

Chapter 14: Ecology and Biodiversity

ECOLOGY AND BIODIVERSITY	
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SUPPORTING APPENDIX	ES Volume 3: Appendix: Ecology and Biodiversity Annex 1: Preliminary Ecological Appraisal; Annex 2: Biodiversity Net Gain Assessment Report; and Annex 3: Bird Survey Report.
KEY CONSIDERATIONS	This ES chapter presents an assessment of the likely significant impacts and resultant effects of the Proposed Development, during demolition and construction and once operational. The assessment considers important ecological and nature conservation features, collectively termed 'Important Ecological Features' (IEFs). Key ecological considerations within this ES chapter include the potential for likely significant effects (LSE) on national statutory designated sites for nature conservation arising from increased recreational pressures.
CONSULTATION	An EIA Scoping Report was prepared and submitted to Gravesham Borough Council (GBC) on the 11th August 2022 requesting a Scoping Opinion from GBC. A copy of the EIA Scoping Report is provided in ES Volume 3, Appendix: EIA Methodology – Annex 1. A Scoping Opinion was received on 16th September 2022, as provided in ES Volume 3, Appendix: EIA Methodology – Annex 2. The Scoping Opinion noted: That because of proximity to Ramsar/SPA areas east of Gravesend there is potential here for residential development to result in increased visitor numbers and hence bird disturbance to take place on the North Kent Marshes. As a result, in determining any application, the LPA would have to undertake an Appropriate Assessment under the Habitat Regulations. The applicant will also need to take this into account in preparing the submission and should discuss detailed requirements with the LPA and Natural England. These sites were located over 5km from the site so were scoped out of this assessment. KCC Biodiversity Officer has commented that the submitted information has detailed that a preliminary ecological report has been carried out on site and as a result the following is proposed to be carried out: - Assessment of impacts the proposal will have on the adjacent Swanscombe Peninsula SSSI; - Assessment of impacts to the LWS adjacent and within 2km of the site; - Assessment of impacts to the SSSI, SPA, Ramsar and NNR within 10km of the site; - Assessment of impact; - Breeding bird survey; - Wintering bird survey; and - Assessment of the quality of the Mud flats. This ES chapter covers the above points with the exception of the 10km buffer zone for designated sites which was reduced to 5km. Only one internationally designated site is within 10km.

ASSESSMENT METHODOLOGY

Introduction

- 14.1
- This ES chapter provides a description of the approach and methodology adopted for this assessment, along with a description of the current ecological baseline. This is followed by an assessment of the Likely Significant Effects ('LSE') associated with the demolition and construction and operation of the Proposed Development upon the relevant Important Ecological Features within a defined Zone of Influence ('Zoi').
- 14.2
- Additional mitigation and enhancement measures are identified where appropriate, to avoid, reduce or offset any significant adverse effects identified and provide enhancement, which would result in likely beneficial effects. Taking account of the additional mitigation and enhancement measures, the nature and significance of the likely residual effects are provided as the conclusion to the impact assessment, including the consideration of potential cumulative impacts.
- 14.3
- A Biodiversity Net Gain (BNG) assessment has been completed (**ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**), using the extended Phase 1 habitat survey data to determine the existing habitats on-site. Extended Phase 1 Habitat Survey is a standard technique for rapidly obtaining baseline ecological information over a large area. It involves mapping the site using a standard set of habitat definitions for classifying areas of land on the basis of the vegetation communities present. The extended survey also provides an assessment of the potential for those habitats present to support legally protected or otherwise

notable species. In terms of BNG, the habitats mapped during the extended Phase 1 habitat survey are transferred into the pre-construction habitat condition assessment. The Illustrative Landscaping Masterplan (as discussed in **ES Volume 1, Chapter 4: The Proposed Development**) demonstrates how the BNG requirements could be achieved for the Proposed Development.

- 14.4
- With the exception of the potential Likely Significant Effects (LSE) upon Swanscombe Peninsula Site of Special Scientific Interest (SSSI) with regards to increased recreational pressure as a result of cumulative impacts, there would be no significant effects arising from the demolition and construction and operational phases of the Proposed Development when taking embedded mitigation and additional mitigation measures to be implemented into account.

Defining the Baseline

- 14.5
- The ecological baseline of the site and surrounds has been defined by an ecological desk study, a field survey and further bird surveys, as set out below.
- 14.6
- Due to the scale of the site, the site was split into three red line boundary (RLB) areas (as seen in **Figure 14.1**), referred to as:

- 'RLB South';
- 'RLB North-East'; and
- 'RLB North-West'.

Figure 14.1 Defined Site Areas



RLB South

14.7 The RLB South area of the site is currently mainly occupied by industrial and commercial activities, with the Ebbsfleet United stadium taking up a large proportion of the area.

RLB North-East

14.8 The RLB North-East area of the site is currently mainly occupied by industrial and commercial activities, with large active aggregate works and other industrial buildings, such as a car and truck mechanics buildings.

RLB North-West

14.9 The RLB North-West area of the site is dominated by industrial units, hardstanding mixed with ephemeral vegetation. Also within this area are scattered trees, ornamental planting as well as sparse species-poor hedgerow with trees. Directly adjacent to the north of this area is Swanscombe Peninsula SSSI, which includes a dense treeline adjacent to the site boundary.

Ecological Data Search

- 14.10 The aim of the ecological desk study is to collate existing ecological records for the site and adjacent areas. Obtaining existing records is an important part of the evaluation process, as it provides additional information that may not be apparent during a site survey.
- 14.11 All records of ecological designated sites and notable / legally protected flora and fauna within 2km of the site were requested from Kent & Medway Biological Records and Multi-Agency Geographic Information for the Countryside (MAGIC) maps in June 2022. Records of international statutory designated sites of international nature conservation value within 5km of the site were also searched for on the MAGIC website. Other designated sites that could have functionally linked habitat were also considered beyond 5km. MAGIC was also consulted for information on Ancient Woodland, Priority Habitats, Sites of Special Scientific Interest (SSSI) Impact Risk Zones (IRZs) and granted European Protected Species (EPS) Mitigation licence applications.
- 14.12 These distances have been used based on the Zone of Influence of the project. When assessing the impact of the Proposed Development and changes to the baseline conditions on site, predictions will be made which focus solely on the zone of influence whilst taking into consideration the lifetime of the development. The zone of influence has been assessed separately for each individual receptor.

Phase 1 Habitat Survey

- 14.13 As set out in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 1**, an ‘extended’ Phase 1 habitat survey of the site was undertaken on 23rd May 2022 using the Joint Nature Conservancy Council (JNCC)¹ guidance.
- 14.14 All habitat types within the site, where access allowed, were mapped with target notes where appropriate. Where access within the site was not possible due to existing industrial activities, habitats were mapped utilising satellite imagery from Google maps, and from adjoining areas on-site where visibility was possible. This is considered to have resulted in a robust survey. Where access allowed, adjacent habitats were also considered to assess the site within the wider landscape, and to provide information with which to assess possible impacts of the Proposed Development. The field survey of the site was conducted under conditions deemed appropriate for survey, i.e., dry and sunny.

Preliminary Bat Roost Assessment (PRA)

- 14.15 During the ‘extended’ Phase 1 habitat survey, a PRA (as set out in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 1**) was undertaken on the trees/buildings present on site. The survey was led by an experienced ecologist and was based on current best practice guidelines². An assessment of all accessible trees and buildings was made in terms of suitability to support roosting bats. Where access within the site was not possible due to existing industrial activities, features were assessed utilising satellite imagery from Google

maps, and from adjoining areas on-site where visibility was possible. **Table 14.1** was used to identify bat roosting potential on the site.

Table 14.1 Tree and Building Ratings According to their Potential to Support Roosting Bats

Assigned Bat Roosting Potential	Description
Known or confirmed roost	Evidence of roosting bats within the tree or building.
High	A building/tree with one or more Potential Roost Features (PRFs) that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.
Moderate	A building/tree with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).
Low	A building with one or more PRF that could be used by individual bats opportunistically. However, these PRFs do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Negligible	Negligible habitat features at building/tree likely to be used by roosting bats.

Bird Surveys

- 14.16 Breeding bird surveys were undertaken in July 2022 (as set out in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 3**). The surveys were led by an experienced ecologist and was based on current best practice guidelines³.
- 14.17 The bird survey method was a modified version of the Wetland Bird Survey (WeBS) core count ‘Look-See’ method (Bibby et al., 2000) which allowed included species counts and behaviour monitoring of the species with a particular interest in breeding behaviour.
- 14.18 Areas of habitat assessed to have the potential to support Schedule 1 breeding birds noted in the desk study or assemblages of birds of significance were surveyed during the key breeding season (March to August inclusive). Schedule 1 birds are specially protected under the Wildlife & Countryside Act 1981 (as amended). This means that it is an offence to intentionally disturb these birds whilst they are building a nest, or in, on or near a nest containing eggs or young; or to disturb dependent young even if not in the nest
- 14.19 All species seen and heard within the survey were recorded and mapped and breeding behaviour and possible nesting locations were noted. Foraging activity levels on the mudflats which adjoin the site to the north and east within the River Thames and Robin’s Creek respectively were also recorded during these surveys. Lack of access to the gravel pits on-site limited the surveys. The mudflats and Robin’s Creek were viewed from the Thames pathway which is currently diverted to a route that runs to the south-east of Robin’s Creek to the Thames barrier. A high specification spotting scope was used to view the mudflats adjoining the site and Robin’s Creek from vantage points selected on the Thames pathway, so the surveys were able to correctly identify all species on the mudflats and the shingle beach from the viewpoints. Limited areas were blocked from view from the pier.
- 14.20 The surveyors spent one-two hours at each vantage point, where all species and movements were recorded, and any evidence of breeding behaviour was noted.
- 14.21 Disturbance behaviour was also recorded; this is defined as any behaviour shown by the birds that constituted a diversion from normal behaviour. These behaviours were noted to understand a baseline of what the birds using the areas next to the site are habituated to or not from the on-site aggregate works.
- 14.22 Winter bird surveys will be undertaken in 2022 to understand the importance of the mudflats to support overwintering assemblages of wildfowl, due to potential disturbance impacts during the construction phase. Further black redstart surveys will also be undertaken to confirm nesting presence/absence on site during the breeding season (May to August inclusive) prior to construction.

