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Shepway Places and Policies Plan 2017

Habitats Regulations Assessment

Prepared by LUC
January 2018

Project Title: HRA of Reg 19 Stage of Shepway Places and Policies Local Plan

Client: Shepway District Council

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1 Introduction

1.1 Shepway District Council is at the Regulation 19 Stage in the preparation of its Places and Policies Local Plan (PPLP). The PPLP will build on the Core Strategy, setting out more detailed plans for the District in the coming decades.

1.2 LUC was originally appointed in 2016 to undertake a Habitats Regulations Assessment of the Regulation 18 stage of the PPLP to ascertain whether the proposals would be likely to result in significant effects on the qualifying features of European Sites within and adjacent to the District, and where such effects were predicted, whether they would result in adverse effects on site integrity following mitigation. The draft HRA of the Regulation 18 Stage of the PPLP concluded that there would be no adverse effect on the integrity of European Sites.

1.3 The findings of the Regulation 18 Stage HRA were supported by Natural England which confirmed in its consultation response[1] that "*we concur with the HRA on its screening of policies and impact pathways of the PPLP on European designated sites*". Natural England confirmed that "*we agree with the impact pathways taken forward for detailed consideration in the Appropriate Assessment, namely recreational pressure on Dungeness SAC, SPA/Ramsar, and off-site physical damage or loss on Dungeness SPA/Ramsar site*". Natural England also confirmed that, subject to the implementation of the appropriate safeguards detailed within this report, the PPLP would be unlikely to result in adverse effects on the integrity of European Sites.

1.4 Since then, Shepway District Council has further developed the PPLP and this report provides an updated HRA of the Regulation 19 Stage. In particular, this HRA includes an updated air quality assessment (see **Appendix 1**), undertaken in light of a High Court judgement in April 2017[2]. The judgement (colloquially known as the Ashdown Forest judgment) partially quashed the Lewes District and South Downs National Park Joint Core Strategy. This was on the basis that the HRA supporting the Joint Core Strategy only considered its own contribution to changes in traffic flows (and specifically whether such flows would exceed 1000 Annual Average Daily Traffic) in determining whether there would be a likely significant air quality effect on Ashdown Forest SPA. The judge ruled that the HRA had thus explicitly failed to undertake any form of assessment 'in combination' with growth in other authorities that would affect the same road links and that this was in contravention of the Conservation of Habitats and Species Regulations 2010. The air quality assessment provided herein is based on a specific modelling to avoid these problems, as detailed in **Appendix 1**.

The requirements of undertake HRA of Development Plans

1.5 The requirement to undertake HRA of development plans was confirmed by the amendments to the Habitats Regulations published for England and Wales in July 2007 and updated in 2010[3] and again in 2012[4]. Therefore, when preparing the Local Plan, Shepway District Council is required by law to carry out a Habitats Regulations Assessment.

1.6 The HRA refers to the assessment of the potential effects of a development plan on one or more European Sites, including Special Protection Areas and Special Areas of Conservation:

- SPAs are classified under the European Council Directive "on the conservation of wild birds" (79/409/EEC; 'Birds Directive') for the protection of wild birds and their habitats (including

[1] Natural England letter reference 198221, dated 18 November 2016.

[2] http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html [accessed 26/10/2017]

[3] The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007. HMSO Statutory Instrument 2007 No. 1843. From 1 April 2010, these were consolidated and replaced by the Conservation of Habitats and Species Regulations 2010 (SI No. 2010/490). Note that no substantive changes to existing policies or procedures have been made in the new version.

[4] The Conservation of Habitats and Species (Amendment) Regulations 2012. Statutory Instrument 2012 No. 1927.

particularly rare and vulnerable species listed in Annex 1 of the Birds Directive, and migratory species).

- SACs are designated under the Habitats Directive and target particular habitats (Annex 1) and/or species (Annex II) identified as being of European importance.

1.7 Currently, the Government also expects potential SPAs (pSPAs), candidate SACs (cSACs) and Ramsar sites to be included within the assessment[5].

- Ramsar sites support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention, 1971).

1.8 For ease of reference during HRA, these three designations are collectively referred to as European sites, despite Ramsar designations being at the wider international level.

1.9 The overall purpose of the HRA is to conclude whether or not a proposal or policy, or whole development plan would adversely affect the integrity of the site in question. This is judged in terms of the implications of the plan for a site's 'qualifying features' (i.e. those Annex 1 habitats, Annex 11 species, and Annex 1 bird populations for which it has been designated). Significantly, HRA is based on the precautionary principle. Where uncertainty or doubt remains, an adverse impact should be assumed.

