshy grassland, ponds, watercourses and water quality will all enhance the foraging provision on site within the retained habitats. The measures described to control lighting during construction in the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. As such, whilst the	Low	Minor Non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						Sensitivity of the bat assemblage is considered to be medium (reflecting the absence of roosts present or supported by the habitats present on site and considering the status/rarity of the respective species foraging on site), the Magnitude of change would be Low and therefore a minor negative but Not Significant Likely Construction Effect will occur to the bat assemblage during construction associated with the OPA Phase 1.		
Great Crested Newt	Destruction of habitat features	High	Impacts on terrestrial habitat within 500m of a breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, marshy grassland, woodlands, watercourses and mature trees) and adjacent habitats.	High	Major (significant)	Great crested newt and other amphibian/reptile mitigation Key amphibian/reptile habitats have been largely avoided and will be protected and enhanced.	Low	Minor Non-significant likely effect
	Habitat Severance	High	Severance of key habitat connecting resting places, foraging habitats and breeding habitats Artificial lighting of habitat features during construction	High	Major (significant)	Where valuable amphibian habitats must be affected, appropriate measures will be implemented to ensure that animals are protected during construction and that there is no detrimental effect on the favourable conservation status of the populations present on site.	Low	Minor Non-significant likely effect
	Killing/injury	High	Constriction operations in/adjacent to suitable habitat within 250m of breeding pond and associate traffic movements.	High	Major (significant)	These measures include:	Low	Minor Non-significant likely effect
	Direct loss/degradation of key foraging habitat	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or pollution/lighting effects. Reduction in foraging resource can also occur as a result of habitat severance.	High	Major (significant)	Implementation of a series of linked Natural England EPS licences coordinated through the implementation of a great crested newt masterplan	Low	Minor Non-significant likely effect
	Habitat Severance	High	Habitat fragmentation due to habitat loss and disturbance	Low	Moderate (could be significant)	Avoidance measures to minimise areas of habitat loss and to maintain habitat connectivity Sensitive approach to vegetation clearance including consideration of timing, duration and methodology. This will employ measures of phased vegetation removal in accordance with	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						best practise under a detailed method statement. Exclusion from working areas until works have ceased and habitat reinstated Capture from exclusion areas and translocation to retained receptor habitat Translocation of the southern low size class Chalcroft population from the single poor quality pond and associated poor quality and disturbed terrestrial habitat within 500m to two restored and two created and optimised northern ponds in Chalcroft Wood on land owned by Eastleigh Borough Council, with high quality terrestrial habitat. This will provide a closer association with the larger part of the existing metapopulation promoting breeding success and genetic diversity, increasing the territory used by great crested newt into optimal habitat for the construction phase. Chalcroft pond will be retained and restored, including connectivity for great crested newt to return to the southern habitat. A necklace of new ponds will link the northern population with restored and enhanced habitats in the south. Measures to prevent entrapment in drainage systems and connectivity across roads Provision of enhanced terrestrial habitat and a network of created and restored ponds and wetlands, together with resting and overwintering habitats		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						Habitat compensation and enhancement measures will be delivered in accordance with industry best practise ensuring compliance with policy and legislation. The management of recreation on site, particularly dogs, and cats through landscape design, householder packs and appropriate fencing and signage in key habitat areas, particularly close to known and potential future breeding ponds and adjacent habitats. Key elements of GCN mitigation will be delivered under EPS mitigation licences, as appropriate, with additional elements of the development delivered under a non-licensable method statement where the likelihood of an offence is negligible. Habitat connectivity will be maintained through the designation, enhancement and long-term management of ecological connective corridors to maintain the landscape permeability both on and across the site for amphibians/reptiles. Measures will also be incorporated in road designs at key severance locations to facilitate safe passage to avoid collision mortality and entrapment risk. Habitat connectivity will be maintained through the designation, enhancement and long-term management of ecological connective corridors to maintain the landscape permeability both on and across the site for amphibians/reptiles. Measures will also be incorporated in road designs at		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						key severance locations to facilitate safe passage to avoid collision mortality and entrapment risk. Measures have been incorporated into the masterplan to minimise risk and disturbance to the populations present and to facilitate the recolonisation and natural dispersal/recolonisation of the population across the site post construction to new wildlife ponds constructed to appeal to breeding GCN via a comprehensive network of suitable connective habitats linking existing populations to these new features. All habitats managed for amphibians/reptiles will be subject to a detailed long-term management plan. See A to N		
Otter	Killing/injury	High	Constriction operations in/adjacent to suitable habitat within 30m of riparian habitats and associate traffic movements.	Low	Moderate (could be significant)	The riparian corridors within the northern area of the site are considered to be connective habitat for otter and are minor tributaries of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.	Very low	No likely significant effect
	Habitat Severance	Low	Habitat fragmentation due to habitat loss and disturbance	Low	Minor (not significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Water Vole	Killing/injury	Low	Constriction operations in/adjacent to suitable habitat within 30m of riparian habitats and associate traffic movements.	Low	Negligible Not Significant	The riparian corridors within the northern area of the site are considered to be connective habitat for otter and are minor tributaries of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to water vole in the wider river catchment during construction.	Very low	No likely significant effect
	Pollution	Low	Accidental pollution on site construction activities (e.g. hydrocarbons, herbicides, paints, solvents and other materials used) and discharge into habitats used including exposure to substances with chronic or acute consequential effects.	Low	Negligible Not Significant		Low	Minor Non-significant
Reptiles	Destruction of habitat features	High	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, woodlands, marshy grassland, watercourses and mature trees) and adjacent habitats.	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for marshy grassland, hedgerows and great crested newts are also relevant to reptiles.	Very Low	Minor Non-significant
	Habitat Severance	High	Severance of key habitat connecting resting places, foraging habitats and breeding habitats Artificial lighting of habitat features during construction	Low	Moderate (Could be significant)		Very Low	Minor Non-significant
	Killing/injury	High	Constriction operations in/adjacent to suitable habitat and associate traffic movements.	Low	Moderate (Could be significant)		Very Low	Minor Non-significant
	Direct loss/degradation of key foraging habitat	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or pollution/lighting effects. Reduction in	Low	Moderate (Could be significant)		Very Low	Minor Non-significant

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			foraging resource can also occur as a result of habitat severance.					
	Damage/ destruction of setts	Low	Construction within close proximity of sett location (distance dependent on magnitude of vibration) causing collapse of tunnels	Very Low	Negligible (not significant)		Very Low	Negligible (not significant)
Badger	Entrapment	Low	Open, steep sided excavations during construction can entrap animals.	Very Low	Negligible (not significant)	Very limited badger activity observed on site over a 2 year monitoring period. No active setts recorded in 2020. Works areas within 30m of suitable sett construction habitat will be subject to a pre-works inspection. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for marshy grassland, woodland, hedgerows, ponds and great crested newts are also relevant to reptiles.	Very Low	Negligible (not significant)
	Destruction of habitat features	High	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, woodlands, marshy grassland, watercourses and mature trees) and adjacent habitats.	Low	Moderate (Could be significant)		Very Low	Minor Non-significant
Breeding Birds						Provision of new habitat will continue to support a similar species assemblage and population size. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Damage/ destruction of active nests	High	Removal of habitat within close proximity of nest location, or of connected structures (i.e. buildings or branches) causing collapse of supporting vegetation.	Low	Moderate (Could be significant)		Very Low	Minor Non-significant

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Direct loss/degradation of key foraging habitat (barn owl)	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or pollution/lighting effects. Reduction in foraging resource can also occur as a result of habitat severance.	Low	Moderate (Could be significant)	Works areas within 5m of suitable nest construction habitat will be subject to a pre-works inspection should work occur in the period March-September (inclusive). The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	Negligible likely non-significant effect
	Pollution	High	Discharge of soil/sediment from construction activities into on site/receiving watercourses, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The grassland habitat is improved and heavily grazed and is of very low foraging value to barn owls due to its limited capacity to support field voles. A wide swathe of ecological buffer and green infrastructure corridor will provide enhanced foraging habitat and serve to retain connectivity to foraging areas that may lie beyond the site to the south east. The construction area is over 150m from the existing nest site separated by mature hedgerows and, as such poses no potential for disturbance of the existing nest site.	Very Low	No likely significant effect
Fish (on-site) (see also watercourses)	Modification of onsite hydrological regime affecting habitats.	Medium	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	Positive non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature					
	Nutrients	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses with potential effects on eutrophication levels and associated features of interest.	Low	Minor (not significant)	With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of fish habitat and the fish population.	Very Low	Positive non-significant likely effect
						As such, whilst the Sensitivity of the on-site fish habitat and assumed population is Medium, the Magnitude of change is Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a Not Significant Likely Construction Effect will occur to the fish population associated with the onsite/adjacent watercourses (or further downstream) from sediment or other associated pollution during construction associated with the OPA Phase 1.		

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Table 10.22: Ecology Assessment Summary – OPA Phase 1 (Occupation Effects)

Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Occupation / Operational Effects – OPA Phase 1								
River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	Very High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may affect designated features including macrophytes, macroinvertebrates, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			birds through reduction in water quality including exposure to substances with chronic or acute consequential effects.			ensure consistent and ongoing high quality performance. Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions. Please refer to Chapter 11 of this ES for full details.		
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving	Low	Moderate (Could be significant)	The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system.	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			watercourses and associated features of interest.			Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible.		
Solent Maritime SAC (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	Very High	Discharge of soil/sediment from operation/occupation of the site from various activities into on site/receiving watercourses and transport into the Solent introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the Solent influencing a possible reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions. Please refer to Chapter 11 of this ES for full details.		
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of	Low	Moderate (Could be significant)	The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and transport into the Solent.			and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible.		
Solent SPA (and other constituent designated sites)	Disturbance/ degradation of designated features as a result of increased recreation	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.	Low	Moderate (Could be significant)	The Wider OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking. A detailed comparison of the on site	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						provision against SANG criteria has been completed. Please refer to Chapter 14 for full details. The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys. However, residents of One Horton Heath will wish to also visit the New Forest SPA. Eastleigh Borough Council is in ongoing negotiations with Natural England with respect to the effectiveness of the on-site recreational provision. Should these negotiations conclude that further measures are required, a financial contribution to the Solent Recreation Mitigation Strategy SPD will be made to removing this additional pressure from the Solent SAC/SPA and Ramsar sites. With the inclusion of the additional on site (and local connected) recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES and set out in more detail in Chapter 14 of this ES, together with any necessary payments to the Solent Recreational Mitigation Strategy SPD, it is considered reasonable to conclude that		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water SPA and constituent SSIs remains the same, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant effects) could arise. Subject to final negotiations with Natural England, financial contribution to the Solent Bird Aware SPD fund to support specific recreation mitigation measures at the SPD would be made, and therefore No Significant Likely Occupational/Operational Effect will occur to the Solent and Southampton Water SPA/Ramsar from recreational pressure associated with the Wider OPA. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.	Low	Moderate (Could be significant)	The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						ensure that suitable measures to avoid these effects will be successfully implemented.		
Solent and Southampton Water Ramsar (and other constituent designated sites)	Disturbance/ degradation of designated features as a result of increased recreation	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Will Not Occur	No likely significant effect
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and thereby the Solent associated features of interest.	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Will Not Occur	No likely significant effect
New Forest SPA (and other constituent)	Disturbance/ degradation of designated features as	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
designated sites)	a result of increased recreation		breeding viability. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.					
New Forest SAC (and other constituent designated sites)	Disturbance/ degradation of designated features as a result of increased recreation	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Will Not Occur	No likely significant effect
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy	Will Not Occur	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in	Low	Moderate (Could be significant)		Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.			are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is limited to the majority of this SINC, therefore the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence.	Low	Negligible (not significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details.	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						to avoid these effects will be successfully implemented.		
Round Copse, West End Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	See measures above for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will Not Occur	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.	Low	Moderate (Could be significant)		Will Not Occur	No likely significant effect
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is not permitted into this SINC, therefore the impact of	Low	Negligible (not significant)	None	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			increased recreational pressure is negligible.					
Treeline Break Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	Low	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Negligible (not significant)	See measures above for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will Not Occur	No likely significant effect
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is not permitted into this SINC, therefore the impact of increased recreational pressure	Low	Negligible (not significant)		Will Not Occur	No likely significant effect
Watercourses (other than those listed or associated with designated sites listed above) – Priority Habitat	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy	Will Not Occur	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in	Low	Moderate (Could be significant)		Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.			are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Minor (not significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details.	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						to avoid these effects will be successfully implemented.		
Marshy Grassland	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and unmanaged use of habitat areas.	Low	Minor (not significant)	See measures included for watercourses	Will Not Occur	No likely significant effect
Hedgerows	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods)	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.			set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and unmanaged use of habitat areas.	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
Bats	Increase in road collision mortality	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (woodland, marshy grassland, hedgerows and riparian habitats)	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very low	Minor Non-significant likely effect
	Indirect degradation of foraging resource	High	Artificial lighting can attract flying nocturnal invertebrates (particularly moths) drawing them a way from unlit area into lit areas, thereby reducing the availability of prey for light sensitive species (such as brown long-eared bats)	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	Minor Non-significant likely effect
	Increase in predation risk	Low	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						to avoid these effects will be successfully implemented.		
Great Crested Newt	Increase in road collision mortality	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (woodland, marshy grassland, hedgerows and riparian habitats – particularly within 250m of breeding ponds).	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very low	No likely significant effect
	Increase in predation risk	High	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very low	No likely significant effect
	Entrapment	High	Entrapment in road and drainage infrastructure	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very low	No likely significant effect
Otter	Pollution	Medium	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Increase in litter and fly tipping.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very low	No likely significant effect
Water Vole	Pollution	Low	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Increase in litter and fly tipping.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
Reptiles	Increase in road collision mortality	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (woodland, marshy grassland, hedgerows and riparian habitats – particularly within 250m of breeding ponds).	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Increase in predation risk	High	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Entrapment	High	Entrapment in road and drainage infrastructure	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Badger	Increase in road collision mortality	Low	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (marshy grassland, woodland, hedgerows and riparian habitats).	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Breeding Birds	Increase in road collision mortality (all species but particularly barn owl)	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (marshy grassland, woodland, hedgerows and riparian habitats).	Low	Moderate (Could be significant)	Road speeds within Phase 1 will be under 20 Mph through a residential scheme, therefore no increase in road traffic mortality is expected.	Very Low	No likely significant effect
	Increase in predation risk	High	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						to avoid these effects will be successfully implemented.		
Invertebrates	Alteration of behaviour	Medium	Artificial light can alter the behaviour of nocturnal invertebrates, thereby affecting population viability and breeding.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Fish (on site)	Pollution	High	Discharge of soil/sediment from construction activities into on site/receiving watercourses, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	See measures for watercourses	Very Low	No likely significant effect
	Nutrients	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses	Low	Moderate (Could be significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			with potential effects on eutrophication levels and associated features of interest.					
	Changes in flow regime	High	Change in riverine flow associated with modified drainage and effects on fish and associated habitat features from a change in flow regime.	Low	Moderate (Could be significant)		Very Low	No likely significant effect
Invasive Species	Spread of invasive species into habitat present (in particular tributaries of the River Itchen)	High	Degradation of affected natural habitats through reduction in diversity and dominance of non-native species that do not provide foraging resource for native invertebrate/animal species.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect

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Table 10.23: Ecology Assessment Summary – Wider OPA (Construction Effects)

Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Construction Effects - Wider OPA and Link Road								
River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may affect designated features including macrophytes, macroinvertebrates, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate – could be significant	Retention, protection and restoration of watercourses and associated riparian corridors including bankside and in channel enhancement measures, promoting reconnection with the floodplain and Stage 0 features, delivered in accordance with a detailed long-term water features management plan. All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) with an associated 10-50m green infrastructure corridor (measured from the bank edge of water limit when watercourse is full i.e. bankfull). This buffer will be enhanced with appropriate habitat management and habitat creation measures that complement and enhance the watercourses. A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of	Very low	No Likely Significant Effect
	Change in nutrients	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular	Low	Moderate – could be significant		Will not occur	Significant positive likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	affecting water quality		nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the River Itchen and associated features of interest.			these features is maintained. Please refer to Chapter 11 of this ES for full details. Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.		
	Modification of hydrological regime	V High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the Itchen at SU 46198 16665	Low	Moderate – could be significant	Inclusion of wetland/watercourse features within the GI and watercourse corridors to promote on-site attenuation of surface waters emerging from the OHH area to enable long-term high quality wetland/watercourse habitats, promoting physical habitat diversity, reconnection to the floodplain and Stage 0 headwater processes, to ensure no further downstream mobilisation of soil/riverine sediment and nutrients and to provide ecologically valuable natural filtration features within the development such as wetland areas reed beds etc that is above and beyond the net zero nutrient and sediment emission measures described in above.	Will not occur	No Likely Significant Effect
Solent Maritime SAC (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country	Low	Moderate – could be significant	See measures for River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			Park, deposition of the sediment may affect designated features including macrophytes, macroinvertebrates, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes, macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects.					
	Change in nutrients affecting water quality	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the River Itchen and associated features of interest.	Low	Moderate – could be significant		Will not occur	Significant positive likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Modification of hydrological regime	V High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the Itchen at SU 46198 16665	Low	Moderate – could be significant		Will not occur	No Likely Significant Effect
Solent SPA (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and transported into the Solent resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate – could be significant	See measures for River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the	Low	Moderate – could be significant		Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			Solent with potential effects on eutrophication levels and associated features of interest.					
Solent and Southampton Water RAMSAR (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	V High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and transport into the Solent, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and transported into the Solent resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate – could be significant	See measures for River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality	V High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses and transported to the Solent with potential effects on eutrophication levels and associated features of interest.	Low	Moderate – could be significant		Will not occur	No Likely Significant Effect
New Forest SPA (and other constituent designated sites)	No likely significant effects						Will not occur	No Likely Significant Effect
New Forest SAC (and other constituent designated sites)	No likely significant effects						Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Emer Bog SAC (and other constituent designated sites)	No likely significant effects						Will not occur	No Likely Significant Effect
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Direct damage	High	Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects. Works are sufficiently distant from this SINC with limited pathways such that direct construction phase effects are unlikely.	Low	Moderate (could be significant)	Production of a detailed Construction Environmental Management Plan (CEMP) (see table 10.7 for detailed description of required components) A 50m wide green infrastructure corridor (measured from tree stems on outer edge of perimeter woodland) will separate the developed areas from areas of highly valuable woodland habitat, including ancient woodland. This 50m corridor includes a 15m ecological buffer in which the following specifications apply: • No excavation (except SuDS, respecting RPAs) • No construction related activities or activities likely to have negative effect on habitat • Biodiversity Enhancement permitted • No additional lighting >0.5lux The 15m ecological buffer will be demarcated with a significant species rich hedgerow, fence earth bank and ditch features to prevent public access into these areas. The ecological buffer will be designed to effectively extend the existing	Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						habitats within the SINC woodland and to provide a transitional habitat and structure, replicating natural woodland expansion/succession to increase diversity and to protect and enhance the existing habitat. The zone between 15-50m from the habitat boundary will be subject to the following restricted uses and constraints: • Footpaths • Cycleways • SuDS • Biodiversity enhancement permitted • Minimal additional lighting where this does not compromise ecological function, ideally >0.5lux. It is envisaged that ecological enhancement measures will be delivered at the earliest available opportunity. Design measures have been included to avoid changes to the hydrological regime or soil levels that would negatively affect trees and shrubs. A detailed long term habitat management plan will be implemented to deliver habitat management and enhancement. A robust habitat monitoring regime will be implemented to provide feedback on the efficacy of buffers and habitat		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						creation measures and to inform a responsive system of remedial works to ensure that the condition of retained habitats is maintained, the intended habitat conditions of newly created habitats are realised and that the long-term function of these features is maintained. Public access is excluded from the majority of this SINC; therefore, the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence.		
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)	Design measures have been included within the SuDS scheme (see Chapter 11 of this ES) to avoid changes to the hydrological regime, water quality or soil levels that would negatively affect trees and shrubs. A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of these features is maintained. Please refer to Chapter 11 of this ES for full details.	Will not occur	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow	Low	Moderate (could be significant)	Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and	Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			characteristics and quality entering the SINC			zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.		
Round Copse Site of Importance for Nature Conservation (SINC)	Pollution	High	Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Heart's Copse Site of Importance for Nature Conservation (SINC)	Direct damage	High	Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality		Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.					
	Modification of onsite hydrological regime affecting habitats.		Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Treeline Break Site of Importance for Nature Conservation (SINC)	Direct damage	High	Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Field West of Treeline Break (Long Field) Site of Importance for Nature Conservation (SINC)	Direct damage	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			eutrophication levels in the SINC and associated features of interest.					
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Quobleigh Pond and Woods Site of Importance for Nature Conservation (SINC)	Direct damage	High	Deposition of dust arising from construction activities. Discharge of soil/sediment from construction activities into the SINC from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the SINC, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect
	Change in nutrients	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	affecting water quality		nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the SINC through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.					
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the SINC	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Fair Oak School Meadow Site of Importance for Nature Conservation (SINC) / Wyvern Technical College Meadow Site of Importance for Nature Conservation (SINC)	Pollution	High	Deposition of dust arising from construction activities. Specific buffer prescriptions have been agreed for the protection of existing watercourses.	Very Low	Minor Non-significant	Production of a detailed Construction Environmental Management Plan (CEMP) (see table 10.7 for detailed description of required components)	Will not occur	No Likely Significant Effect
Watercourses (other than those listed or associated)	Direct damage	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological	Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
with designated sites listed above) – Priority Habitat	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the habitat through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the watercourse and associated features of interest.	Low	Moderate (could be significant)	improvements) (measured from the bank edge of water limit when watercourse is full). Watercourse severance has been minimised through the development. See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	Significant positive likely effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature	Low	Moderate (could be significant)		Negligible	No Likely Significant Effect
Ponds – see bats, birds, amphibians and reptiles as well– Priority Habitat	Habitat Change	High	The poor condition pond at Chalcroft Farm will be protected and restored through the development. The pond in Quobleigh wood will be unaffected by construction and enhanced. A net increase in ponds will be delivered by the proposals including a network of new wildlife ponds along the western boundary of the site to facilitate recolonisation of the southwest of the site by great crested newts and extend the range and population size of the Quobleigh metapopulation	Low	Moderate (could be significant)	All ponds will be subject to high quality conservation management delivered in perpetuity under a detailed LEMP.	Low	Non-Significant positive likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Direct damage	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	See also measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the feature through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the SINC and associated features of interest.	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Parkland	Habitat Change	High	The area of parkland on site will be extended though planting by 0.5 ha (50%)	Low	Moderate (could be significant)		Low	Non-Significant positive likely effect
	Pollution	High	Deposition of dust arising from construction activities.	Low	Moderate (could be significant)	See also measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Marshy Grassland – see bats, birds, amphibians and reptiles as well – Priority Habitat	Habitat Change	High	Construction activities will result in an unavoidable loss of 0.24ha of poor quality areas of marshy grassland	Low	Moderate (could be significant)	The retained habitat areas will be significantly enhanced and managed in perpetuity to increase species diversity through improvements to the hydrological and grazing regimes to increase the value of these habitats. Additional wetland habitat will also be provided in the form of ponds and wetland habitats to compliment these retained habitat areas.	Low	No Likely Significant Effect
	Direct damage	High	Deposition of dust arising from construction activities. Damage to retained habitats through accidental access with machinery. Discharge of soil/sediment from construction activities into the feature from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the feature, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)	Areas of this habitat will be immediately adjacent to areas of significant construction works. See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Very low	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the feature through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on	Low	Moderate (could be significant)		Very low	Non-Significant positive likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			eutrophication levels in the feature and associated features of interest.					
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature	Low	Moderate (could be significant)		Very low	Non-Significant positive likely effect
Hedgerows	Habitat Change	High	Construction activities will result in an unavoidable loss of 1.17km of hedgerows.	Medium	Major (could be significant)	6.24km of new native, species rich hedgerow (with trees) will be created. These hedgerows will be protected by a minimum 5m buffer from the development and not subject to lighting levels >0.5 lux. These will be managed in perpetuity for the benefit of wildlife under a comprehensive LEMP. The OPA net position shows: •Loss of 1.17 km of hedgerow (9.3% of baseline) •Retention of 9.21km of hedgerow (73 % of baseline) •Creation of 6.24 km of new species rich hedgerows This results in a post construction figure of 15.45 km resulting a total species rich hedgerow net gain of 22.8%.	Low	Non-Significant positive likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						•Enhancement of 2.2km of retained hedgerow from species poor to species rich hedgerows, with standard trees where appropriate. This is in addition to the 22.8% gain in extent.		
	Direct Damage	High	Deposition of dust arising from construction activities. Damage to retained habitats through accidental access with machinery. Discharge of soil/sediment from construction activities into the feature from surface runoff introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of soil and water quality including nutrient enrichment. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the feature, affecting designated features through reduction in soil and water quality including exposure to substances with chronic or acute consequential effects.	Moderate	Moderate (could be significant)	Hedgerow removal and severance has been minimised through the design process. Where the removal or severance of hedgerows is unavoidable, compensatory native species rich hedgerows will be created on a minimum of a like for like basis. Suitable protection barriers will be installed to prevent accidental damage to retained hedgerows and their root protection areas. Areas of this habitat will be immediately adjacent to areas of significant construction works. See measures for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Will not occur	No Likely Significant Effect
	Change in nutrients affecting water quality	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses into the feature through the conversion to urban land use and low nutrient managed open spaces and habitats with potential effects on eutrophication levels in the feature and associated features of interest.	Low	Moderate (could be significant)		Will not occur	Significant positive likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature	Low	Moderate (could be significant)		Will not occur	No Likely Significant Effect
Broadleaved Semi-Natural Woodland	Habitat Change	High	The construction of the link road and local road sections will result in the unavoidable loss of 0.8ha (12.3%) of semi-natural broadleaved woodland on site, at either end of the central woodland belt.	Medium	Major (significant)	Measures described in 10.7 and Table 10.11 and illustrated on the Integrated / Embedded Landscape, Visual, Ecological Mitigation drawing location in Appendix 10.12 of this chapter of the ES are considered adequate to mitigate for construction phase effects. Measures described for the adjacent woodland SINC sites (Quobleigh Pond and Woods, Round Copse, Treeline Break and Chalcroft Business Park), are also applicable to this habitat. The development will result in the creation of 5.6ha of semi-natural broadleaved woodland in areas designed to effectively extend the existing mature woodland and designated SINC sites. This results in a total of 11.3 ha of woodland across the site post construction, a net increase in this priority habitat of 164%. The location of these areas of new habitat will complement the	Very Low	No Likely Significant Effect
	Pollution	High	Deposition of dust arising from construction activities. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into the feature including exposure to substances with chronic or acute consequential effects.	Low	Moderate (could be significant)		Very Low	No likely significant effect
	Direct damage	High	Direct impact through plant movement in RPAs or accidental physical damage.	Low	Moderate (could be significant)		Low	No likely significant effect
	Modification of onsite hydrological regime affecting habitats.	High	Modification of onsite hydrological regime through modifications to soil drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction supply of water or change in flood regime resulting in an increase on volume/rate	Low	Moderate (could be significant)		Low	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			and transport of sediment/erosion etc and change in flow characteristics and quality supplying the feature.			existing habitats and will be more likely to succeed on an accelerated timescale due to the presence of a mature donor habitat immediately adjacent to these locations. The existing areas of woodland on site will be enhanced through sensitive planting to promote greater species diversity in both species and structure of the woodlands by implementing a planting and management scheme to enhance herb, scrub and canopy layers and to account for the predicted loss of ash trees within the woodlands to Ash Dieback.		
Bats	Removal of habitat features	High	Impacts on bat roosts and supporting habitats (including buildings, hedgerows, woodlands, watercourses and mature trees) and adjacent habitats.	High	Major (significant)	A number of low status roosts for common bats species are present within the buildings on site, the majority of which are to be demolished. These will be compensated for through the provision of roost type/species appropriate bat boxes and "natural" roost features created on retained trees in appropriate locations (i.e. in close proximity to existing flight lines, adjacent to high value habitat, relatively undisturbed and unlit areas). A maternity roost for brown long-eared bats will be directly affected by the demolition. A mitigation roost will be constructed in the vicinity of Hearts Copse following the criteria for this roost type as described in the bat mitigation guidelines and delivered under licence. Substantial tree and shrub planting will reinforce the connection this location to existing	Very Low	No Likely Significant Effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						flight lines and maternity roost locations within Hearts Copse. The removal of mature trees has been minimised through careful masterplan layout. Where trees containing potential roost features are retained, these will be protected by the buffer specifications as described for hedgerows (O & P) and woodland (G) in section 10.7. Where trees with potential roost features are required to be removed, a precautionary principle will be applied that assume the presence of the most likely roost type for the feature. This is considered appropriate as tree roosts are dynamic and can be readily occupied/abandoned by a variety of species at any given time, making firm assessment of the roost types present particularly challenging. Mitigation and licensing requirements will therefore be informed by subsequent inspections prior to any impacts on these features. A suite of species and habitat specific monitoring regimes will be implemented to provide feedback on the efficacy of mitigation and habitat creation measures for specific receptor species in accordance with legislative and policy requirements. This monitoring will inform a responsive system of remedial measures to ensure that the intended function of these measures is realised and maintained in perpetuity. See A to N and T to X above.		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Habitat Severance	High	Severance of key habitat connecting roost and feeding/breeding areas etc. Artificial lighting of habitat features during construction. Increased lighting levels associated with new link road, estate roads and additional external and internal building lighting may result in indirect impacts on foraging and commuting habitats (disturbance, ultimately resulting in loss of habitat)	High	Major (significant)	Three locations where the link road severs high value foraging and connective habitat have been identified on site that present a traffic collision risk to bats. •Minimising habitat loss in these areas by designing the road approach to the habitat in a perpendicular orientation •Minimising the width of the road crossing •Clear span design •Incorporation of suitable measures to ensure safe crossing following the most recent research into the efficacy of such measures to minimise road collision mortality. •A minimum height of 3m under bridge crossings. •Sensitive design of any lighting that may be required in these areas. •Additional compensatory habitat may be required. Significant vegetation will be retained either side of the construction areas in these locations to encourage the use of underpasses.	Very Low	Minor Non-significant likely effect
	Direct loss/degradation of key foraging habitat	High	Reduction in available food source/diversity/abundance of foraging resource including through severance and lighting effects.	High	Major (significant)	The loss of foraging habitat across the site has been minimised through the retention of key high value habitats. These habitats will be protected and enhanced, with connectivity between these habitat areas and potential roost sites maintained both across the site and the wider landscape through the measures to protect these specific habitats (see G, H, I, O & P). Additional habitat creation and enhancement measures described	Very Low	Minor Non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						above for woodland (including woodland extensions), hedgerows, marshy grassland, ponds, watercourses and water quality will all enhance the foraging provision on site within the retained habitats.		
Great Crested Newt	Pollution	High	Accidental pollution on site construction activities (e.g. hydrocarbons, herbicides, paints, solvents and other materials used) and discharge into habitats used including exposure to substances with chronic or acute consequential effects.	High	Major (significant)	Great crested newt and other amphibian/reptile mitigation Key amphibian/reptile habitats have been largely avoided and will be protected and enhanced. Where valuable amphibian habitats must be affected, appropriate measures will be implemented to ensure that animals are protected during construction and that there is no detrimental effect on the favourable conservation status of the populations present on site.	Very Low	Minor Non-significant likely effect
	Destruction of habitat features	High	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, marshy grassland, woodlands, watercourses and mature trees) and adjacent habitats.	High	Major (significant)	These measures include: Implementation of a series of linked Natural England EPS licences coordinated through the implementation of a great crested newt masterplan	Very Low	Minor Non-significant likely effect
	Habitat Severance	High	Severance of key habitat connecting resting places, foraging habitats and breeding habitats Artificial lighting of habitat features during construction	High	Major (significant)	Avoidance measures to minimise areas of habitat loss and to maintain habitat connectivity	Very Low	Minor Non-significant likely effect
	Killing/injury	High	Constriction operations in/adjacent to suitable habitat within 250m of breeding pond and associate traffic movements.	High	Major (significant)	Sensitive approach to vegetation clearance including consideration of timing, duration and methodology. This will employ measures of phased vegetation removal in accordance with best practise under a detailed method statement.	Very Low	Minor Non-significant likely effect
	Direct loss/degradation of key foraging habitat	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or pollution/lighting effects. Reduction in foraging resource can also occur as a result of habitat severance.	High	Major (significant)	Exclusion from working areas until works have ceased and habitat reinstated	Very Low	Minor Non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						Capture from exclusion areas and translocation to retained receptor habitat Translocation of the southern low size class Chalcroft population from the single poor quality pond and associated poor quality and disturbed terrestrial habitat within 500m to two restored and two created and optimised northern ponds in Chalcroft Wood on land owned by Eastleigh Borough Council, with high quality terrestrial habitat. This will provide a closer association with the larger part of the existing metapopulation promoting breeding success and genetic diversity, increasing the territory used by great crested newt into optimal habitat for the construction phase. Chalcroft pond will be retained and restored, including connectivity for great crested newt to return to the southern habitat. A necklace of new ponds will link the northern population with restored and enhanced habitats in the south. Measures to prevent entrapment in drainage systems and connectivity across roads Provision of enhanced terrestrial habitat and a network of created and restored ponds and wetlands, together with resting and overwintering habitats Habitat compensation and enhancement measures will be delivered in accordance with industry best practise ensuring compliance with policy and legislation.		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						The management of recreation on site, particularly dogs, and cats through landscape design, householder packs and appropriate fencing and signage in key habitat areas, particularly close to known and potential future breeding ponds and adjacent habitats. Key elements of GCN mitigation will be delivered under EPS mitigation licences, as appropriate, with additional elements of the development delivered under a non-licensable method statement where the likelihood of an offence is negligible. Habitat connectivity will be maintained through the designation, enhancement and long-term management of ecological connective corridors to maintain the landscape permeability both on and across the site for amphibians/reptiles. Measures will also be incorporated in road designs at key severance locations to facilitate safe passage to avoid collision mortality and entrapment risk. Habitat connectivity will be maintained through the designation, enhancement and long-term management of ecological connective corridors to maintain the landscape permeability both on and across the site for amphibians/reptiles. Measures will also be incorporated in road designs at key severance locations to facilitate safe passage to avoid collision mortality and entrapment risk.		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						Measures have been incorporated into the masterplan to minimise risk and disturbance to the populations present and to facilitate the recolonisation and natural dispersal/recolonisation of the population across the site post construction to new wildlife ponds constructed to appeal to breeding GCN via a comprehensive network of suitable connective habitats linking existing populations to these new features. All habitats managed for amphibians/reptiles will be subject to a detailed long-term management plan. See A to N		
Otter	Habitat Severance	High	Habitat fragmentation due to habitat loss and disturbance	Low	Moderate (could be significant)	The riparian corridors across the site are considered to be connective habitat for otter and are minor tributaries of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction. The design principles describe above for bats will also allow otter to move freely along the riparian corridor under	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						the link road and therefore reduce collision risk.		
	Killing/injury	High	Constriction operations in/adjacent to suitable habitat within 30m of riparian habitats and associate traffic movements.	Low	Moderate (could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction and maintain connectivity.	Very low	No likely significant effect
Water Vole	Habitat Severance	Low	Habitat fragmentation due to habitat loss and disturbance	Low	Negligible (not significant)	The riparian corridors across the site are considered to be connective habitat for water vole and are minor tributaries of the River Itchen and therefore a potential pathway for pollution effects including sediment and hydrocarbons. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to water vole in the wider river catchment during construction. The design principles describe above for bats will also allow water vole to move freely along the riparian corridor under the link road and therefore reduce collision risk and maintain connectivity.	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Killing/injury	Low	Constriction operations in/adjacent to suitable habitat within 30m of riparian habitats and associate traffic movements.	Low	Moderate (could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for the River Itchen SAC and SSSI also afford protection to otter in the wider river catchment during construction.	Will Not Occur	No likely significant effect
Dormouse	Disturbance	High	Construction activity and noise in proximity to nest sites.	High	Major (significant)	See A- N and T above Ongoing annual dormouse tube monitoring to inform licencing requirements for each phase of the project. Avoidance of hedgerow severance within 150m of confirmed records (currently only within woodland north of solar farm). No lighting associated with road crossings of woodland habitat Installation of suitable aerial structure (e.g. Peoples Trust for Endangered Species, 2019 ⁹¹) across roads severing woodland, in combination with suitable planting to strengthen vegetated corridors Provision of deciduous woodland adjacent to key retained woodland corridor to ensure no net loss of	Very Low	Minor Non-significant likely effect
	Destruction of habitat features	High	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including hedgerows, woodlands, and mature trees) and adjacent habitats connected to central woodland within territorial range.	High	Major (significant)		Very Low	Minor Non-significant likely effect
	Habitat Severance	High	Severance of key habitat connecting resting places, foraging habitats and breeding habitats Artificial lighting of habitat features during construction	High	Major (significant)		Very Low	Minor Non-significant likely effect
	Killing/injury	High	Constriction operations in/adjacent to suitable habitat and associate traffic movements.	High	Major (significant)		Very Low	Minor Non-significant likely effect
	Direct loss/degradation of key	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or	High	Major (significant)		Very Low	Minor Non-significant likely effect