¹ JNCC (2010); ‘Handbook for Phase 1 Habitat Survey’. Joint Nature Conservancy Council.
² Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

³Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S. 2000. Bird Census Techniques. Second Edition. Academic Press, London.

Biodiversity Net Gain

- 14.23** A BNG assessment (**ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**), was undertaken using the Defra (Department for Environment, Food and Rural Affairs) Biodiversity Metric Calculator 3.1. Pre-existing habitats and post construction habitats are inputted into the tool to determine a BNG percentage associated with the Illustrative Masterplan (as discussed in **ES Volume 1, Chapter 4: The Proposed Development**).
- 14.24** In accordance with the National Planning Policy Framework (NPPF), proposals should seek to demonstrate BNG. The NPPF states plans (paragraph 179b) should ‘*promote the conservation, restoration and enhancement of Priority Habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*’⁴.
- 14.25** Furthermore, since the Environment Act 2021⁵ gained royal assent in November 2021, this will make it a mandatory requirement for developments in England to achieve a minimum of 10% net gain for biodiversity once the secondary legislation comes into force in November 2023.
- 14.26** The planning application commits to achieving 20% BNG across the Proposed Development. This BNG target exceeds the minimum 10% BNG as set out in the Environmental Bill 2020, and aligns with the Kent Nature Partnership’s local targets. The BNG assessment (**ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**) shows how this may be achieved based upon the Illustrative Landscape Masterplan. The detailed landscaping will achieve 20% BNG, and will be subject to future RMAs. Further details relating to BNG can be found in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**.

Evolution of the Baseline

- 14.27** When considering the evolution of the baseline conditions in the absence of the Proposed Development, it is likely that the overall value to biodiversity would change very little. It is likely that, if the site was left unmanaged, succession and slow encroachment of vigorous species such as bramble and ephemeral vegetation could become more present within the site, but it is assumed that the current existing uses remain.
- 14.28** However, the conditions of the environment surrounding the site would likely change. The Swanscombe Peninsula SSSI may be subject to detrimental changes associated with recreational pressure on the habitats as a result of local cumulative schemes coming forward, such as the London Resort scheme, and the recreational pressures this may place upon the SSSI resulting in habitat degradation and associated impacts.

Assessment Methodology

- 14.29** This ES chapter comprises the following key stages following CIEEM Guidelines⁶:
- Establishment of the ecological baseline through an ‘extended’ Phase 1 habitat survey which provided a set of baseline data for protected species and habitats on-site;
 - A desk study used to provide a full assessment of the on-site and surrounding ecological features. The desk study and Phase 1 habitat survey have been used to identify all relevant ecological features of value and informed the Preliminary Ecological Appraisal (PEA) (see **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 1**);
 - Identification of important ecological features (IEFs) within the study area (e.g. protected areas or designated sites, protected / notable habitats and species) and determination of their value;
 - Identification of likely significant ecological effects;
 - Consideration of ecological enhancement measures; and
 - Assessment of the significant residual effects of the Proposed Development
- 14.30** A Zone of Influence (ZoI) was established for the Proposed Development, as described below. Once a ZoI had been established, each of the Important Ecological Features which may be subject to effects arising from the Proposed Development were assigned a geographical scale of importance.
- 14.31** Once the ZoI and geographical scale of importance of each ecological feature was determined the potential impacts of the Proposed Development were assessed. This assessment considered the different stages and

activities in the development process (demolition and construction and operational). The scale of significance of the identified effects was then assessed.

- 14.32** The Zone of Influence (ZoI) is the area over which the ecological features identified may be subject to significant effects because of the Proposed Development. Based on the scale and nature of the Proposed Development, it has been assessed that the ZoI arising from these works are the following:

- Protected and priority species (2km);
- Sites of local importance (2km);
- International statutory sites (5km); and
- National statutory sites (2km).

Assessment of Important Ecological Features

- 14.33** Professional judgement and experience have been used to identify the Important Ecological Features for the Proposed Development site and the wider context. Habitats and species which are not considered ‘important’ (negligible value) are assigned to features of no particular intrinsic nature conservation importance.
- 14.34** Important Ecological Features that are considered unlikely to be significantly affected by the Proposed Development have not been assessed within this ES chapter.
- 14.35** Important Ecological Features considered in the ecological assessment presented in this ES chapter include, but are not limited to, the following:
- Swanscombe Peninsula SSSI (incorporating Botany Marshes Local Wildlife Site (LWS)) - National;
 - Ebbsfleet Marshes LWS - Local;
 - River Thames Site of Interest to Nature Conservation (SINC) - Metropolitan;
 - Nesting / wintering bird habitat - Local;
 - Schedule 1 bird species, specific birds listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). This means that it is an offence to intentionally disturb these birds whilst they are building a nest, or in, on or near a nest containing eggs or young; or to disturb dependent young even if not in the nest (including Cetti’s warbler, little ringed plover and black redstart); Regional; and
 - Aquatic invertebrates within the mudflat habitats adjoining the site - Local.
- 14.36** The CIEEM Guidelines recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context, as described in **Table 14.2** below.

Table 14.2 Geographical Scale of Important Ecological Feature (IEF) Categories

Geographic Context	Description
International or European	Statutory Sites designated or classified as part of a national site network comprising Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Sites designated under international conventions for example Biosphere Reserves and Wetlands of International Importance (Ramsar Sites). Sites which support regular or significant populations of internationally important species. Regularly occurring populations of a species large enough in number to be of international importance where the loss or degradation of these populations would adversely affect the conservation status or distribution of the species at this geographic scale.
National	Statutory Sites designated under national legislation for example Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR). Habitats and Species of Principal Importance listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2016. Species which are threatened or rare in the UK. Resident, or regularly occurring, populations of species ⁷ , significant at an International, European, UK or National level where the loss of these populations would adversely affect the conservation status or distribution of the species at a national level.

⁴ NPPF (2012) <https://www.gov.uk/guidance/national-planning-policy-framework/15-conserving-and-enhancing-the-natural-environment>

⁵ HMSO (2021): The Environment Act 2021. Schedule 7A

⁶CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

⁷ Legally protected and other notable species including those listed on Section 41 of the NERC Act 2006.

Geographic Context	Description
Regional	Local Nature Reserves (LNR), ancient woodland, species or species assemblages considered rare in the region. Resident, or regularly occurring, populations of species, significant at a regional level where the loss of these populations would adversely affect the conservation status or distribution of the species at a regional level. The loss of these populations would negatively affect the conservation status or distribution of the species at a regional level and where populations/species are critical at the regional scale.
County / Metropolitan	Sites meeting the criteria for county designations e.g. Non-statutory Local Wildlife Sites (LWS) or Sites of Interest to Nature Conservation (SINC). Notable species. Species or species assemblages considered rare in the county. Resident, or regularly occurring, populations of species, significant at a county level where the loss of these populations would adversely affect the conservation status or distribution of the species at a regional level. The loss of these populations would negatively affect the conservation status or distribution of the species at a county level and where populations/species are critical at the county scale.
Borough	Sites / species of value within this area of Kent, i.e. at a greater value than the local/ parish level, but not considered of county importance. Resident, or regularly occurring, populations of species, significant at a borough level where the loss of these populations would adversely affect the conservation status or distribution of the species at a regional level. The loss of these populations would negatively affect the conservation status or distribution of the species at a borough level and where populations/species are critical at the borough scale.
Local	Ward level Priority Habitats and Species. Species and habitats that are not threatened but are valued at a local level. Populations and assemblages of species which enrich the biodiversity within the local context.
Site	Species/ habitats of value within the context of the site's boundary only. Low or moderate numbers of common and widespread species.

- 14.37** Where protected species are present and there is the potential to affect them as a result of a development, those species are considered as ‘important’ features and included in the assessment, even if the feature itself is not considered to be of significant intrinsic nature conservation importance. However, the level of importance assigned to the affected population of a protected species will vary depending on contextual information about the population size, distribution, abundance and trends across the range of geographical scales. Non-statutory designated sites will also be identified as important ecological features where these lie within the zone of influence of the project.
- 14.38** Non-statutory designated sites will also be identified as important ecological features where these lie within the zone of influence of the project.
- 14.39** Similarly, irreplaceable habitats such as ancient broadleaved woodland are considered as ‘important’ features and included in the assessment. The level of importance will vary depending on the size of the habitat parcel, its distribution and abundance at different geographical scales.
- 14.40** Features that are considered to be important at site level only, or are of negligible importance, (such as paved ground or amenity grassland) are excluded from this assessment and it should be reasonable to assume that if a feature is not mentioned, it is not ecologically important.

Phasing

- 14.41** It should be noted that for the purposes of the assessment presented in this ES chapter, the phasing of the construction and operation of the Proposed Development (as set out in **ES Volume 1, Chapter 2: EIA Methodology** and **ES Volume 1, Chapter 5: Demolition and Construction**) has not been considered. It is considered appropriate and robust to assess effects upon Important Ecological Features arising from the demolition and construction works, and potential effects arising from the operation of the Proposed Development as a whole. This is to capture the ecological features across the whole site and provide mitigation and enhancements across the whole site.