Stages of the Habitat Regulations Assessment

1.10 **Table 1.1** below summarises the stages involved in carrying out HRA, based on various guidance documents[6],[7],[8]

Table 1.1: Stages in HRA

Stage	Task	Outcome
Stage 1: Screening (the 'Significance Test')	Description of the plan. Identification of potential effects on European Sites. Assessing the effects on European Sites (taking into account potential mitigation provided by other policies in the plan).	Where effects are unlikely, prepare a 'finding of no significant effect report'. Where effects judged likely, or lack of information to prove otherwise, proceed to Stage 2.
Stage 2: Appropriate Assessment (the 'Integrity Test')	Gather information (plan and European Sites). Impact prediction. Evaluation of impacts in view of conservation objectives. Where impacts considered to affect qualifying features, identify alternative options. Assess alternative options. If no alternatives exist, define and evaluate mitigation	Appropriate assessment report describing the plan, European site baseline conditions, the adverse effects of the plan on the European site, how these effects will be avoided through, firstly, avoidance, and secondly, mitigation including the mechanisms and timescale for these mitigation measures. If effects remain after all

[5] Department of Communities and Local Government (March 2012) National Planning Policy Framework (para 118).
[6] Assessment of plans and projects significantly affecting European Sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission Environment DG, November 2001.
[7] Planning for the Protection of European Sites. Guidance for Regional Spatial Strategies and Local Development Documents. Department for Communities and Local Government (DCLG), August 2006.
[8] The Appropriate Assessment of Spatial Plans in England. A guide to why, when and how to do it. RSPB. August 2007.

	measures where necessary.	alternatives and mitigation measures have been considered proceed to Stage 3.
Stage 3: Assessment where no alternatives exist and adverse impacts remain taking into account mitigation	Identify 'imperative reasons of overriding public interest' (IROPI). Identify potential compensatory measures.	This stage should be avoided if at all possible. The test of IROPI and the requirements for compensation are extremely onerous.

1.11 In assessing the effects of the Shepway District PPLP in accordance with Regulation 102 of the Conservation of Habitats and Species Regulations 2010, there are potentially two tests to be applied by the competent authority: a 'Significance Test' followed if necessary by an Appropriate Assessment which will inform the 'Integrity Test'. The relevant sequence of questions is as follows:

- Step 1: Under Reg. 102(1)(b), consider whether the plan is directly connected with or necessary to the management of the sites. If not –
- Step 2: Under Reg. 102(1)(a) consider whether the plan is likely to have a significant effect on the site, either alone or in combination with other plans or projects (the 'Significance Test'). [These two steps are undertaken as part of Stage 1: Screening shown in **Table 1.1** above.] If Yes –
- Step 3: Under Reg. 102(1), make an Appropriate Assessment of the implications for the site in view of its current conservation objectives (the 'Integrity Test'). In so doing, it is mandatory under Reg. 102(2) to consult Natural England, and optional under Reg. 102(3) to take the opinion of the general public. [This step is undertaken during Stage 2: Appropriate Assessment shown in **Table 1.1** above.]
- Step 4: In accordance with Reg.102(4), but subject to Reg.103, give effect to the land use plan only after having ascertained that the plan will not adversely affect the integrity of the European site.

1.12 It is normally anticipated that an emphasis on Stages 1 and 2 of this process will, through a series of iterations, help ensure that potential adverse effects are identified and eliminated through the inclusion of mitigation measures designed to avoid, reduce or abate effects. The need to consider alternatives could imply more onerous changes to a plan document. It is generally understood that so called 'imperative reasons of overriding public interest' (IROPI) are likely to be justified only very occasionally and would involve engagement with both the Government and European Commission.

1.13 The HRA should be undertaken by the 'competent authority' - in this case Shepway District Council, and LUC has been commissioned to do this on its behalf. The HRA also requires close working with Natural England as the statutory nature conservation body8 in order to obtain the necessary information and agree the process, outcomes and any mitigation proposals. The Environment Agency, while not a statutory consultee for the HRA, is also in a strong position to provide advice and information throughout the process as it is required to undertake HRA for its existing licences and future licensing of activities.