91. <https://ptes.org/wp-content/uploads/2019/09/White-Hughes-2019-dormouse-bridge.pdf>

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	foraging habitat		pollution/lighting effects. Reduction in foraging resource can also occur as a result of habitat severance.			habitat and to maximise availability of food plants throughout the active part of the year. Provision of 150 dormouse nest boxes within retained woodland corridors to maximise and extend suitable nesting habitats. Annual nest box monitoring to be carried out. Sensitive woodland management to restore and maximise opportunities for dormouse (e.g. Forestry Commission 2019 ⁹² and the Hampshire Dormouse Group ⁹³)		
Reptiles	Pollution	High	Accidental pollution on site construction activities (e.g. hydrocarbons, herbicides, paints, solvents and other materials used) and discharge into habitats used including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for marshy grassland, woodland, hedgerows, ponds and great crested newts are also relevant to reptiles.	Very Low	Minor Non-significant
	Destruction of habitat features	High	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, woodlands, marshy grassland, watercourses and mature trees) and adjacent habitats.	Low	Moderate (Could be significant)		Very Low	Minor Non-significant
	Habitat Severance	High	Severance of key habitat connecting resting places, foraging habitats and breeding habitats	Low	Moderate (Could be significant)		Very Low	Minor Non-significant

92 Forestry Commission. 2019. A Protocol for Undertaking Woodland Management in England Where Dormice Are Present. Protocol Version 4.

93 <https://hampshiredormousegroup.co.uk/resources/woodland-habitat-management/>

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			Artificial lighting of habitat features during construction					
	Killing/injury	High	Constriction operations in/adjacent to suitable habitat and associate traffic movements.	Low	Moderate (Could be significant)		Very Low	Minor Non-significant
	Direct loss/degradation of key foraging habitat	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or pollution/lighting effects. Reduction in foraging resource can also occur as a result of habitat severance.	Low	Moderate (Could be significant)		Very Low	Minor Non-significant
Badger	Damage/destruction of setts	Low	Construction within close proximity of sett location (distance dependent on magnitude of vibration) causing collapse of tunnels	Very Low	Negligible (not significant)	Very limited badger activity observed on site over a 2 year monitoring period. No active setts recorded in 2020.	Very Low	Negligible (not significant)
	Entrapment	Low	Open, steep sided excavations during construction can entrap animals.	Very Low	Negligible (not significant)	Works areas within 30m of suitable sett construction habitat will be subject to a pre-works inspection. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented. The measures as described for marshy grassland, woodland, hedgerows, ponds and great crested newts are also relevant to reptiles.	Very Low	Negligible (not significant)
Breeding Birds	Destruction of habitat features	High	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, woodlands, marshy grassland, watercourses and mature trees) and adjacent habitats.	Low	Moderate (Could be significant)	Provision of new habitat will continue to support a similar species assemblage and population size. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to	Very Low	Minor Non-significant

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						avoid these effects will be successfully implemented.		
	Disturbance (Barn Owl only)	High	Construction activity and noise in proximity to nest sites.	Moderate	Major (significant)	Work that risk disturbance to barn owl will avoid the key breeding/nesting period (March-August). The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	Minor Non-significant
	Damage/ destruction of active nests	High	Removal of habitat within close proximity of nest location, or of connected structures (i.e. buildings or branches) causing collapse of supporting vegetation.	Low	Moderate (Could be significant)	Works areas within 5m of suitable nest construction habitat will be subject to a pre-works inspection should work occur in the period March-September (inclusive). The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	Minor Non-significant
	Direct loss/degradation of key foraging habitat (barn owl)	High	Reduction in available food source/diversity/abundance of foraging resource through habitat destruction or pollution/lighting effects. Reduction in foraging resource can also occur as a result of habitat severance.	Moderate	Major (significant)	The existing nest location will be moved in a phased process whereby an identical box will be erected in the far south west of the site in winter 2020 (approx. 600m from the nearest link road section) with the existing box retained until the winter prior to the operational phase of the road (estimated 2022 – relocation in winter 2021). At which point the occupied box will be relocated (outside of breeding season) to a tree within 100m of the new nest box. This will recreate the	Very Low	Minor Non-significant

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						current associated adult and nest roost configuration between the nest box and the roost in Chalcroft Farm. This relocation will seek to reduce collision risk and to reduce the potential for disturbance effects from the residential areas. The marshy grassland areas in this vicinity of the nest box will be enhanced and managed to increase the population of field voles to provide an increased foraging resource.		
Invertebrates	Destruction of habitat features	Medium	Impacts on terrestrial habitat adjacent to breeding sites, resting/hibernation features and supporting habitats (including ponds hedgerows, woodlands, marshy grassland, watercourses and mature trees) and adjacent habitats.	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Fish (on-site) (see also watercourses)	Pollution	High	Discharge of soil/sediment from construction activities into on site/receiving watercourses, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Modification of onsite hydrological	Medium	Modification of onsite hydrological regime including small scale 0/1 st stage headwater catchments through change in soil	Low	Minor (not significant)	With the inclusion of the additional mitigation set out in Table 10.11 of Section 10.7 of this Chapter of the ES	Very Low	Positive non-