Assumptions and Limitations

- 14.42** Access was limited across the RLB North-East area of the site given the existing industrial activities on-site, with no access possible to a large section of this area at the time of the Phase 1 habitat survey and bird surveys. However, this was supplemented with a review of aerial photography/satellite imagery to distinguish habitat types and the survey was undertaken from adjoining Public Right of Way (PRoW) where possible. Given that

a significant amount of the site was accessed and that the surveys were able to utilise other methods as described to undertake an ecological assessment of the habitats on-site, it is considered that there are no significant limitations to the surveys. Where relevant, the precautionary principle has been adopted in order to ensure a worst-case assessment is undertaken.

Methodology for Defining Effects

Defining the Effect

- 14.43** An assessment of likely ecological effects has been undertaken in accordance with the methodology outlined in the CIEEM Guidelines. This evaluation is based on an understanding of the biodiversity value and the importance of each ecological feature and how the potentially affected species or habitat contributes to the conservation status or distribution of the species or habitat at a particular geographic scale.
- 14.44** Assessments have been based on literature, best practice and professional judgement as to whether the integrity (of a site or ecosystem) or the conservation status (of a habitat or species) is likely to be affected and whether the effect would be ‘significant’ in ecological terms.
- 14.45** The LSE have been determined by assessing receptor sensitivity and the magnitude of impact on the relevant receptor. For example, a high sensitivity receptor which is susceptible to a high magnitude change would result in a major significant effect. Characteristics of biodiversity impacts, as shown in the table below, are also considered when determining the LSE for each Important Ecological Feature.
- 14.46** Under the CIEEM Guidelines, effects are assessed by magnitude and also characterised and described as beneficial / adverse, together with their geographical extent, duration, timing and frequency. **Table 14.3** provides impact criteria used in line with the CIEEM Guidelines.

Table 14.3 Characteristics of Biodiversity Impacts

Characteristic	Criteria
Beneficial, Adverse or Neutral	Does the impact result in the loss or gain in biodiversity/quality of the environment?
Geographic Extent / Magnitude	The spatial area over which the impact may occur, the area of habitat lost, or the number of individuals/populations affected.
Duration / Frequency	Is the impact temporary or permanent, frequently repeated or a one-off event?
Timing	In relation to the life cycle of the ecological feature (e.g. nesting bird season)
Direct or Indirect	Direct impact: resulting without any intervening factors. Indirect impact: not directly caused or resulting from something else
Reversibility	Is the impact temporary or permanent? Would the ecological feature recover after the impact?
Cumulative impacts	In combination with other plans/projects

- 14.47** Effects will also be defined in terms of being direct or indirect. A direct effect is defined as one resulting in the direct interaction of an activity with an environmental or ecological component. An indirect effect is defined as an effect on the environment which is not a direct result of a project or activity.
- 14.48** Impacts have been assessed initially without mitigation in accordance with the approach adopted by the CIEEM Guidelines.
- 14.49** The impact assessment has then been reapplied to determine the scale of any residual impacts to each ecological receptor, after the recommended mitigation has been implemented, to determine potential residual effect. Only those receptors for which effects are considered significant are carried through to the mitigation stage.
- 14.50** For each receptor the expert judgement of the ecologist is required to define sensitivity (to each potential effect) and the importance of the feature, using the best available information and extrapolating from it. Based on this, the sensitivity of each receptor has been classified as high, medium or low:

- **High** Sensitivity Receptor (Key Ecological Feature), meaning habitats / species known to be very sensitive to the effects of development;
- **Medium** Sensitivity Receptor (Key Ecological Feature) meaning habitats and species known to be moderately sensitive to the effects of development; and
- **Low** Sensitivity Receptor (Key Ecological Feature) meaning habitats and species known to be relatively insensitive to the effects of development.

Magnitude of Impact

- 14.51** In accordance with the CIEEM Guidelines: “Magnitude refers to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.”
- 14.52** The magnitude of the environmental impact or ‘change’ as a result of the Proposed Development assigned based upon **Table 14.4** to provide an understanding of the relative change from the baseline position, be that an adverse or beneficial change.
- 14.53** Magnitude of impact has been quantified taking account of not only the habitat or species resource within the site but also within the wider area.

Table 14.4 Magnitude of Impact

Magnitude of Impact	Description
High	The change permanently (or over the long-term) affects the conservation status of a habitat/species, reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area and relative to the wider habitat resource/species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a change in the level of importance of the receptor in the context of the Proposed Development.
Medium	The change permanently (or over the long term) affects the conservation status of a habitat/species reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area and 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 change in the level of importance of this receptor in the context of the Proposed Development.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction or increase. These changes are likely to be within the range of natural variability and they are not expected to result in 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 importance in the context of the Proposed Development.
Very Low	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, means that they would experience little or no change. Any changes are also likely to be within the range of natural variability and there would be no short-term or long-term change to conservation status of habitats/species receptors or the integrity of designated sites.
Negligible	A change, the level of which is so low, that it is not discernible on designated sites or habitats or the size of species' populations.

Categorising the Likely Significant Effects

- 14.54** As per CIEEM Guidelines, an effect determined as being significant ‘either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general’.
- 14.55** A likely significant impact is defined as ‘an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats and species within a given geographical area’.
- 14.56** An effect on an Important Ecological Feature may be significant at the same geographic scale at which the feature is determined to be important, or at a lesser geographical scale, depending on the characterisation of the impact.
- 14.57** A level of significance has been assigned to each predicted effect. Where an ecological feature falls into more than one category of scale then the highest category is always selected for evaluation purposes. Effects on the conservation status of Important Ecological Features are only assessed in detail if they have a high enough value (local or above) and impacts upon them may be a material consideration in decision-making in terms of legislation and planning policy. Impacts on features below local value are categorised as of neutral significance

and are not considered further. Species and habitats of site value are unlikely be considered to support ecological significance beyond the site boundary and therefore likely considered un-important. However, where it has not been possible to robustly conclude that there is no significant effects (due to insufficient survey data or scientific research for example), then the precautionary principle will be applied and a significant effect is assumed.

- 14.58** Using the CIEEM Guidelines and approach, significant effects are identified regarding an appropriate geographical scale alongside the equivalent definitions of effect used elsewhere in this ES, using the following terms set out below. Under the CIEEM Guidelines, effects are also characterised and described as beneficial / adverse in nature, together with their geographical extent, duration, timing and frequency. The scale of effects is described in **Table 14.5**.

Table 14.5 Criteria for Determining Significance

Criteria	Scale	Nature	Significance
Positive effect on the status of ecological features of interest from county, regional, national, and international level.	Major	Beneficial	Significant
Positive effect on the status of ecological features of interest from local to borough level.	Moderate		
Positive effect on the status of ecological features of interest at site level.	Minor	Beneficial	Not Significant
No noticeable effect on the status of ecological features of interest.	Negligible	N/A	
Negative effect on the status of ecological features of interest at site level.	Minor	Adverse	
Negative effect on the status of ecological features of interest at local to borough level.	Moderate	Adverse	Significant
Negative effect on the status of ecological features of interest at county, regional, national and international level.	Major		

The “Mitigation Hierarchy”

- 14.59** The assessment of the significance of an effect is made initially in the absence of mitigation. This is followed by a sequential process of determining the most appropriate way to remove or minimise significant effects. The preferred option is to avoid impacts in the first instance, for example by embedded mitigation measures such as redesigning the scheme to retain an important area of habitat, or timing works sensitively. Mitigation measures such as translocation or displacement of populations is only applied as a last resort where significant impacts and effects are unavoidable.
- 14.60** Following mitigation, the residual effects are reconsidered and either defined as not significant or significant, and where the residual effect is significant, the scale and nature of the effected is confirmed.
- 14.61** When residual significant adverse impacts and effects remain after all practicable measures to avoid and/or minimise these have been applied, compensation measures are required. Compensation measures may include habitat creation in alternative locations that offset unavoidable habitat loss. Finally, enhancements are proposed that may not relate to a specific effect but provide net gains in biodiversity – taking advantage of opportunities in the design and operation of the Proposed Development. These measures are intended to ensure that the Proposed Development contributes towards national and local ecological and biodiversity objectives.

Cumulative Effects

- 14.62** Consideration is also given to any potential cumulative effects and the potential for impact avoidance or minimisation. Cumulative effects can occur as interactions between the effects associated with a number of projects in an area which may, on an individual basis be insignificant, but together (i.e., cumulatively), result in a significant cumulative effect.
- 14.63** The cumulative schemes that are considered within this ES chapter are those located within a 1km radius from the site boundary as this spatial extent is considered appropriate for determining cumulative effects in this locality based on experience and professional judgement.
- 14.64** All cumulative schemes within 1km were incorporated within the cumulative effects assessment.

BASELINE CONDITIONS

Statutory Designated Sites

- 14.65 A desk-based search shows that there are five sites with National statutory designation within the 5km of the site (as illustrated in **Figure 14.2**):
- Swanscombe Peninsula Site of Special Scientific Interest (SSSI) is located 50 metres to the north-west of the site. This site was granted SSSI status in November 2021. This site has been designated in recognition of its national importance for plants, geology, birds and invertebrates.
 - Swanscombe Skull Site National Nature Reserve (NNR and SSSI) is located approximately 1.3km to the south-west of the site.
 - Swanscombe Marine Conservation Zone (MCZ) is located approximately 1.2km to the north-west of the site. This site is of European designation.
 - West Thurrock Lagoon and Marshes SSSI is located approximately 2.4km to the north-west of the site.
 - Lion Pit SSSI is located approximately 2.8km north-west of the site.
- 14.66 The site is in the Impact Risk Zone for Swanscombe Peninsula SSSI and West Thurrock Lagoon and Marshes SSSI. Swanscombe Peninsula SSSI is a corridor of habitats connecting Ebbsfleet Valley with the southern shore of the River Thames between Dartford and Gravesend. The site is a complex of open mosaic habitats on previously developed land and traditional estuarine habitats located near and within the River Thames.
- 14.67 The nearest international statutory designated site to the Proposed Development is Thames Estuary & Marshes Ramsar and Special Protection Area (SPA), located approximately 6km to the east of the site.