Structure of HRA Report

1.14 This chapter has introduced the requirement to undertake HRA of the Shepway District PPLP. The remainder of the report is structured as follows:

- **Chapter 2: The Shepway District Places and Policies Local Plan** summarises the content of the Plan (2016), which is the subject of this report.
- **Chapter 3: HRA Screening Methodology** sets out the approach used and the specific tasks undertaken during the screening stage of the HRA.

- **Chapter 4: HRA Screening Assessment** of the PPLP assesses whether significant effects on European sites are likely to result from the implementation of the plan, either alone or in-combination.
- **Chapter 5: Appropriate Assessment** describes the approach taken during the Appropriate Assessment stage of the HRA and determines whether the PPLP will adversely affect the integrity of European sites, either alone or in-combination.
- **Chapter 6: Conclusion and Next Steps** summarises the overall HRA conclusions for the PPLP and outlines recommendations and, if required, the next stage in the process.

2 The Shepway District Places and Polices Local Plan

2.1 The Shepway PPLP is a planning document that will form part of the statutory Development Plan for the District. It sets out a framework that provides clear and firm guidance to ensure that the Council's main issues relating to planning and land use in the District are achieved. The Development Plan currently includes the adopted 2013 Shepway Core Strategy Local Plan and saved policies from the 2006 Shepway District Local Plan.

2.2 The Core Strategy Local Plan is the overarching planning policy document for the District and sets out the long term vision until 2031. It identifies the overall economic, social and environmental aims for the District and the amount, type and strategic development locations that are needed to fulfil those aims. There are three aims:

- To improve employment, educational attainment and economic performance in Shepway;
- To enhance the management and maintenance of the rich natural and historic assets in Shepway; and
- To improve the quality of life and sense of place, vibrancy and social mix in neighbourhoods, particularly where this minimises disparities in Shepway.

2.3 The PPLP will sit below the Core Strategy and has two functions. The first is to allocate enough land for future development to meet the requirements set out in the Core Strategy for residential, employment and community developments. The second is to set out development management policies that will be used to assess planning applications and guide future development (and will replace the Saved 2006 Local Plan policies).

2.4 The PPLP will, therefore, play an important role in shaping the future of the District and ensuring that the Council's aims set out in the Core Strategy Local Plan are met. The policies in the Plan will ensure that new developments will be sustainable, the natural and historic environment will be maintained and that new developments through their design will improve the quality of life of residents and help to foster healthy lifestyles.

2.5 When adopted the PPLP will replace the saved policies in the 2006 Shepway District Local Plan.

3 HRA Methodology

3.1 HRA Screening of the PPLP has been undertaken in line with current available guidance and to meet the requirements of the Habitats Regulations. The tasks that have been undertaken during the screening stage of the HRA are described in detail below.

Identification of European sites which may be affected by the Plan and the factors contributing to and defining the integrity of these sites

3.2 An initial investigation was undertaken to identify European sites within or adjacent to the Shepway District boundary which may be affected by the PPLP. This involved the use of GIS data to map the locations and boundaries of European sites using publicly available data from Natural England. All European sites lying partially or wholly within 10km from the Borough boundary were included in order to address the fact that Local Plan policies may affect European sites which are located outside the administrative boundary of the plan. This distance was deemed sufficient to ensure that all designated sites that could potentially be affected by development are identified and included in the assessment.