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	regime affecting habitats.		drainage character, introduction of formal drainage, severance of drainage systems, blockage of natural drainage systems with reduction in extent of wetland habitats (including marshy grassland/wet woodland) or supply of water to standing or running water bodies, or change in flood regime resulting in an increase on volume/rate and transport of sediment/erosion etc and change in flow characteristics and quality entering the feature			it is considered reasonable to conclude that any changes in construction phase water quality are likely to be within the range of natural variability and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of fish habitat and the fish population. As such, whilst the Sensitivity of the on site fish habitat and assumed population is Medium, the Magnitude of change is Very Low and therefore Low (not significant) effects would arise. Taking into account the rigorous water quality/sediment monitoring and management intervention measures set out in Table 10.11, a Not Significant Likely Construction Effect will occur to the fish population associated with the onsite/adjacent watercourses (or further downstream) from sediment or other associated pollution during construction associated with the OPA Phase 1.		significant likely effect
	Nutrients	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses with potential effects on eutrophication levels and associated features of interest.	Low	Minor (not significant)		Very Low	Positive non-significant likely effect
Invasive Species	Spread of invasive species into habitat present (in particular tributaries of the River Itchen)	High	Degradation of affected natural habitats through reduction in diversity and dominance of non-native species that do not provide foraging resource for native invertebrate/animal species.	Low	Moderate (Could be significant)	There is a significant risk of spreading Himalayan balsam during works to construct the Quobleigh stream link road crossing. This could result in the spread of seed into the downstream tributaries and into the River Itchen SSSI. However, measures outlined in the CEMP and a separate invasive species strategy document will ensure that this plant is not caused to spread during works. There is a risk that additional species will be transported to site in materials	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						or machinery. Specific biosecurity measures will be described and implemented through a CEMP to mitigate for the risk of transfer of invasive species and through the inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid this effect will be successfully implemented. The sensitivity of receptor habitats that could be subject to the spread of invasive species (particularly the dispersal of Himalayan balsam into watercourses) are high but, with effective management and monitoring, the magnitude of this change is considered to be low and there is, therefore, no likely significant effect on habitats or designated sites due to the introduction of invasive species.		

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Table 10.24: Ecology Assessment Summary – Wider OPA (Operational Effects)

Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Occupation / Operational Effects – Wider OPA and Link Road								
River Itchen Special Area of Conservation (SAC) and River Itchen SSSI (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	Very High	Discharge of soil/sediment from construction activities into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, deposition of the sediment may affect designated features including macrophytes, macroinvertebrates, notably condition of salmon spawning habitat (redds) through smothering vegetation, blocking voids within the coarse bedload used by fish and invertebrates, introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the River Itchen at the confluence located at SU 46198 16665, upstream of Itchen Valley Country Park, affecting designated features including macrophytes,	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			macroinvertebrates, fish, and birds through reduction in water quality including exposure to substances with chronic or acute consequential effects.			management intervention to ensure consistent and ongoing high quality performance. Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions. Please refer to Chapter 11 of this ES for full details.		
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving	Low	Moderate (Could be significant)	The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			watercourses and associated features of interest.			into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible.		
Solent Maritime SAC (and other constituent designated sites)	Pollution (sediment, hydrocarbons etc)	Very High	Discharge of soil/sediment from operation/occupation of the site from various activities into on site/receiving watercourses and transport into the Solent introducing nutrients, metals and other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the Solent influencing a possible reduction in water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. Taking into account the change in land use and Additional Measures set out in Table 10.11 and in Chapter 11 of this ES, in particular the provision of a robust, monitored and managed SuDS system, it is considered reasonable to conclude that although the River Itchen SAC and SSSI has a Very High level of sensitivity, the Magnitude of change will be Negligible and therefore No Significant occupation likely effect will occur as a result of sediment (or other associated contaminant) emissions. Please refer to Chapter 11 of this ES for full details.		
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or	Low	Moderate (Could be significant)	The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and transport into the Solent.			surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible.		
Solent SPA (and other constituent designated sites)	Disturbance/ degradation of designated features as a result of increased recreation	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.	Low	Moderate (Could be significant)	The Wider OPA will include the provision of an extensive network of footpaths and play/sports facilities as part of the scheme, both within the developed areas and as green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km SANG (suitable alternative natural space) route, that includes at least 2.5km of route that allows informal access and dog walking. A detailed	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						comparison of the on site provision against SANG criteria has been completed. Please refer to Chapter 14 for full details. The on-site recreational provision at One Horton is expected to cater for most day-to-day walking and cycling journeys. However, residents of One Horton Heath will wish to also visit the New Forest SPA. Eastleigh Borough Council is in ongoing negotiations with Natural England with respect to the effectiveness of the on-site recreational provision. Should these negotiations conclude that further measures are required, a financial contribution to the Solent Recreation Mitigation Strategy SPD will be made to removing this additional pressure from the Solent SAC/SPA and Ramsar sites. With the inclusion of the additional on site (and local connected) recreational resources set out in Table 10.11 of Section 10.7 of this Chapter of the ES and set out in more detail in Chapter 14 of this ES, together with any necessary payments to the Solent Recreational Mitigation Strategy SPD, it is considered		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						reasonable to conclude that any changes in recreational pressure on the SPA and Ramsar (or constituent SSSI etc) are likely to be within the range of typical recreational use for the wider residential population, and there would be no short-term or long-term change to the conservation status of habitat/species receptors or the integrity of designated sites. As such, whilst the sensitivity of the Solent and Southampton Water SPA and constituent SSSIs remains the same, the Magnitude of change reduces to Very Low and therefore Moderate (could be significant effects) could arise. Subject to final negotiations with Natural England, financial contribution to the Solent Bird Aware SPD fund to support specific recreation mitigation measures at the SPD would be made, and therefore No Significant Likely Occupational/Operational Effect will occur to the Solent and Southampton Water SPA/Ramsar from recreational pressure associated with the Wider OPA. The inherent and additional measures (all based on robust and tried and tested methods)		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.	Low	Moderate (Could be significant)	The developed Wider OPA and associated Link Road will result in a widespread change from the agricultural land use to maturing mixed use development, implemented and occupied in phases, that will be characterised by permanent surfaces including impermeable and hard wearing roads, pavements, roofing and other infrastructure that will generate surface runoff that will be directed into formal drainage, transporting any urban sediment that may be present into the formal SUDS system. Other surfaces will be permeable comprising e.g. permeable paving, amenity vegetation such as managed grass and other more ornamental landscape planting, as well as significant areas of Green Infrastructure associated with the Wider OPA and associated Link Road. Soil erosion from these areas is considered to be negligible. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11	Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Solent and Southampton Water Ramsar (and other constituent designated sites)	Disturbance/ degradation of designated features as a result of increased recreation	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Very Low	No likely significant effect
	Change in nutrients affecting water quality	Very High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and thereby the Solent associated features of interest.	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Will Not Occur	No likely significant effect
New Forest SPA (and other)	Disturbance/ degradation of designated features as	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
constituent designated sites)	a result of increased recreation		species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.					
New Forest SAC (and other constituent designated sites)	Disturbance/ degradation of designated features as a result of increased recreation	Very High	Recreational disturbance from human and dog walking in areas associated with sensitive bird species, notably with effects on breeding viability. The site contains a range of habitats that support these bird species including: estuaries, intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh.	Low	Moderate (Could be significant)	See measures as described for the Solent SPA (and other constituent designated sites)	Very Low	No likely significant effect
Emers Bog SAC (and other constituent designated sites)	No likely significant effect						Will Not Occur	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to ensure consistent and ongoing high quality performance. The inherent and additional measures (all based on robust	Very Low	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.	Low	Moderate (Could be significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is limited to the majority of this SINC, therefore the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence.	Low	Negligible (not significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details. The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Round Copse, West End Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	See measures above for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Very Low	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in	Low	Moderate (Could be significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.					
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is not permitted into this SINC, therefore the impact of increased recreational pressure is negligible.	Low	Negligible (not significant)	None	Very Low	No likely significant effect
Hearts Copse, West End, Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	See measures above for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Very Low	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or	Low	Moderate (Could be significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.					
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is not permitted into this SINC, therefore the impact of increased recreational pressure is negligible.	Low	Negligible (not significant)		Very Low	No likely significant effect
Treeline Break Site of Importance for Nature Conservation (SINC)	Pollution (sediment, hydrocarbons etc)	Low	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the SINC affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Negligible (not significant)	See measures above for Chalcroft Distribution Park Site of Importance for Nature Conservation (SINC)	Very Low	No likely significant effect
	Disturbance/degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas. Public access is not permitted into this SINC, therefore the impact of increased recreational pressure	Low	Negligible (not significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Quobleigh Pond and Woods Site of Importance for Nature Conservation (SINC)	Disturbance/degradation of habitat features as a result of increased recreation	High	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas from the PRow in the centre of this site.	Low	Moderate (Could be significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details. The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PRow network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Fair Oak School Meadow Site of Importance for Nature Conservation (SINC)	Disturbance of designated features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Moderate (Could be significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details. The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Wyvern Technical College Meadow Site of Importance for Nature Conservation (SINC)	Disturbance of designated features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Moderate (Could be significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						refer to Chapter 14 of this ES for full details. The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11		