Non-Statutory Designated Sites

- 14.68 A desk-based search based on Kent & Medway Biological Records Centre shows that there are three local wildlife sites within the Zone of Influence (as illustrated in **Figure 14.2**):
- GR19 Botany Marshes LWS is located within Swanscombe Peninsula SSSI (adjacent to the north-west) of the site – habitats include, significant areas of wet grassland, reedbed and, notable areas of salt marsh, exposed mud and sheltered riparian habitats.
 - GR05 Ebbsfleet Marshes LWS is located approximately 50m south of the site - habitats include grassland, marsh, scrub, the River Ebbsfleet and a large, flooded quarry to the north-east known as ‘blue lake’. This LWS was first notified in 1985, but since then, the construction of the Channel Tunnel Rail Link, Ebbsfleet International Rail Station and its associated parking has caused severe fragmentation of the LWS.
 - DA13 Alkerden Lane Pit LWS is located approximately 1.5km west of the site, to the south of the railway line, A226 and Swanscombe Peninsula. Habitats include grassland, scrub, woodland and an inland cliff. The LWS was mainly designated for supporting nationally and county scarce plant species including narrow-leaved everlasting pea *Lathyrus sylvestris*, a relict population of yellow vetchling (*Lathyrus aphaca*) and the county's largest population of green-flowered helleborine (*Epipactis phyllanthos*). An area of former landfill on the site is also known to support a rare assemblage of invertebrates including at least one UK Biodiversity Action Plan (BAP) species.
 - M031 River Thames, Site of Importance for Nature Conservation (SINC), borders the north-west of the site - The River Thames and the tidal sections of creeks and rivers which flow into it comprise several valuable habitats not found elsewhere in London.

Habitats

- 14.69 The results of the Phase 1 habitat survey (as set out in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 1**) are presented in **Table 14.6**, **Table 14.7**, and **Table 14.8** below.

Table 14.6 Habitats Present within the RLB South Area

Habitat Type	Habitat Description
Buildings	The area contains eight buildings. A mixture of brick and metal industrial buildings and including the built parts of the football stadium. No access was granted to assess these buildings - . features were assessed utilising satellite imagery from Google maps, and from adjoining areas on-site where visibility was possible.
Hardstanding and Ephemeral vegetation	The majority of the site is hard standing which is a mixture of parking. Vegetation in this area of the site includes Japanese knotweed (<i>Fallopia japonica</i>) stands.
Amenity Grassland	Small area of short-mown lawn is present around the back of one of the buildings.
Introduced shrub with Scattered Trees	Introduced shrub with scattered treelines around the site.

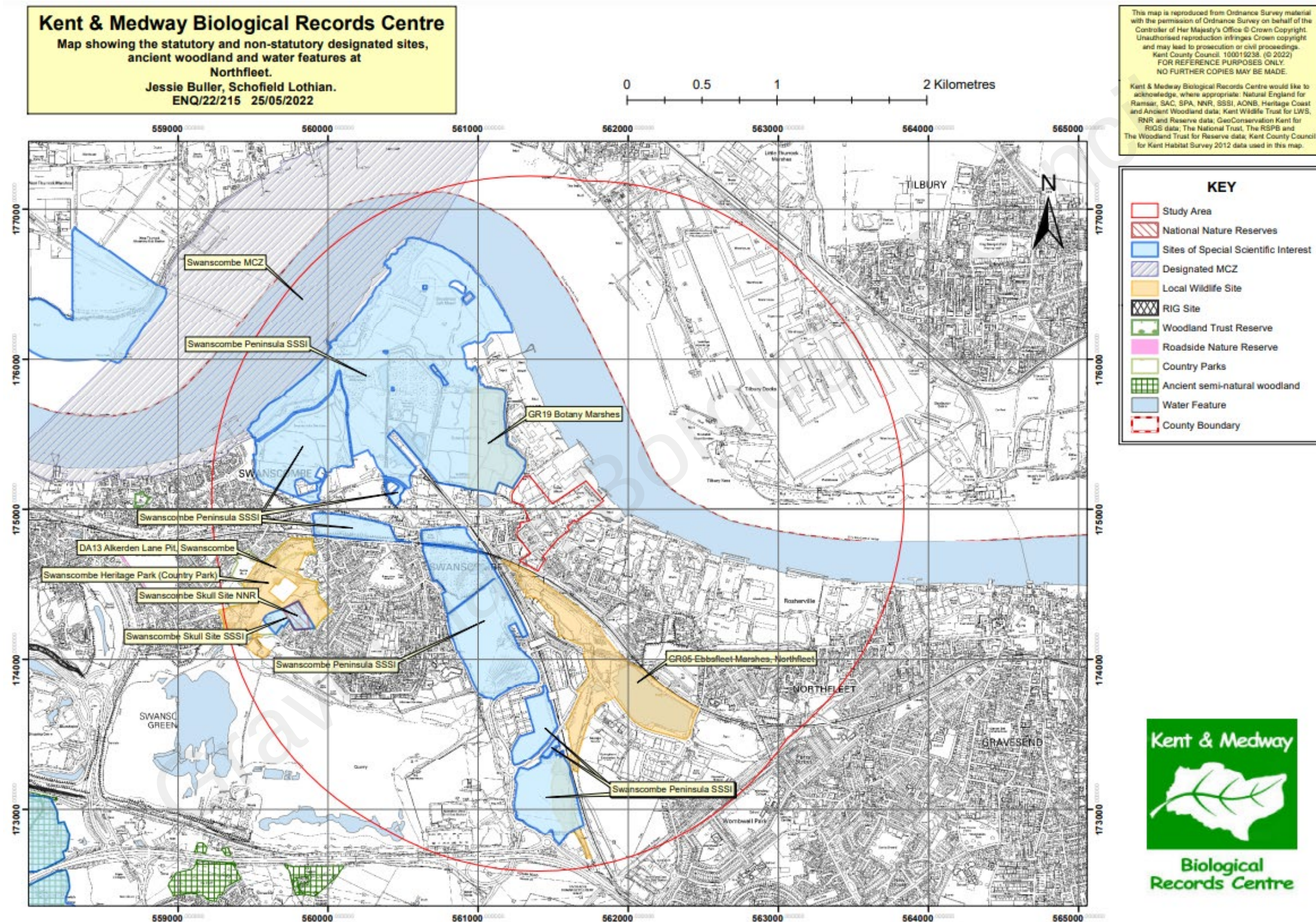
Table 14.7 Habitats Present within the RLB North–East Area

Habitat Type	Habitat Description
Buildings	The site contains four buildings. A mixture of brick and metal industrial buildings including a builders merchant, mechanics shop and an asphalt mixing plant. No access was granted to assess these buildings - features were assessed utilising satellite imagery from Google maps, and from adjoining areas on-site where visibility was possible.
Hardstanding and Ephemeral vegetation	The majority of the site is hard standing which is a mixture of parking and storage of aggregate piles for the sand and gravel works.
Hedge with Trees– Species Poor	Introduced shrub with scattered treelines around the site. A few mature trees appear to be present. Viewed from satellite imagery, no access to this part of the site.
Standing Water	Two un-covered standing water troughs are present within the sand and gravel works. Viewed from satellite imagery, no access to this part of the site
Sea Wall	The Thames Flood Wall provides a large metal and concrete barrier between the Thames and the site.

Table 14.8 Habitats Present within the RLB North–West Area

Habitat Type	Habitat Description
Buildings	The site contained multiple industrial units. All were deemed unsuitable for potential bat roosts due to the lack of insulation offered. The potential for nesting birds is present, though none were seen during the Phase 1 habitat survey. Also present were a number of shipping containers. These however did not provide any potential habitats to considered species.
Hardstanding and Ephemeral vegetation	The majority of the RLB North-West area was dominated by hardstanding carriageways and walkways. Ephemeral vegetation was present, though no species of significance were observed. Species included Oxford Ragwort (<i>Senecio squalidus</i>), Mallow species (<i>Malva</i> sp), Poppy (<i>Papaver pseudoorientale</i>), groundsel (<i>Senecio vulgaris</i>), Fennel (<i>Foeniculum</i>), red valerian (<i>Centranthus ruber</i>).
Introduced Shrub	Shrubs such as Buddleia (<i>Buddleia davidii</i>), Bramble (<i>Rubus fruticosus</i> agg.), Nettles (<i>Urtica dioica</i>), Grasses and Ivy (<i>Hedera helix</i>), and Rose spp.
Hedge with Trees– Species Poor	A number of scattered trees were found to be present on site. These include Ash (<i>Fraxinus excelsior</i>), Pussy Willow (<i>Salix caprea</i>), and Hawthorn (<i>Crataegus monogyna</i>).

Figure 14.2 Statutory and Non-Statutory Designated Sites, Ancient Woodland and Water Features



14.70 Mudflats are present adjacent to the north-east boundary of the site. Mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries and other sheltered areas. Mudflats are a UK BAP Priority Habitat. UK Priority Habitats are considered to be of principal importance for the conservation of biodiversity and are considered to be the most threatened habitats. UK Priority Habitats should be safeguarded during construction and operational phases of developments.

Species

14.71 The MAGIC website showed there is no record of previous applications for European Protected Species (EPS) development licences within 2km of the survey area. The Kent & Medway Biological Records report detailed five bat roosts (unknown type) and three hibernating bats within 2km of the site but not within the site red line boundary. Records of protected and/or notable species have been obtained from the Kent & Medway Biological Records report, see **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 1**. Many bird species (including Schedule 1 species) were recorded. Other species of importance recorded include:

- Natterer's Bat (*Myotis nattereri*);
- Leisler's Bat (*Nyctalus leisleri*);
- Nathusius' Pipistrelle (*Pipistrellus nathusii*);
- Soprano Pipistrelle (*Pipistrellus pygmaeus*);
- Slow worm (*Anguis fragilis*);
- Common lizard (*Zootoca vivipara*); and
- Grass snake (*Natrix helvetica*).