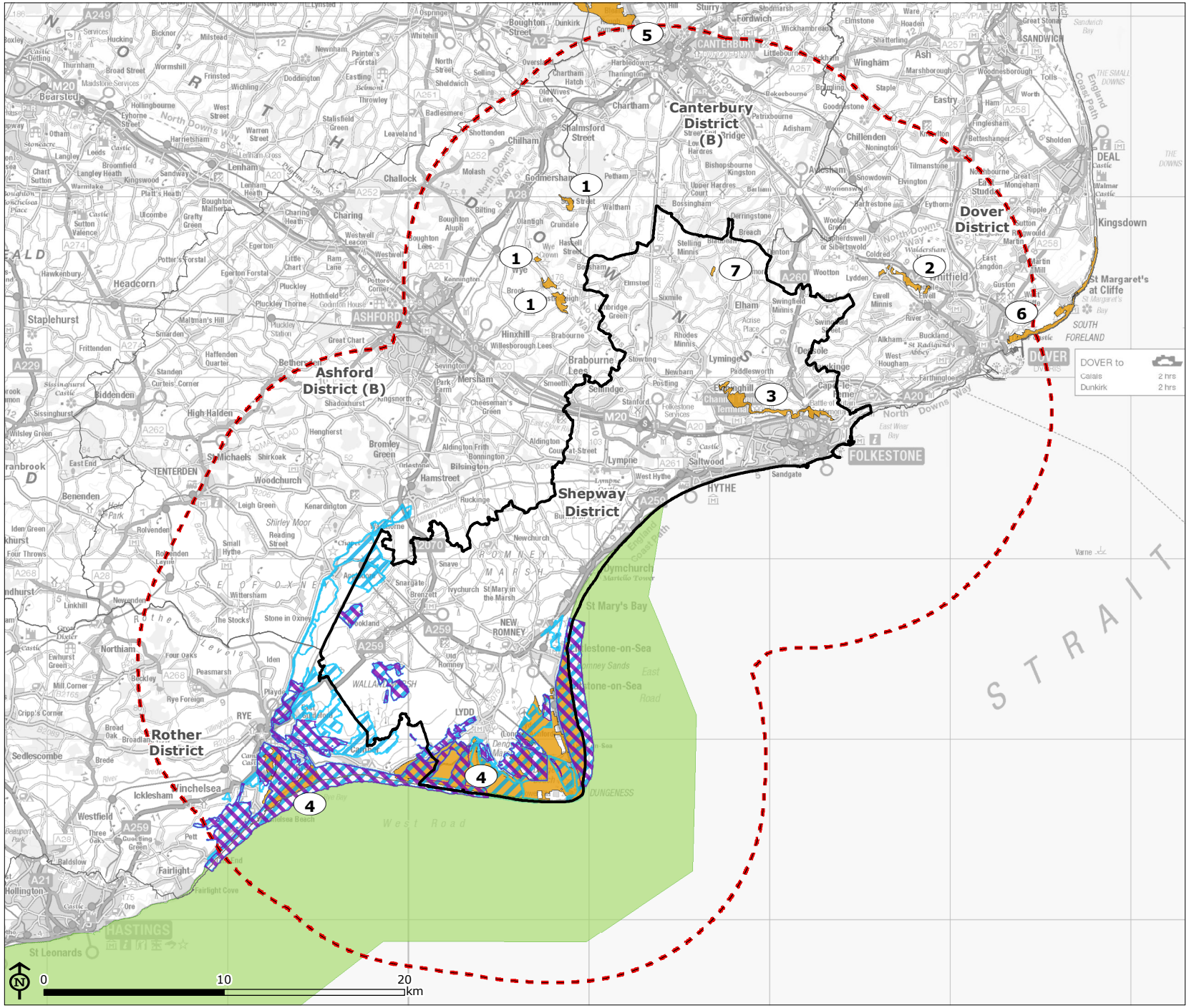
3.3 The following European sites were identified within 10km of Shepway District. Their location is shown in **Figure 3.1** below:

- **Dungeness, Romney Marsh and Rye Bay Ramsar**
- **Dungeness, Romney Marsh and Rye Bay SPA**
- **Dungeness SAC**
- **Wye and Crundale Downs SAC**
- **Lydden and Temple Ewell Downs SAC**
- **Folkestone to Etchinghill Escarpment SAC**
- **Blean Complex SAC**
- **Dover to Kingsdown Cliffs SAC**
- **Parkgate Down SAC**

3.4 The attributes of these sites which contribute to and define their integrity are described in **Appendix 2**. In doing so, reference was made to Standard Data Forms for SACs and SPAs[9] as well as Natural England's Site Improvement Plans[10]. This analysis enabled European site interest features to be identified, along with the features of each site which determine site integrity and the specific sensitivities and threats facing the site. This information was then used to inform an assessment of how the potential impacts of the PPLP may affect the integrity of the site in question.

[9] These were obtained from the Joint Nature conservation Committee and Natural England websites (www.jncc.gov.uk and www.naturalengland.org.uk)

[10] Natural England is in the process of compiling Site Improvement Plans for all Natura 2000 sites in England as part of the Improvement programme for England's Natura 2000 sites (IPENS).