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Watercourses (other than those listed or associated with designated sites listed above) – Priority Habitat	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Low	Moderate (Could be significant)	The proper implementation of a SuDS management / treatment train using a combination of upstream Source Control and Strategic SuDS Features will create greater resilience and allow the system to collect sediment (including silt and other associated contaminants) at various points which can then be removed as part of periodic maintenance. Creating a diverse SuDS scheme throughout the site will help to overcome the issues previously faced by SuDS. Ensuring that the principles of the site wide Water Management Strategy are taken forward into the future Reserved Matters Applications and ensuring that effective maintenance and management procedures are followed will be the key to ensuring the overall effectiveness of the SuDS scheme. The SuDS system and water course inflows and outflows will be monitored (e.g. for sediment, turbidity, electrical conductivity, pH) to highlight reduced performance of any SuDS feature and allow for management intervention to	Very Low	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.	Low	Moderate (Could be significant)		Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						ensure consistent and ongoing high quality performance. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Minor (not significant)	An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details. The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Ponds – see bats, birds, amphibians and reptiles as well– Priority Habitat	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods)	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			largely associated with domestic and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.			set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
Parkland	Increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas including potential vandalism.	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Marshy Grassland	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Change in nutrients affecting water quality	High	Change in nutrient (nitrate and phosphate) emissions from the operation/occupation of the site largely associated with domestic	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			and business generation, with agricultural contributions ceasing and application of fertilisers in open spaces minimised or avoided, but with generation of nutrients from urban operations including discharge of treated sewage arising from the development and urban sediment discharge, with potential effects on siltation and eutrophication levels in the receiving watercourses and associated features of interest.			of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and unmanaged use of habitat areas.	Low	Minor (not significant)	See measures included for watercourses	Very Low	No likely significant effect
Hedgerows	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and unmanaged use of habitat areas.	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Broadleaved Semi-Natural Woodland	Pollution (sediment, hydrocarbons etc)	High	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects.	Very Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Medium	Recreational disturbance and degradation of habitat from an increase in access and unmanaged use of habitat areas.	Low	Minor (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Bats	Increase in road collision mortality	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (woodland, marshy grassland, hedgerows and riparian habitats	High	Major (significant)	Three locations where the link road severs high value foraging and connective habitat have been identified on site that present a traffic collision risk to bats. •Minimising habitat loss in these areas by designing the road approach to the habitat in a perpendicular orientation •Minimising the width of the road crossing •Clear span design •Incorporation of suitable measures to ensure safe crossing following the most recent research into the efficacy of such measures to	Very Low	Minor Non-significant likely effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						minimise road collision mortality. •A minimum height of 3m under bridge crossings. •Sensitive design of any lighting that may be required in these areas. •Additional compensatory habitat may be required. Significant vegetation will be retained either side of the construction areas in these locations to encourage the use of underpasses. The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.		
	Indirect degradation of foraging resource	High	Artificial lighting can attract flying nocturnal invertebrates (particularly moths) drawing them a way from unlit area into lit areas, thereby reducing the availability of prey for light sensitive species (such as brown long-eared bats)	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	Minor Non-significant likely effect
	Increase in predation risk	Low	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Great Crested Newt	Increase in road collision mortality	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (woodland, marshy grassland, hedgerows and riparian habitats – particularly within 250m of breeding ponds).	Low	Moderate (Could be significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Increase in predation risk	Low	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Entrapment	Low	Entrapment in road and drainage infrastructure	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Otter	Pollution	Low	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Increase in litter and fly tipping.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Water Vole	Pollution	Low	Accidental pollution from site operation/occupation (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses and into the habitat affecting designated features through a reduction in soil or water quality including exposure to substances with chronic or acute consequential effects. Increase in litter and fly tipping.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
	Disturbance/ degradation of habitat features as a result of increased recreation	Low	Recreational disturbance and degradation of habitat from an increase in access and informal use of habitat areas.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Will Not Occur	No likely significant effect
Reptiles	Increase in road collision mortality	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (woodland, marshy grassland, hedgerows and riparian habitats – particularly within 250m of breeding ponds).	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
	Increase in predation risk	High	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
	Entrapment	High	Entrapment in road and drainage infrastructure	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Badger	Increase in road collision mortality	Low	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (marshy grassland, woodland, hedgerows and riparian habitats).	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Breeding Birds	Increase in road collision mortality (all species but particularly barn owl)	High	Increase in collision risk due to increased new roads across the site, particularly in areas of severance of high suitability habitat (marshy grassland, woodland, hedgerows and riparian habitats).	Low	Moderate (Could be significant)	The link road is likely to be categorised as a "Modern A Road" class according to the Barn Owl Trust Whilst a modern A road, the link road will be designed to accommodate measures described within this report to reduce the road collision mortality rate including: •Sections where the road is situated on an embankment present the highest risk followed by sections at existing	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						ground levels. In these areas, the creation of obstacles (natural or artificial with a preference for natural) which force birds to fly higher across roads will be incorporated into the scheme. •Areas where the road is situated in a cutting present a lower risk and will not require additional planting, although this will be considered as part of the wider road landscaping scheme. •Verges south of the link road will be maintained in a short, thatchless condition to reduce the potential for field vole.		
	Increase in predation risk	High	An increase in the population of domestic cats is likely to increase predation risk.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Very Low	No likely significant effect
Invertebrates	Alteration of behaviour	Medium	Artificial light can alter the behaviour of nocturnal invertebrates, thereby affecting population viability and breeding.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures to avoid these effects will be successfully implemented.	Negligible	No likely significant effect
Fish (on site)	Pollution	High	Discharge of soil/sediment from construction activities into on site/receiving watercourses, introducing nutrients, metals and	Low	Moderate (Could be significant)	See measures for watercourses	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
			other deleterious substances bound on the sediment particles and influencing other aspects of water quality including nutrient enrichment and water transparency. Accidental pollution on site construction activities (e.g. hydrocarbons, paints, solvents and other materials used) and discharge into on site/receiving watercourses resulting in a reduction in water quality including exposure to substances with chronic or acute consequential effects.					
	Nutrients	High	Change (likely overall reduction during the course of the construction phasing) of agricultural sourced nutrients (in particular nitrates and phosphates) entering the soil and discharged through onsite/receiving watercourses with potential effects on eutrophication levels and associated features of interest.	Low	Moderate (Could be significant)		Very Low	No likely significant effect
	Changes in flow regime	High	Change in riverine flow associated with modified drainage and effects on fish and associated habitat features from a change in flow regime.	Low	Moderate (Could be significant)		Very Low	No likely significant effect
Invasive Species	Spread of invasive species into habitat present (in particular tributaries of the River Itchen)	Low	Degradation of affected natural habitats through reduction in diversity and dominance of non-native species that do not provide foraging resource for native invertebrate/animal species.	Low	Negligible (not significant)	The inherent and additional measures (all based on robust and tried and tested methods) set out in Table 10.7 and 10.11 of this Chapter of the ES will ensure that suitable measures	Very Low	No likely significant effect

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Receptor	Impact	Sensitivity of Receptor	Effect	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
						to avoid these effects will be successfully implemented.		

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Table 10.25: Mitigation Implementation

Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
	e.g. Developer/Contractor/Council	e.g. Planning Condition S.106	How will the implementation of the mitigation measure be monitored?	e.g. construction phase or specific trigger
INHERENT DESIGN MITIGATION MEASURE				
Production of a detailed Construction Environmental Management Plan (CEMP)	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	CEMP management responsibilities, duties, monitoring, reporting, improvement plan Communications and complaints reporting system	Pre-construction
Watercourses protected by 10m ecological buffer (excluding SuDS)	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery through master planning process and appropriate management delivered under a detailed LEMP.	Pre-construction (design)
Hedgerow removal and severance has been minimised through the design process. Where the removal or severance of hedgerows is unavoidable, compensatory native species rich hedgerows will be created in accordance with the prescriptions detailed in the DEFRA Biodiversity metric 2.0. Suitable protection barriers will be installed to prevent accidental damage to retained hedgerows and their root protection areas.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery through master planning process. and LEMP Delivered through CEMP	Preconstruction avoidance through design. Habitat creation to be completed as early as possible but must be completed prior to the loss of habitat to minimise interval between loss and maturation of new habitats. Protection measures delivered during construction by CEMP
Woodland and tree removal and severance has been minimised through the design process. Retained existing woodlands will be enhanced through the introduction of a high quality Woodland Management Plan, discussed later in the ES Chapter.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery through master planning process and appropriate management delivered under a detailed LEMP	Preconstruction avoidance through design. Habitat creation to be completed as early as possible but must be completed prior to the loss of

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
				habitat to minimise interval between loss and maturation of new habitats. Protection measures delivered during construction by CEMP
Areas of important marshy grassland have been excluded from the development area and will be enhanced by the project. These areas will be subject to high quality conservation management discussed later in the ES Chapter.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery through master planning process and appropriate management delivered under a detailed LEMP	Preconstruction avoidance through design. LEMP agreed prior to habitat loss. Protection measures delivered during construction by CEMP
ADDITIONAL MITIGATION, COMPENSATION AND ENHANCEMENT				
OPERATION – ALL PHASES Discharge of foul water (sewage) to Peel Common Waste Water Treatment Works and not into the River Itchen. Suitable treatment at Peel Common Wastewater Treatment Works within consented limits. Comprehensive SuDS infrastructure including features such as interceptors, permeable paving, rain gardens, swales, vegetated SuDS ponds, sediment forebays. Successful treatment of nitrates and phosphates using robust methodology. Purchase of Defra/NE/ EBC nutrient credits if necessary, to demonstrate overall net zero nutrient emissions from the development, monitoring regime to demonstrate no emissions and feedback mechanism to enable effective management intervention if necessary. This approach has been designed with the express requirement that the development is nutrient neutral and does not result in any increase in nitrate, phosphate or sediment runoff into the receiving watercourses, the River Itchen and the Solent systems. Please refer to Chapter 11 of this ES for full details.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No net increase in nitrate, phosphate or sediment discharge into watercourses. Monitoring program designed to demonstrate efficacy of measures employed for previous phases as development progresses. Corrective measures or adaptations to design for subsequent phases to be informed by on site monitoring of SuDS performance.	Construction: Suitable temporary measures to be implemented during construction as required to avoid construction related effects (see CEMP) Operation: SuDS to be delivered in advance of each phase to ensure that no negative effects on water quality.
CONSTRUCTION AND OPERATION – ALL PHASES Retention, protection and restoration of watercourses and associated riparian corridors including bankside and in channel enhancement measures, promoting reconnection with the floodplain and Stage 0 features, delivered in accordance with a detailed long-term water features management plan. All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) with an associated 10-50m green infrastructure corridor (measured from the bank	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No net increase in nitrate, phosphate or sediment discharge into watercourses. Monitoring program designed to demonstrate efficacy of measures employed	Construction: Suitable temporary measures to be implemented during construction as required to avoid construction related effects (see CEMP) Operation:

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
edge of water limit when watercourse is full i.e. bankfull). This buffer will be enhanced with appropriate habitat management and habitat creation measures that complement and enhance the watercourses.			for previous phases as development progresses to evidence not net increase in nitrate, phosphate or sediment discharged into watercourses originating from the development. Corrective measures or adaptations to design for subsequent phases to be informed by on site monitoring of SuDS performance.	SuDS to be delivered in advance of each phase to ensure that no negative effects on water quality.
CONSTRUCTION AND OPERATION – ALL PHASES Inclusion of wetland/watercourse features within the GI and watercourse corridors to promote on-site attenuation of surface waters emerging from the OHH area to enable long-term high quality wetland/watercourse habitats, promoting physical habitat diversity, reconnection to the floodplain and Stage 0 headwater processes, to ensure no further downstream mobilisation of soil/riverine sediment and nutrients and to provide ecologically valuable natural filtration features within the development such as wetland areas reed beds etc that is above and beyond the net zero nutrient and sediment emission measures described in above.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No net increase in nitrate, phosphate or sediment discharge into watercourses. Monitoring program designed to demonstrate efficacy of measures employed for previous phases as development progresses to evidence not net increase in nitrate, phosphate or sediment discharged into watercourses originating from the development. Corrective measures or adaptations to design for subsequent phases to be informed by on site monitoring of SuDS performance.	