Bats

14.72 No Potential Roost Features (PRFs) were noted during the PRA. The trees and buildings on-site were then assigned a rating according to the likelihood of supporting bats.

14.73 The trees and buildings on-site were assessed (both where access was possible and where they were assessed from a distance or using other methods) to be of negligible bat roosting suitability. The visible buildings were well sealed and offered very limited opportunities. The buildings and structures, when considering the surrounding area and high levels of disturbance from humans and lighting, were assessed to not support any suitable roosting features, and are defined as having a negligible potential to support roosting bats in accordance with the Bat Conservation Trust criteria. The habitats were also considered to have low suitability for foraging or commuting bats given the level of disturbance and lack of suitable foraging and commuting features (e.g. connecting habitats). Therefore, no further surveys were required.

Birds

14.74 Two Schedule 1 bird species were confirmed to be breeding in areas next to the RLB North-East site area. A little ringed plover (*Charadrius dubius*) pair were confirmed to be breeding (juveniles seen) on the shingle beach on the mudflats to the north of the site on the south bank of the River Thames. Cetti's Warbler (*Cettia Cetti*) were confirmed to be breeding in Robin's Creek to the east of the site.

14.75 Black redstart were confirmed as present and breeding due to behaviour in the area. It is considered that black redstart is breeding near the RLB North-East area, however due to access constraints it could not be confirmed that this species is present or absent from the site itself. Therefore, further black redstart surveys will be undertaken to confirm nesting presence/absence on site during the breeding season (May to August inclusive) prior to construction, once access is granted. Foraging activity on the mudflats to the north and east of the site during all the surveys was deemed to be low.

14.76 Non-Schedule 1 bird species were detailed in the desk study. The vegetation and buildings on the site have potential to support nesting non-Schedule 1 species, all nesting non-Schedule 1 birds are legally protected but do not have the additional disturbance protection afforded to Schedule 1 birds

RECEPTORS AND RECEPTOR SENSITIVITY

Existing Receptors

14.77 Ecological receptors and the rationale for being scoped in/scoped out of the assessment can be found in **Table 14.9**.

Table 14.9 Receptors and Rationale for Scoping into the Assessment

Ecological Feature	Scoped In or Out?	Receptor Sensitivity	Rationale
Designated Sites	In	Medium	As a result of the operational Proposed Development, there will likely be direct impacts in the form of increased footfall at the designated site of Swanscombe Peninsula SSSI. There is also risk of overshadowing of features within the SSSI as part of the operational Proposed Development. There is also the potential for indirect effects such as pollution and habitat degradation. No likely significant hydrological impacts are anticipated to affect the designated site.
Designated Sites – Non-Statutory	In	Low	The site is in close proximity to Ebbsfleet Marshes LWS. Botany Marshes LWS forms part of the SSSI as so is evaluated under statutory sites. The site is also adjacent to the River Thames SMINC.
Priority Habitats – Mudflats	In	Medium	The site is in close proximity to the Priority Habitat of mudflats present adjacent to the north-east boundary of the site. There is potential for the Proposed Development to cause direct impacts in the form of habitat degradation through potential pollution incidences. There is also potential for indirect effects from pollution during the construction phase and light spills which could impact the wildlife using the mudflats habitat.
Roosting bats	Out	N/A	No potential for roosting bats was observed within the trees or buildings on site.
Nesting Birds	In	Low	A wide range of passerine bird species were recorded in the desk study. The habitats on-site could support local assemblages of birds which might use the buildings and vegetation to nest within.
Schedule 1 Birds	In	Low	Due to the site's close proximity to the known locations for breeding Schedule 1 bird species; Robin's Creek and the shingle beach on the mudflats present adjacent to the north-east boundary of the site, there is potential for the Proposed Development to cause direct impacts in the form of disturbance during breeding. Loss of the gravel pits could lead to direct habitat loss for nesting black redstart if present on-site. There is also potential for indirect effects from pollution during the construction phase and light spills which could impact the wildlife using the mudflats habitat. These are considered of low sensitivity due to the current baseline disturbance levels on the site and surrounding areas.
Roosting bats	Out	N/A	The buildings and trees do not offer any roosting features with potential for roosting bats.
Commuting and foraging bats	Out	N/A	The site offers very limited commuting and foraging potential for bats due to the industrial environment.
Invertebrates	In	Medium	Due to a lack of access to the mudflats there is potential for important assemblages of invertebrates to be present.
Badger	Out	N/A	No active setts or field signs were recorded within or adjacent to the site. The habitats are also considered highly unsuitable for badgers commuting or foraging.
Hedgehogs	Out	N/A	Hedgerows and tree lines provide limited suitable habitat for hedgehogs. Consideration during construction should be given to ensure this species is not harmed. However, any population(s) present on site is likely to be of insufficient size or diversity to be of significant ecological value.
Invertebrates	Out	N/A	It is likely common or low numbers of notable invertebrate species are using the site for foraging and breeding given the habitats recorded on site such as trees, hedgerow, and scrub. However, any population(s) present on site is likely to be of insufficient size or diversity to be of significant ecological value. The mudflats have the potential to support aquatic invertebrates. Information gathered from the bird surveys will provide detail on the quality and quantity of aquatic invertebrates and their importance as a food resource for birds. No significant effects are anticipated from the Proposed Development.
Reptiles	Out	N/A	No suitable habitat was recorded within the site.
Great Crested Newts	Out	N/A	No suitable habitat was recorded within the site.
Water Vole	Out	N/A	No suitable habitat was recorded within the site.
On-site Habitats	In	Low	The majority of the site is hard standing with buildings and offers limited ecological value, however Japanese knotweed (<i>Fallopia japonica</i>) was recorded on the site. This species has the potential to negatively impact important sites beyond the site boundary and is therefore considered further. .

Introduced Receptors

- 14.78** No introduced receptors are considered Important Ecological Features. However, the proposed planting and embedded ecological measures (as discussed below) will provide beneficial on-site habitats for use by species.

EMBEDDED MITIGATION

Completed Development

- 14.79** The Proposed Development will include the provision of significant planting and landscaping on-site. A Biodiversity Enhancement and Management Plan (BEMP) which will set out appropriate timings for all proposed habitat management activities. In addition, the BEMP should outline the location and types of wildlife boxes to be installed, to ensure key features are created in appropriate locations.
- 14.80** Education to the public during sensitive times of the year for birds on limiting of disturbance will be given in the information centre/ café. This is secured via the Design Code which commits to a high-quality detailed landscaping design via measures including:
- Bird and bat boxes (integrated into the walls of buildings and on suitable trees), including features for house sparrows, starlings, swifts and house martins;
 - Native and locally characteristic tree, shrub and hedge planting;
 - Provision brown roofs to the north-eastern extent of the site (within the Riverside Neighbourhood Character Area) to allow for suitable habitat for black redstart and other bird species;
 - Bug hotels and purpose made bug boxes;
 - Wildlife links hibernacula and refugia suitable for smaller fauna including reptiles and amphibians;
 - The use of nectar-rich and berry producing plants to attract a wider range of insects, birds and mammals and continue to accommodate those already utilising the site; and
 - A wildlife sensitive lighting strategy.
- 14.81** These measures to be delivered by the detailed design, as demonstrated by the Illustrative Landscape Masterplan, will provide additional connectivity across the site, providing foraging, commuting and refuge for a wide range of species.
- 14.82** As discussed in **ES Volume 1, Chapter 4: The Proposed Development** and captured within the Design Code, Sustainable Drainage Systems (SuDS) will be implemented within the Proposed Development in order to appropriately manage run-off quality and quantity into the River Thames and Robin's Creek reducing impact on invertebrates within the mudflats.
- 14.83** In order to help manage operational footfall from the site into the Swanscombe Peninsula to SSSI and reduce impacts from recreational pressure upon the SSSI where possible the following mitigation measures have been embedded within the design:
- The provision of adequate minimum on-site open space for operational amenity (as discussed in **ES Volume 1, Chapter 4: The Proposed Development**). The quality of the amenity and open space on-site has also been designed in coordination with relevant technical teams in order to ensure that it can be suitable for use, and therefore not require users and occupants of the Proposed Development to actively seek off-site amenity and open spaces - for example, the wind microclimate assessment (as discussed in **ES Volume 1, Chapter 3: Alternatives and Design Evolution**) has included relevant landscaping measures to ensure the Pocket Park areas a suitable for use with regards to wind comfort;
 - Controlled pedestrian access and signposting displaying the sensitivity of Swanscombe Peninsula SSSI to human disturbance, for example highlighting the potential detrimental impacts of dogs off leads upon nesting birds during the relevant ecological season;
 - Access should be managed to the SSSI; for example, fences should be erected at the site boundary to reduce pedestrian footfall to the north-west of the site
 - No footpaths to be created between site and SSSI (only one previous footpath to remain);

- The provision of an information centre/cafe within the Power Park, next to the play areas, to encourage walks around the site as opposed to within the SSSI, and to provide information regarding notable species and habitats including relevant protection measures within the local area and the SSSI in particular; and
- Boundary of trees between SSSI and site to provide barrier rather than continuation of the SSSI into the site.

POTENTIAL EFFECTS

Demolition and Construction

On-site Habitats

Direct Effects

Spreading of Invasive Species

- 14.84** Japanese knotweed (*Fallopia japonica*) strands were found on site during the extended Phase 1 habitat survey. Japanese knotweed has the potential to spread if not managed correctly. The spread of Japanese knotweed would cause habitat degradation on-site and could pose a biological threat to adjacent habitats.
- 14.85** Therefore, it is considered in the absence of mitigation measures, the effect (low magnitude) on the site and adjoining habitats (low sensitivity receptor) would be direct, long term, Minor Adverse (Not Significant) at the Local level.