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
OPERATION – ALL PHASES Potable water abstraction and balancing River Itchen flows is comprehensively dealt through strategic measures being implemented by Southern Water e.g. Review of Consent process and Water Resource Management Plan. Please refer to Chapter 11 of this ES and Environment Agency Position Statement for full details.	Southern Water – beyond remit of the OHH Project	Southern Water Abstraction Consent	Catchment wide strategy beyond the remit of the development	N/A
CONSTRUCTION – ALL PHASES Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease. Please refer to Chapter 11 of this ES for full details.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No net increase in nitrate, phosphate or sediment discharge into watercourses. Monitoring program designed to demonstrate efficacy of measures employed for previous phases as development progresses to evidence not net increase in nitrate, phosphate or sediment discharged into watercourses originating from the development. Corrective measures or adaptations to design for subsequent phases to be informed by on site monitoring of SuDS performance. See also Chapter 11.	Phased throughout development in accordance with strategy agreed pre-construction
OPERATION – ALL PHASES Provision of an extensive network of footpaths and play/sports facilities within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. This includes the provision of a 5km (optional shorter 2.5km) SANG route, that includes at least 2.5km of this within semi-natural settings that offer a greater element of open space provision provided by more distant open	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of recreational provision that is utilised widely by residents See Chapter 14	Delivered on a phased basis in accordance with strategy agreed pre-construction See Chapter 14

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
greenspace, including at least 2.5km of route that allows informal access and dog walking. Please refer to Chapter 14 of this ES.				
OPERATION – ALL PHASES Subject to final negotiations between EBC and with Natural England in relation to the extent on-site features prevent recreational impacts, if required, an appropriate financial contribution will be paid into the Solent Aware SPD fund, to effectively prevent associated disturbance effects that could result in likely significant effects on the features of interest (bird assemblage and supporting habitats). Please refer to Chapter 14 of this ES.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of compliant measures to ensure that there is no significant effect on Solent SPA	Delivered on a phased basis in accordance with strategy agreed pre-construction.
CONSTRUCTION AND OPERATION – ALL PHASES A 50m wide green infrastructure corridor (measured from tree stems on outer edge of perimeter woodland) will separate the developed areas from areas of highly valuable woodland habitat, including ancient woodland. This 50m corridor includes a 15m ecological buffer in which the following specifications apply: No excavation (except SuDS, respecting RPAs) No construction related activities or activities likely to have negative effect on habitat Biodiversity Enhancement permitted No additional lighting >0.5lux The 15m ecological buffer will be demarcated with a significant species rich hedgerow and ditch features to prevent public access into these areas. The ecological buffer will be planted to echo the existing habitats within the SINC woodland and to provide a transitional habitat and structure, replicating natural woodland expansion/succession to increase diversity and to protect and enhance the existing habitat. The zone between 15-50m from the habitat boundary will be subject to the following restricted uses and constraints: Footpaths Cycleways SuDS Biodiversity enhancement permitted Minimal additional lighting where this does not compromise ecological function, ideally >0.5lux.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery through master planning process and appropriate management delivered under a detailed LEMP.	Preconstruction avoidance through design. Habitat creation to be completed as early as possible but must be completed prior to the loss of habitat to minimise interval between loss and maturation of new habitats. LEMP agreed prior to habitat loss. Protection measures delivered during construction by CEMP
CONSTRUCTION AND OPERATION – ALL PHASES Design measures have been included to avoid changes to the hydrological regime or soil levels that would negatively affect trees and shrubs.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No effects on retained trees	Pre-construction strategy agreed.

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
CONSTRUCTION AND OPERATION – ALL PHASES A detailed long term habitat management plan will be implemented to deliver habitat management and enhancement.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of all relevant measures as set out in this chapter	LEMP agreed pre-construction
CONSTRUCTION AND OPERATION – ALL PHASES A robust habitat monitoring regime will be implemented to provide feedback on the efficacy of buffers and habitat creation measures and to inform a responsive system of remedial works to ensure that the condition of retained habitats is maintained, the intended habitat conditions of newly created habitats are realised and that the long-term function of these features is maintained. Public access is excluded from the majority of this SINC, therefore the impact of increased recreational pressure will be limited to the narrow strip to the north and west of Chalcroft business park that lies outside the perimeter security fence.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of relevant measures as set out in this chapter	Habitat Monitoring Strategy agreed pre-construction
OPERATION – ALL PHASES An extensive network of footpaths and play/sports facilities are incorporated within the scheme, both within the developed areas and the green infrastructure corridors across the site to provide easy local access to outdoor recreational facilities and to deliver on site recreational capacity. Please refer to Chapter 14 of this ES for full details.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of recreational provision that is utilised widely by residents See Chapter 14	Delivered on a phased basis in accordance with strategy agreed pre-construction See Chapter 14
OPERATION – ALL PHASES The management of public access recreation on site, particularly dogs, will be restricted within sensitive habitats and buffers through landscape design, site interpretation and community outreach, householder packs and appropriate fencing and signage in key habitat areas. Access will be focussed on the existing network of paths and public Rights of Way within the northern reaches of the woodland that are currently subject to moderate levels of recreational disturbance through the location of site linkages to the PROW network and the selective use of site interpretation and waymarking. Public access into the majority of the woodland and ecologically rich habitat adjacent to the OHH site will be discouraged through the construction of new fencing/ditches and the creation of densely planted scrub and hedgerows. Please refer to Chapter 14 of this ES for full details.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of on-site open space strategy and homeowner information packs See Chapter 14	Pre-occupation See Chapter 14
CONSTRUCTION AND OPERATION – ALL PHASES A 15m ecological buffer subject to the specifications as described in G will be implemented between the link road and the woodland to protect the habitat and to ensure that root protection areas are respected.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No effects on retained trees	LEMP agreed prior to habitat loss Protection measures delivered during construction by CEMP
OPERATION – ALL PHASES Acoustic fencing will be installed to minimise operational phase noise	Eastleigh Borough Council or agents thereof under the	Planning Condition	Measures designed to avoid disturbance to	Strategy agreed prior to construction within CEMP.

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
disturbance from the link road on sensitive habitats (and associated species receptors e.g. breeding birds). Please refer to Chapter 12 of this ES for full details.	control of Eastleigh Borough Council		wildlife where required. Please refer to Chapter 12 of this ES for full details.	Please refer to Chapter 12 of this ES for full details.
OPERATION – ALL PHASES Additional (2.2ha) of grassland recreational areas that will provide suitable alternative areas for recreation. CONSTRUCTION AND OPERATION – ALL PHASES The new woodland extension to the west of the existing woodland will provide high value habitat for a broad range of receptors including GCN, bats, birds, invertebrates and reptiles.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of on-site open space strategy and homeowner information packs See Chapter 14	Pre-occupation See Chapter 14
CONSTRUCTION AND OPERATION – ALL PHASES Flight pond will be restored and enhanced for invertebrates, fish, amphibian, reptiles, birds and mammals.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Pond enhanced to good condition (GCN HSI category)	In accordance with GCN Masterplan Strategy.
CONSTRUCTION AND OPERATION – ALL PHASES Hedgerows with mature trees at regular intervals (SINC or non SINC) will have a 15m buffer (measured from tree stems) Hedgerows without mature trees or only occasional trees (SINC or non SINC) will have a minimum 5m ecological buffer (plus RPA around any mature trees to be retained) measured from the centre line of the hedgerow. These buffers will be subject to the following constraints: No excavation (except SuDS, respecting RPAs) No construction related activities or activities likely to have negative effect on habitat Biodiversity Enhancement permitted No additional lighting >0.5lux All hedgerows will be managed for biodiversity in accordance with a long-term management plan, including new planting to infill gaps in hedgerows and ongoing high quality management. See A to N	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Retained hedgerows protected as per the measures agreed within CEMP and LEMP.	Protection measures delivered during construction by CEMP LEMP agreed prior to construction
CONSTRUCTION AND OPERATION – ALL PHASES Where the removal or severance of woodland is unavoidable, compensatory native species rich planting will occur in accordance with the prescriptions detailed in the DEFRA Biodiversity metric 2.0. New areas of woodland and woodland extension are also included in the proposals. Woodland management and monitoring will be implemented from the start	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery through master planning process. and LEMP	Preconstruction avoidance through design. Habitat creation to be completed as to minimise the interval between loss

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
of the project delivery process if not before to maximise habitat value, structure and longevity, including the control of non-native invasive species.			Delivered through CEMP	and maturation of new habitats. Protection measures delivered during construction by CEMP
CONSTRUCTION– ALL PHASES Roost Loss A number of low status roosts for common bats species are present within the buildings on site, the majority of which are to be demolished. These will be compensated for through the provision of roost type/species appropriate bat boxes and “natural” roost features created on retained trees in appropriate locations (i.e. in close proximity to existing flight lines, adjacent to high value habitat, relatively undisturbed and unlit areas). A maternity roost for brown long-eared bats will be directly affected by the demolition. A mitigation roost will be constructed in the vicinity of Hearts Copse following the criteria for this roost type as described in the bat mitigation guidelines and delivered under an EPS licence. Substantial tree and shrub planting will reinforce the connection this location to existing flight lines and maternity roost locations within Hearts Copse. The removal of mature trees has been minimised through careful masterplan layout. Where trees containing potential roost features are retained, these will be protected by the buffer specifications as described for hedgerows (O & P) and woodland (G). Where trees with potential roost features are required to be removed, a precautionary principle will be applied that assume the presence of the most likely roost type for the feature. This is considered appropriate as tree roosts are dynamic and can be readily occupied/abandoned by a variety of species at any given time, making firm assessment of the roost types present particularly challenging. Mitigation and licensing requirements will therefore be informed by subsequent inspections prior to any impacts on these features.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition and EPS mitigation licence as required.	Delivered in accordance with EPS Mitigation licences as appropriate, including post construction monitoring.	Bat Mitigation Strategy Approved pre-construction. EPS licence secured as required. Preconstruction avoidance through design. Habitat creation to be completed as to minimise the interval between loss and maturation of new habitats. Protection measures delivered during construction by CEMP
CONSTRUCTION AND OPERATION – ALL PHASES Bat Habitat Severance/Road Collision Mitigation Three locations where the link road severs high value foraging and connective habitat have been identified on site that present a traffic collision risk to bats. Minimising habitat loss in these areas by designing the road approach to the habitat in a perpendicular orientation	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Bat Mitigation Strategy to be approved pre-construction No impact observed on commuting bats. Minimal road casualties observed	