Designated Sites – Swanscombe Peninsula SSSI

Indirect Effects

Pollution / Habitat Degradation

- 14.86** Effects on the Swanscombe Peninsula SSSI could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats within the Swanscombe Peninsula SSSI becoming degraded.
- 14.87** In the absence of mitigation measures, the effect (low magnitude) on the Swanscombe Peninsula SSSI (medium sensitivity receptor) would be indirect, short term and Minor Adverse (Not Significant) at the National level.

Designated Sites – Non-Statutory LWS / SINC

Indirect Effects

Pollution / Habitat Degradation

- 14.88** Effects on Ebbsfleet Marshes LWS and the River Thames SINC could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats within these sites becoming degraded. Ebbsfleet Marshes LWS supports grassland, marsh, scrub, the River Ebbsfleet and a large flooded quarry to the north east known as 'blue lake'. This site was first notified in 1985 and since then the Channel Tunnel Rail Link has been constructed with associated car parking, causing severe fragmentation and development of the site. This is likely to have decreased its value and some of the habitats and species quoted in the original citation may no longer be present.
- 14.89** In the absence of mitigation measures, the effect (low magnitude) on the non-statutory designated sites (low sensitivity receptor) would be indirect, short term and Minor Adverse (Not Significant) at the Local level.

Priority Habitats – Mudflat

Indirect Effects

Pollution

- 14.90** Effects on the Priority Habitats could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats becoming degraded.
- 14.91** This Priority Habitat is currently highly disturbed from shipping traffic; which would reduce the suitability of the mudflats for foraging wading birds and likely only support local species, such that the effect is considered to be at a Local level. It is considered that in the absence of mitigation measures, the effect (low magnitude) on the Priority Habitats (medium sensitivity receptor) would be a temporary, short term, Minor Adverse (Not Significant) at the Local level.

Invertebrates – Mudflat

Indirect Effects

Pollution / Habitat Degradation

- 14.92** Effects on the invertebrate assemblages within the mudflats could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats becoming degraded and being less suitable for invertebrates.
- 14.93** The mudflats are currently highly disturbed from shipping traffic, which would reduce the suitability of the mudflats for invertebrates and likely only support local species, such that the effect is considered to be at a Local level. It is considered that in the absence of mitigation measures, the effect (low magnitude) on the Priority Habitats (medium sensitivity receptor) would be a temporary, short term, Minor Adverse (Not Significant) at the Local level.

Birds (Non-Schedule 1 and Schedule 1)

Direct Effects

Loss of Habitat – Non-Schedule 1 and Schedule 1

- 14.94** Site clearance during the demolition and construction phase of the Proposed Development will result in the loss of scattered trees and some scrub, habitats which are likely to provide nesting opportunities for a variety of non-Schedule 1 bird species during the nesting season. Potential nesting habitat for the Schedule 1 species black redstart will also be lost due to the redevelopment of the gravel pits area. It should be noted that no access was available on-site to confirm breeding locations of black redstart but singing males were heard next to the site. Therefore, taking a precautionary approach, this species is assumed to be present on-site.
- 14.95** This loss of habitat is considered to be temporary as whilst the construction period is relatively long, as discussed in **ES Volume 1, Chapter 5: Demolition and Construction**, the Proposed Development will be delivered on a phased basis. Therefore, the new buildings and areas of tree planting included within the landscaping proposals will provide replacement nesting opportunities for those lost as construction of the Proposed Development progresses. Furthermore, suitable nesting habitat is present within the wider area. It is therefore considered that the temporary loss of suitable nesting habitat during the construction phase of the Proposed Development will have no significant effect on the favourable conservation status of bird populations in the local area. It is possible that vegetation clearance or construction activities may result in the damage or destruction of an active bird's nest if undertaken during the bird nesting season (March to August inclusive).
- 14.96** Any damage and disturbance of an active nest would constitute an adverse effect and an offence under the Wildlife and Countryside Act 1981 and so will be a legislative consideration during the construction phases. Therefore, in the absence of mitigation, the effect (medium magnitude) on the bird species (low sensitivity receptor) would be a temporary, short term, Moderate Adverse (Significant) at the Regional level.

Disturbance of Schedule 1 Birds

- 14.97** The construction works may lead to the disturbance of nesting birds including Schedule 1 species, arising from vehicles, people and construction activities leading to visual and noise disturbance. This disturbance is likely to be intermittent throughout the nesting period and will vary by species and in extent depending on the

proximity of the nest to the areas exposed to disturbance but could result in a reduction of suitable opportunities for nesting birds within the site. It is possible that this could cause disturbance to breeding Schedule 1 birds such as little ringed plover that have been recorded as breeding on the mudflats to the north of the site and Cetti's warbler who have been recorded as breeding in Robin's Creek to the east of the site (see **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 3**). It is also possible that construction activities may result in the damage or destruction of an active bird's nest if undertaken during the bird nesting season (March to August inclusive).

- 14.98** Any disturbance of a Schedule 1 bird during the breeding period could result in the failure of an active nest which could have an adverse effect on populations of breeding birds, which would be significant at the Regional level. It would also constitute an offence under the Wildlife and Countryside Act 1981 and therefore would be a legislative consideration during the construction phase of the Proposed Development.
- 14.99** Therefore, in the absence of mitigation, the effect (medium magnitude) on Schedule 1 birds (low sensitivity receptor) there would be a temporary, short term, Moderate Adverse (Significant) at the Regional level.

Completed Development

Designated Sites – Swanscombe Peninsula SSSI

Direct Effects

Increased Footfall / Recreational Pressure

- 14.100** This Proposed Development could result in an increase in recreational pressure and footfall to the Swanscombe Peninsula SSSI which is located to the north-west of the site which could have direct detrimental effects (e.g. the degradation of habitats, impacts upon nesting birds as a result of dog walking, etc) upon habitats and species within the SSSI. Furthermore, the Proposed Development may lead to the introduction of predator species such as cats. Currently there is no robust baseline information on the recreational pressure threshold as the site has only recently been designated (November 2021), this has led to a precautionary approach to this assessment.
- 14.101** However, as discussed above within the 'Embedded Mitigation' section, mitigation to offset negative impacts from increased footfall have been designed into the scheme and secured via the Design Code. This includes the inclusion of high-quality amenity space on-site to ensure the increased population on site have sufficient and attractive green space without having to access the SSSI.
- 14.102** Therefore, and in the absence of further mitigation it is considered that the effect (low magnitude) upon Designated Sites (medium sensitivity receptor) would be permanent, long-term, Minor Adverse (Not Significant).
- 14.103** Once detailed design is available for the Proposed Development, Kent County Council and Natural England will be consulted to advise on any further advised mitigation methods to offset the increased footfall effect.

Overshadowing

- 14.104** The increase in building height as part of the operational development could result in an increase of overshadowing on some habitats within Swanscombe Peninsula SSSI.
- 14.105** This is based on review of the transient overshadowing plots on the three key dates, March 21st, June 21st and December 21st, 2022. Whilst Botany Marshes would see periods of overshadowing from the Proposed Development throughout the year, the Proposed Development would not overshadow the same portions of this area for long periods of time. Furthermore, the overshadowing is localised, and restricted to the southern corner of the SSSI next to Lower Road. It is considered that the effect (low magnitude) upon Designated Sites (medium sensitivity receptor) would be transient, long-term, Minor Adverse (Not Significant).

Direct Effects

Pollution / Habitat Degradation

- 14.106** The completed Proposed Development could result in increased pollution and habitat degradation due to the significant increase in residential dwellings introduced to the site. Increased pollution could arise from an increase in car traffic and from rubbish being left out attracting predatory species (such as rats). Habitats within the SSSI could also be impacted by the introduction of non-native species into the Proposed Development, which could self-colonise the SSSI and degrade the habitats currently present.
- 14.107** These events are considered to have a low likelihood and would likely be managed independently by the SSSI.

- 14.108** Therefore, it is considered in the absence of mitigation measures, the effect (low magnitude) on the Designated Sites (medium sensitivity receptor) would be permanent, long term, Minor Adverse (Not Significant) at the Local level.

Additional Planting

- 14.109** Additional planting on-site due to the Proposed Development, as discussed in the 'Embedded Mitigation' section above, will increase habitat connectivity to the adjacent Swanscombe Peninsula SSSI. The additional planting will also increase biodiversity and ecological value within the local area.
- 14.110** Therefore, it is considered this effect (low magnitude) on the Swanscombe Peninsula SSSI (moderate sensitivity receptor) would be indirect, long term Minor Beneficial (Non-Significant) at the Local level.

Designated Sites – Non-Statutory (Ebbsfleet Marshes LWS)

Direct Effects

Increased Footfall / Recreational Pressure

- 14.111** The Proposed Development could result in an increase in recreational disturbance of flora and fauna within Ebbsfleet Marshes LWS as a result of increased residential population. However, as discussed above within the 'Embedded Mitigation' section, mitigation to offset negative impacts from increased footfall have been designed into the scheme and secured via the Design Code. This includes the inclusion of high-quality amenity space on-site to ensure the increased population on site have sufficient and attractive green space without having to access the LWS. The LWS is also separated from the site by the railway line reducing accessibility.
- 14.112** Therefore, and in the absence of further mitigation it is considered that the effect (low magnitude) upon Designated Sites – Non-Statutory (medium sensitivity receptor) would be permanent, long-term, Minor Adverse (Not Significant) at the Local Level.

Priority Habitats – Mudflats

Direct Effects

Overshadowing

- 14.113** The overshadowing assessment established potential minor adverse overshadowing effects to the River Thames. This is based on review of the transient overshadowing plots on the three key dates, March 21st, June 21st and December 21st. Therefore, in the absence of mitigation the effect (low magnitude) on the Priority Habitats (medium sensitivity receptor) there would be a temporary, short term, Minor Adverse (Not Significant) at the Local level.

Indirect Effects

Pollution / Habitat Degradation

- 14.114** Due to the site's proximity to mudflat habitat, effects on the Priority Habitats could arise because of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off as a result of the completed Proposed Development. This could result in the Priority Habitats becoming degraded. The main impact which would likely cause habitat degradation would be through drainage into the Thames.
- 14.115** Therefore, in the absence of mitigation the effect (low magnitude) on the Priority Habitats (medium sensitivity receptor) there would be a temporary, short term, Minor Adverse (Not Significant) at the Local level.

Invertebrates – mudflats

Indirect Effects

Pollution / Habitat Degradation

- 14.116** Due to the site's proximity to mudflat habitat, effects on the invertebrate populations present within the mudflats could arise because of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off as a result of the completed Proposed Development. This could result in the invertebrates being impacted from habitat degradation from pollution. The main impact which would likely cause habitat degradation would be through drainage into the Thames.

- 14.117** Therefore, in the absence of mitigation the effect (low magnitude) on the Priority Habitats (medium sensitivity receptor) there would be a temporary, short term, Minor Adverse (Not Significant) at the Local level.

Birds (Non-Schedule 1 and Schedule 1)

Direct Effects

Loss of Habitat / Disturbance

- 14.118** The completed Proposed Development may lead to the disturbance of habitats used by nesting birds, arising from increased public pressure through movement from vehicles and people leading to visual and noise disturbance. This disturbance is likely to be intermittent throughout the nesting period and will vary by species and in extent depending on the proximity of the nest to the areas exposed to disturbance but could result in a reduction of suitable opportunities for nesting birds (non-Schedule 1) within the site. It is possible this could cause disturbance to breeding Schedule 1 birds such as little ringed plover who have been recorded as breeding on the mudflats to the north of the site and Cetti's warbler who have been recorded as breeding in Robin's Creek to the east of the site (see **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 3**). It is also possible that vegetation management activities undertaken during the operational phase of the Proposed Development may result in the damage or destruction of an active bird's nest if undertaken during the bird nesting season (March to August inclusive).
- 14.119** Any such damage or destruction or disturbance of an active nest could have an adverse effect on populations of breeding birds, which would be significant at the Local (Site) level.
- 14.120** It would also constitute an offence under the Wildlife and Countryside Act 1981 and so will be a legislative consideration during the operational phase of the Proposed Development. There are few enforceable options for managing the potentially adverse effect of domestic pet predation on nesting birds, which should be incorporated after detailed design due to the vast number of residential dwellings proposed.
- 14.121** In the absence of mitigation the effect (medium magnitude) on bird populations (low sensitivity receptor) would therefore cause a temporary, long-term, Moderate Adverse effect at the Regional level.

MITIGATION, MONITORING AND RESIDUAL EFFECTS

Demolition and Construction

Spreading of Invasive Species

- 14.122** A management plan, prepared by a suitably qualified ecologist, is required to define the areas of land likely to be contaminated by Japanese knotweed rhizomes, exclusion zones and a methodology for on-site treatment or appropriate removal of contaminated land should be incorporated into a CEMP. In advance of site works invasive plant species surveys will be updated and measures implemented through the construction works to safeguard against the spread of any invasive non-native species. The main contractor will ensure that all materials imported or exported from the site are not contaminated and monitoring will take place post-construction to ensure that invasive species do not colonise the site.
- 14.123** Therefore, it is considered with the implementation of the above measures, the residual effect of spreading of invasive species will be **Negligible (Not Significant)**.

Designated Sites – Statutory and Non-Statutory (Swanscombe Peninsula SSSI, Ebbsfleet Marshes LWS and River Thames SINC)

Pollution and Habitat Degradation

- 14.124** Given the potential for indirect Minor Adverse effects on the Swanscombe Peninsula SSSI, , non-statutory designated sites (Ebbsfleet Marshes LWS and the River Thames SMINC) and the Priority Mudflat Habitat, resulting from the demolition and construction works, relevant ecological measures defined within a detailed Construction Environmental Management Plan (CEMP), to be secured via condition, will minimise the potential for any adverse indirect ecological effects upon the Swanscombe Peninsula SSSI and the habitats and species it supports.
- 14.125** Measures relating to pollution incidences, to be included within the detailed CEMP(s) include:

- Details on the location of appropriate fencing, agreed in conjunction with a suitably qualified ecologist, to protect off-site habitats (such as the adjacent Priority Habitat) where appropriate to prevent effects associated with the encroachment of construction vehicles and plant;
- Pollution prevention measures including procedures for oils, chemicals and other potentially contaminative construction material storage designed to prevent the release of any accidental spillages and effects associated with contaminated surface run-off;
- Supervision of delivery of fuel and oils with pipelines and fuelling points protected from vandalism and unauthorised interference;
- Use of drip trays when filling smaller containers from tanks or drums to avoid drips and spills from entering the ground or drainage systems and watercourses to prevent effects associated with contaminated surface run-off;
- Controlling works with concrete and washing out ready-mix concrete wagons in 'safe areas' away from waterbodies and retained habitats to prevent effects associated with contaminated surface run-off;
- Procedures for emergency environmental incidents such as pollution events; and
- Measures to minimise vibration and dust arisings, including, when necessary, regular damping down of the site by spraying with water and covering stockpiled material within a contained area, where required, to enable run-off to be treated.

14.126 An Outline CEMP has been prepared, as provided in **ES Volume 3, Appendix: Demolition and Construction – Annex 1**, which includes the measures noted above. This will ensure that any future detailed CEMP(s) include these measures (adherence to the Outline CEMP is to be secured via condition).

14.127 Therefore, it is considered with the implementation of the above measures through a detailed CEMP, the residual effect of pollution events on the Swanscombe Peninsula SSSI and Priority Habitat – Mudflats and Invertebrates from the site clearance and construction works on and off the site would be **Negligible (Not Significant)**.

Birds (Non-Schedule 1 and Schedule 1)

Loss of Habitat / Disturbance

- 14.128** Given the potential for direct effects on Schedule 1 birds resulting from the demolition and construction works, additional surveys and ecological relevant measures defined within a detailed CEMP will minimise the potential for any adverse ecological effects upon Schedule 1 birds. It is recommended that Precautionary Working Method Statement (PWMS) is written to capture all specific working methods for Schedule 1 birds.
- 14.129** Pre-construction black redstart surveys to determine appropriate levels of mitigation should be undertaken in the key breeding season (March to August Inclusive) to confirm if black redstart are nesting directly on the site or not.
- 14.130** Winter bird surveys will be undertaken in the winter of 2022-2023 which will determine the use of the mudflats by overwintering birds and will inform the mitigation needed during winter.
- 14.131** Assuming the presence of overwintering birds, visual and noise barriers will be used to prevent disturbance to the birds on the mudflats to the north and east of the site on the south bank of the River Thames and at Robin's Creek during the breeding season, as detailed above, when works cannot be phased outside of this time period. Visual and noise barriers in winter along the mudflats will be used if determined by the 2022-2023 winter bird surveys.
- 14.132** Soft starts and other methods such as the use of low impact machinery to limit noise and vibration disturbance will be used for noisy works such a pilling if undertaken during the breeding season and will be detailed in the CEMP and PWMS.
- 14.133** Measures relating to Schedule 1 birds, to be included within the detailed CEMP(s) and PWMS include:
- Clearance of site prior to bird nesting season (March-September inclusive), or if in nesting season then a check for nesting black redstart will be carried out prior to demolition by a suitably qualified ecologist;
 - Appropriate management of construction lighting to avoid light spill to adjoining habitats;
 - If black redstart are confirmed to be breeding on site then a 300m buffer zone must be implemented around each nest until the nest is confirmed as inactive by a suitably qualified ecologist. If black redstart

are confirmed to be breeding on site then black redstart surveys must be undertaken at the start of each breeding season of each year of construction where black redstart breeding habitat remains on site;

- Noisy or disturbing works to avoid sensitive periods of the year where possible through phasing. Sensitive areas include:
 - Around Robin's Creek during the key Cetti's warbler breeding season- April to July;
 - Around the shingle beach area on the mudflats in key little ringed plover nesting season May- July; and
 - Around any areas on site where black redstart are confirmed to be breeding in further surveys in the key breeding season – March to August.

14.134 Toolbox talks and training to be given to the site teams by a suitably qualified ecologist to provide the site teams with key information on the mitigation measures detailed in the PWMS.

14.135 With the implementation of the above measures, the residual effect of habitat loss/ disturbance on birds will be **Negligible (Not Significant)**.

Completed Development

Designated Sites – Swanscombe Peninsula SSSI

Additional Planting

14.136 Additional planting (including native species) on-site due to the Proposed Development, as discussed in the 'Embedded Mitigation' section, will increase habitat connectivity to the adjacent Swanscombe Peninsula SSSI. The proposed additional planting will also increase biodiversity and ecological value within the local area.

14.137 The effect on the Swanscombe Peninsula SSSI (moderate sensitivity receptor) would be indirect, long term, low magnitude, **Minor Beneficial (Not Significant)** at the Local level.

Designated Sites – Swanscombe Peninsula SSSI

Increased Footfall / Recreational Pressure

14.138 It is proposed that the Proposed Development commits to undertaking an audit to monitor the recreational usage from the Proposed Development on the SSSI. This will identify the effect threshold or the point at which wildlife begins to be disturbed by such recreational activities to provide informed recommendations to key stakeholders regarding infrastructure construction and visitor management. This will inform future phases of this Proposed Development on the most appropriate and proportionate mitigation requirements to reduce impacts on the SSSI if a threshold is reached.