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
Minimising the width of the road crossing Clear span design Incorporation of suitable measures to ensure safe crossing following the most recent research into the efficacy of such measures to minimise road collision mortality. A minimum height of 3m under bridge crossings. Sensitive design of any lighting that may be required in these areas. Additional compensatory habitat may be required. Significant vegetation will be retained either side of the construction areas in these locations to encourage the use of underpasses.				
CONSTRUCTION AND OPERATION – ALL PHASES Bat Loss/degradation of foraging habitat Mitigation The loss of foraging habitat across the site has been minimised through the retention of key high value habitats. These habitats will be protected and enhanced, with connectivity between these habitat areas and potential roost sites maintained both across the site and the wider landscape through the measures to protect these specific habitats (see G, H, I, O & P). OPERATION – ALL PHASES Bat Lighting Mitigation (also for other nocturnal species). Specific design measures have been included as a key design principle to keep additional lighting to a minimum across the site. Where lux levels must exceed 0.5 lux on any valuable retained or created habitat, a further detailed assessment of the lighting design to include wavelength, directionality and duration/timing of lighting will be conducted to inform lighting design for each phase of development to ensure no deleterious effect on affected habitats. OPERATION – ALL PHASES Bats and cat predation (also relevant to other fauna). Home owner packs will be provided to identify the effects of cat predation on biodiversity and to encourage homeowners to not own cats, or if they do to take a responsible approach including keeping cats in at night, use of bells etc.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Bat Mitigation Strategy to be approved pre-construction	
CONSTRUCTION AND OPERATION – ALL PHASES Bat mitigation efficacy. A suite of species and habitat specific monitoring regimes will be implemented to provide feedback on the efficacy of mitigation and habitat creation measures for specific receptor species in accordance with legislative and policy requirements. This monitoring will inform a responsive	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition and/or EPS Mitigation licences as required	Bat Mitigation Strategy to be approved pre-construction	

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
system of remedial measures to ensure that the intended function of these measures is realised and maintained in perpetuity.				
CONSTRUCTION Great crested newt and other amphibian/reptile mitigation Key amphibian/reptile habitats have been avoided and will be protected and enhanced. Where valuable amphibian habitats must be affected, appropriate measures will be implemented to ensure that animals are protected during construction and that there is no detrimental effect on the favourable conservation status of the populations present on site. These measures include: Implementation of a series of linked Natural England EPS licences coordinated through the implementation of a great crested newt masterplan Avoidance measures to minimise areas of habitat loss and to maintain habitat connectivity Sensitive approach to vegetation clearance including consideration of timing, duration and methodology. This will employ measures of phased vegetation removal in accordance with best practise under a detailed method statement. Exclusion from working areas until works have ceased and habitat reinstated Capture from exclusion areas and translocation to retained receptor habitat Translocation of the southern low size class Chalcroft population from the single poor quality pond and associated poor quality and disturbed terrestrial habitat within 500m to two restored and two created and optimised northern ponds in Chalcroft Wood on land owned by Eastleigh Borough Council, with high quality terrestrial habitat. This will provide a closer association with the larger part of the existing metapopulation promoting breeding success and genetic diversity, increasing the territory used by great crested newt into optimal habitat for the construction phase. Chalcroft pond will be retained and restored, including connectivity for great crested newt to return to the southern habitat. A necklace of new ponds will link the northern population with restored and enhanced habitats in the south. Measures to prevent entrapment in drainage systems and connectivity across roads	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Successful delivery of EPS mitigation licence measures to maintain favourable conservation status of GCN population on site.	GCN Strategy Approved pre-construction. EPS licence secured as required.

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
Provision of enhanced terrestrial habitat and a network of created and restored ponds and wetlands, together with resting and overwintering habitats Habitat compensation and enhancement measures will be delivered in accordance with industry best practise ensuring compliance with policy and legislation. The management of recreation on site, particularly dogs, and cats through landscape design, householder packs and appropriate fencing and signage in key habitat areas, particularly close to known and potential future breeding ponds and adjacent habitats. Key elements of GCN mitigation will be delivered under EPS mitigation licences, as appropriate, with additional elements of the development delivered under a non-licensable method statement where the likelihood of an offence is negligible. Habitat connectivity will be maintained through the designation, enhancement and long-term management of ecological connective corridors to maintain the landscape permeability both on and across the site for amphibians/reptiles. Measures will also be incorporated in road designs at key severance locations to facilitate safe passage to avoid collision mortality and entrapment risk. Measures have been incorporated into the masterplan to minimise risk and disturbance to the populations present and to facilitate the recolonisation and natural dispersal/recolonisation of the population across the site post construction to new wildlife ponds constructed to appeal to breeding GCN via a comprehensive network of suitable connective habitats linking existing populations to these new features. All habitats managed for amphibians/reptiles will be subject to a detailed long-term management plan.				
CONSTRUCTION AND OPERATION – ALL PHASES Watercourse road crossing points locations to be designed as single span to facilitate continuation of hydrological regime and landscape permeability for terrestrial mammals including otter. Mammal crossings will be included where provision for mammal access cannot be incorporated along the stream at water level.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Maintenance of landscape connectivity for nocturnal mammals along watercourses	Protection measures delivered during construction by CEMP LEMP agreed prior to construction
CONSTRUCTION AND OPERATION – ALL PHASES Watercourse restoration using best practice measures (e.g. as defined by the UK River Restoration Centre) to increase physical habitat diversity, reconnect to the floodplain, increase light levels to the channel and riparian corridor and maximise species diversity, controlling non-native species.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Delivery of watercourse enhancement measures.	Watercourse Enhancement Strategy agreed prior to construction with enhancements delivered during construction at

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
				appropriate timings through development lifespan.
CONSTRUCTION AND OPERATION – ALL PHASES Water vole has not been recorded during 2018-2020, although historic records are present. Further surveys will be conducted on a precautionary basis to ensure no effects and legal compliance. Measures outlined in A – O will be relevant to habitat that could be used by this species. Measures set out in FF and GG are also relevant and will avoid effects on water vole should they be recorded in the area in the future.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Maintenance of landscape connectivity for nocturnal mammals along watercourses	Protection measures delivered during construction by CEMP LEMP agreed prior to construction
CONSTRUCTION – ALL PHASES Precautionary surveys will continue to ensure any new setts or re-activated setts are taken into account in the construction programme. Should it be necessary Natural England badger licences will be sought to ensure legal compliance in terms of disturbance of any setts and any requirements for exclusions/sett closure/provision of artificial setts. Deep excavations will be covered at night or suitable mammal ladders/earth maps will be provided to allow large mammals including badger to exit excavations.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Pre-construction inspections completed, and actions taken to ensure no effects on badger setts.	Protection measures delivered during construction by CEMP LEMP agreed prior to construction
CONSTRUCTION – ALL PHASES Habitats requiring works during the nesting season (March-September inclusive) will be subject to a pre-works nesting bird check with measures implemented to protect any active nests likely to be affected by the works. Please refer to Chapter 12 for full details on measures to minimise construction disturbance through noise and vibration. CONSTRUCTION Where areas of suitable nesting habitat for valued bird species is lost, suitable alternative nesting habitat will be provided on site through a network of bird boxes, features incorporated to buildings, new tree and shrub planting and enhanced grassland, woodland, wetlands. CONSTRUCTION AND OPERATION – ALL PHASES Measures to minimise the risk of disturbance to birds during nesting will be implemented as defined elsewhere above in A to O, including both on site and off sites notably SSSI, SPA and SAC habitats. Please refer to Chapter 12 for full details on measures to minimise construction and occupation disturbance through noise and vibration.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Pre-construction surveys inspections and actions taken to ensure no effects on badger setts.	
CONSTRUCTION – ALL PHASES The existing barn owl nest box will be relocated into the area in the vicinity of Hearts Copse (>600m from link road) to reduce road collision risk associated with the link road. Delivery of	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Pre-construction surveys inspections as required and actions taken to ensure site	Barn Owl Strategy agreed prior to construction.

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
significant screening of link road as it proceeds northwards from Chalcroft Farm to avoid road traffic mortality. Enhancement of grassland habitats and hedgerow buffers for small mammals will provide additional foraging resource for barn owl to compensate for the loss of low value foraging habitats.			continues to safely support breeding barn owl without acting as a population sink.	
CONSTRUCTION AND OPERATION – ALL PHASES The loss of high value invertebrate habitats across the site has been minimised through the retention of key high value habitats. These habitats will be protected and enhanced, with connectivity between these habitat areas and potential roost sites maintained both across the site and the wider landscape through the measures to protect these specific habitats (See A to O and T to X).	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No net loss of high value invertebrate habitats. Delivery of sensitive lighting plan	Habitat protection measures delivered during construction by CEMP LEMP agreed prior to construction
CONSTRUCTION Ongoing annual dormouse tube monitoring to inform licencing requirements for each phase of the project. CONSTRUCTION Avoidance of hedgerow severance within 150m of confirmed records (currently only within woodland north of solar farm). OPERATION No lighting associated with road crossings of woodland copses CONSTRUCTION AND OPERATION Installation of suitable aerial structure (e.g. Peoples Trust for Endangered Species, 2019 ⁹⁴) across roads severing woodland, in combination with suitable planting to strengthen vegetated corridors OPERATION Provision of replacement woodland adjacent to key retained woodland corridor to ensure no net loss of habitat and to maximise availability of food plants throughout the active part of the year. CONSTRUCTION AND OPERATION Provision of 150 dormouse nest boxes within retained woodland corridors to maximise and extend suitable nesting habitats. Annual nest box monitoring to be carried out.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	Maintenance of the favourable conservation status of dormouse on site.	Dormouse Strategy approved pre-construction. EPS licence secured as required.

94 <https://ptes.org/wp-content/uploads/2019/09/White-Hughes-2019-dormouse-bridge.pdf>

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Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
CONSTRUCTION AND OPERATION Sensitive woodland management to restore and maximise opportunities for dormouse (e.g. Forestry Commission 2019 ⁹⁵ and the Hampshire Dormouse Group ⁹⁶) OPERATION Provision of suitable advice in homeowner packs and on information boards regarding dormouse and responsible enjoyment of the countryside. NB access is limited to key habitats suitable for dormouse.				
CONSTRUCTION AND OPERATION – ALL PHASES An invasive species management plan will be implemented to control the existing populations of Japanese Knotweed, Himalayan Balsam, Variegated Yellow Archangel, Rhododendron, Mink and other non-native species, present on site.	Eastleigh Borough Council or agents thereof under the control of Eastleigh Borough Council	Planning Condition	No spread of invasive species. Measures implemented to control invasive species on site.	Invasive Species Strategy approved pre-construction. Protection measures delivered during construction by CEMP LEMP agreed prior to construction

95 Forestry Commission. 2019. A Protocol for Undertaking Woodland Management in England Where Dormice Are Present. Protocol Version 4.

96 <https://hampshiredormousegroup.co.uk/resources/woodland-habitat-management/>