14.139 It is considered with the implementation of the above embedded mitigation measures and the additional measures of an audit, the residual effect of increased footfall / recreational pressure on the Swanscombe Peninsula SSSI would be **Negligible (Not Significant)**. Adverse effects of recreational use on wildlife identified by the audit will be mitigated for in future phases of the Proposed Development (such as visitor management and management regimes) to ensure effects remain negligible.

14.140 Once detailed design is available for the Proposed Development, Kent Wildlife Trust and NE will be consulted to discuss potential further mitigation measures (if required and relevant to be incorporated into the detailed design of the Proposed Development).

Designated Sites – Swanscombe Peninsula SSSI & Priority Habitat - Mudflats

Pollution / Habitat Degradation

14.141 A Landscape and Ecological Management Plan (LEMP) is recommended to mitigate any pollution and habitat degradation effects from the completed Proposed Development. The LEMP will provide site specific details for immediate and long-term commitments to manage the planting, protection and enhancement of biodiversity in and around the site.

14.142 Therefore, it is considered with the implementation of the above measures, the residual effect of pollution / habitat degradation on the Swanscombe Peninsula SSSI and the Priority Mudflat habitat be **Negligible (Not Significant)**.

Loss of Habitat / Disturbance

- 14.143** A Biodiversity Enhancement and Management Plan (BEMP) which will set out appropriate timings for all proposed habitat management activities will ensure that the destruction or disturbance of bird nests or killing or injury of nesting birds from inappropriate management is avoided. In addition, the BEMP should outline the location and types of bird boxes to be installed, to ensure key features for breeding birds will be created in locations subject to minimum disturbance.
- 14.144** Education to the public during sensitive times of the year for birds on limiting of disturbance will be given in the information centre/ café.
- 14.145** Therefore, it is considered with the implementation of the above measures, the residual effect of loss of habitat / disturbance on the birds (non-Schedule 1 and Schedule 1) be **Negligible (Not Significant)**.

Overshadowing

- 14.146** Based on professional judgement, the effect to Swanscombe Peninsula and the mudflats would be **Minor Adverse (Not Significant)**. This is based on review of the transient overshadowing plots on the three key dates, March 21st, June 21st and December 21st.
- 14.147** Whilst Botany Marshes and the mudflats would see periods of overshadowing from the Proposed Development throughout the year, this would be localised and transient in nature, whereby the Proposed Development would not overshadow the same portions for long periods of time.

Designated Sites – Invertebrates - Mudflats

Pollution / Habitat Degradation

- 14.148** A Landscape and Ecological Management Plan (LEMP) is recommended to mitigate any pollution and habitat degradation effects from the completed Proposed Development. The LEMP will provide site specific details for immediate and long-term commitments to manage the planting, protection and enhancement of biodiversity in and around the site. This will also detail the management of the SuDS which will present pollution occurrences.
- 14.149** Therefore, it is considered with the implementation of the above measures, the residual effect of pollution / habitat degradation on the habitats supporting invertebrate assemblages will be **Negligible (Not Significant)**.

RESIDUAL EFFECTS

- 14.150** All of the residual effects resulting from the Proposed Development after mitigation, are presented in **Table 14.10**, identifying whether the effect is significant or not.

Table 14.10 Residual Effects

Receptor	Description of the Residual Effect	Scale and Nature	Significant / Not Significant	Geo	D I	P T	St Mt Lt
Demolition and Construction							
On-site Habitats	Spreading of Invasive Species	Negligible	Not Significant	L	I	T	Lt
Designated Sites – Swanscombe Peninsula SSSI	Pollution / Habitat Degradation	Negligible	Not Significant	N	D	T	St
Priority Habitats – Mudflats	Pollution	Negligible	Not Significant	L	I	T	St
Invertebrates - Mudflats	Pollution / Habitat Degradation	Negligible	Not Significant	L	I	T	St
Birds	Loss of Habitat / Disturbance	Negligible	Not Significant	R	D	T	St
Completed Development							
Designated Sites – Swanscombe Peninsula SSSI	Additional Planting	Minor Beneficial	Not Significant	L	I	P	Lt
Designated Sites – Swanscombe Peninsula SSSI	Increased Footfall / Recreational Pressure	Negligible	Not Significant	N	D	P	Lt
Designated Sites – Swanscombe Peninsula SSSI	Pollution / Habitat Degradation	Negligible	Not Significant	L	I	P	Lt

Receptor	Description of the Residual Effect	Scale and Nature	Significant / Not Significant	Geo	D I	P T	St Mt Lt
Designated Sites – Swanscombe Peninsula SSSI	Overshadowing	Minor Adverse	Not Significant	L	D	P	Lt
Priority Habitats – Mudflats	Pollution / Habitat Degradation	Negligible	Not Significant	L	I	T	St
Priority Habitats – Mudflats	Overshadowing	Minor Adverse	Not Significant	L	D	P	Lt
Invertebrates – Mudflats	Pollution / Habitat Degradation	Negligible	Not Significant	L	I	T	St
Birds	Loss of Habitat / Disturbance	Negligible	Not Significant	R	D	T	Lt
Key/Notes: Residual Effect Scale = Negligible / Minor / Moderate / Major Nature = Beneficial or Adverse Geo (Geographic Extent) = Local (L), Borough (B), Regional (R), National (N)				D = Direct / I = Indirect P = Permanent / T = Temporary St = Short Term / Mt = Medium Term / Lt = Long Term N/A = not applicable / not assessed			

ASSESSMENT OF THE FUTURE ENVIRONMENT

Evolution of the Baseline

- 14.151** The evolution of the baseline considers the likely effect of natural changes at the site if the Proposed Development was not to occur.
- 14.152** Considering the evolution of the baseline conditions, it is likely the overall value of the biodiversity on site would change very little. The ephemeral vegetation, hedgerow, introduced shrub with scattered treelines on-site would likely be subject to succession and slowly ‘scrub over’ with vigorous species such as bramble competing other plants.
- 14.153** The existing site would continue to be used as it is currently. Activities would unlikely increase substantially at the site, and therefore disturbance would remain the same.

Cumulative Effects Assessment

- 14.154** As set out in **ES Volume 1, Chapter 2: EIA Methodology**, the cumulative effects assessment considers the potential for cumulative effects to arise as a result of the Proposed Development in-combination with the defined ‘Tier 1’ (schemes which meet the defined criteria with regards to scale and distance from the site and have full planning consent, a resolution to grant consent, or have been submitted but not yet consented where considered appropriate) and ‘Tier 2’ (major planning applications and decisions which have not yet been submitted for approval, and are at varying stages in the pre-application stage) cumulative schemes.
- 14.155** The cumulative schemes considered in this assessment include:
- Tier 1 cumulative schemes:
 - Land North of Hive Lane Northfleet Embankment West the Shore Northfleet Gravesend Kent DA11 9AN – Application Reference: EDC/21/0081; and
 - Land at Former Northfleet Cement Works The Shore Northfleet Gravesend Kent DA11 9AN – Application Reference: EDC/16/0004.
 - The London Resort scheme Tier 2 cumulative scheme – Application Reference: BC080001 (withdrawn).

Demolition and Construction

- 14.156** Cumulative impacts resulting from the Proposed Development in combination with the relevant cumulative schemes could overlap with the demolition and construction works required for the Proposed Development. Such impacts may include temporary habitat loss, pollution, and habitat degradation both on-site and within the surrounding area. These impacts may result in adverse effects to the species being supported by the effected habitats.
- 14.157** No significant adverse cumulative effects are anticipated in the long term as mitigation and enhancement measures would be required for each scheme. These mitigation and enhancement measures should be in line

with legislation and planning policy. Recently accepted schemes should aim to achieve a 10% biodiversity net gain therefore helping to improve local habitats and their biodiversity value.

Completed Development

- 14.158** Potential cumulative adverse impacts resulting from the Proposed Development in combination with cumulative schemes include increased footfall, recreational pressures, pollution, and habitat degradation. The relevant cumulative schemes will result in an increase in residential dwellings. This will likely significantly increase footfall and recreational pressures on the Swanscombe Peninsula SSSI.
- 14.159** At this stage, prior to detailed design, the most likely issue is considered to be the potential for cumulative effects associated with the overall increase in the population and visitor numbers on Swanscombe Peninsula SSSI and the potential impact this may have upon habitats and species. The London Resort Tier 2 scheme would result in a significant increase in the number of people visiting this part of North Kent, in addition to an increased local population due to construction workers and operations staff.
- 14.160** At this stage, for caution, cumulative effects are considered to be **Moderate Adverse (Significant)**. This is considered a worst case assessment on the basis that the London Resort Scheme has been withdrawn and mitigation measures for this scheme are not understood.
- 14.161** However, the London Resort Tier 2 cumulative scheme would be required to follow policy requirements relating to mitigation measures for pollution control, habitat degradation and recreational pressures. Kent Wildlife Trust and NE will be consulted to discuss any potential further mitigation measures (as required and relevant) to be incorporated into the detailed design of the Proposed Development to mitigate adverse impacts upon the SSSI arising from recreational pressures. This may form specific on-site detailed landscaping measures or off-site financial contributions to aid management/maintenance of the SSSI, however this will be discussed and agreed. Therefore, if these measures are adhered to and approved, in coordination with the relevant statutory bodies (Kent County Council and Natural England), the cumulative effects could be reduced to Not Significant.

LIKELY SIGNIFICANT EFFECTS

- 14.162** In summary, following the implementation of mitigation and monitoring measures, there are no likely significant effects on ecology and biodiversity as a result of the Proposed Development.
- 14.163** When considering the Proposed Development in-combination with cumulative schemes, specifically the London Resort Tier 2 cumulative scheme, there is likely to be a significant adverse effect upon the Swanscombe Peninsula SSSI as a result of increased recreational pressure. However, this significant effect could be mitigated through detailed design and consultation with Kent County Council and Natural England when the London Resort Application is brought forward.