Shepway DC Places & Policies Local Plan - HRA

Designated European Sites Within 10km of Shepway District

- Shepway District
- 10km buffer from Shepway District boundary
- Other Local Authority boundary
- Dungeness, Romney Marsh and Rye Bay Ramsar site
- Dungeness, Romney Marsh and Rye Bay SPA
- Dungeness, Romney Marsh and Rye Bay Potential SPA
- SAC (see list below - numbered on map)
  - 1: Wye & Crundale Downs
  - 2: Lydden & Temple Ewell Downs
  - 3: Folkestone to Etchinghill Escarpment
  - 4: Dungeness
  - 5: Blean Complex
  - 6: Dover to Kingsdown Cliffs
  - 7: Parkgate Down

Source: Shepway District Council, Natural England, JNCC

Map Scale @ A4: 1:300,000

LUC

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Potential impacts of the PPLP on European sites

3.5 **Table 3.1** below sets out the range of potential impacts that development in general and related activities may have on European sites.

Table 3.1: Potential Impacts and Activities Adversely Affecting European Sites

Broad categories and examples of potential impacts on European sites	Examples of activities responsible for impacts
Physical loss • Removal (including offsite effects, e.g. foraging habitat) • Smothering • Habitat degradation	Development (e.g. housing, employment, infrastructure, tourism) Infilling (e.g. of mines, water bodies) Alterations or works to disused quarries Structural alterations to buildings (bat roosts) Afforestation Tipping Cessation of or inappropriate management for nature conservation Mine collapse
Physical damage • Sedimentation / silting • Prevention of natural processes • Habitat degradation • Erosion • Trampling • Fragmentation • Severance / barrier effect • Edge effects • Fire	Flood defences Dredging Mineral extraction Recreation (e.g. motor cycling, cycling, walking, horse riding, water sports, caving) Development (e.g. infrastructure, tourism, adjacent housing etc.) Vandalism Arson Cessation of or inappropriate management for nature conservation
Non-physical disturbance • Noise • Vibration • Light pollution	Development (e.g. housing, industrial) Recreation (e.g. dog walking, water sports) Industrial activity Mineral extraction Navigation Vehicular traffic Artificial lighting (e.g. street lighting)
Water table/availability • Drying • Flooding / storm water • Water level and stability • Water flow (e.g. reduction in velocity of surface water • Barrier effect (on migratory species)	Water abstraction Drainage interception (e.g. reservoir, dam, infrastructure and other development) Increased discharge (e.g. drainage, runoff)
Toxic contamination • Water pollution • Soil contamination • Air pollution	Agrochemical application and runoff Navigation Oil / chemical spills Tipping Landfill Vehicular traffic Industrial waste / emissions
Non-toxic contamination • Nutrient enrichment (e.g. of soils and water) • Algal blooms • Changes in salinity	Agricultural runoff Sewage discharge Water abstraction Industrial activity Flood defences

Broad categories and examples of potential impacts on European sites	Examples of activities responsible for impacts
• Changes in thermal regime • Changes in turbidity • Air pollution (dust)	Navigation Construction
Biological disturbance • Direct mortality • Out-competition by non-native species • Selective extraction of species • Introduction of disease • Rapid population fluctuations • Natural succession	Development (e.g. housing areas with domestic and public gardens) Predation by domestic pets Introduction of non-native species (e.g. from gardens) Fishing Hunting Agriculture Changes in management practices (e.g. grazing regimes, access controls, cutting/clearing)
Recreational pressures • Visual presence • Human presence • Direct mortality • Nest abandonment • Nutrient enrichment • Trampling • Vandalism • Edge effects	Dog walking/fouling Disturbance from recreation e.g. walking/dog walking, cycling, running, horse riding, and water sports, etc. Vehicular traffic Anti-social activities (e.g. vandalism, fire etc.)

Assessment of 'likely significant effects' of the PPLP

3.6 As required under Regulation 102 of the Conservation of Habitats and Species Regulations 2010[11] an assessment of the 'likely significant effects' of the PPLP has been undertaken. A screening matrix has been prepared in order to assess which policies and site allocations would be likely to have a significant effect on European sites, either alone or in-combination with other plans and projects. The findings of the screening assessment are summarised in **Chapter 4** and the full matrix can be found in **Appendix 3**, with other plans or projects that could give rise to in-combination effects summarised in **Appendix 4**

Interpretation of 'likely significant effect'

3.7 Relevant case law helps to interpret when effects should be considered as being likely to result in a significant effect, when carrying out HRA of a plan.

3.8 In the Waddenzee case[12], the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive (translated into Reg. 102 in the Habitats Regulations), including that:

- An effect should be considered 'likely', *"if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site"* (para 44).
- An effect should be considered 'significant', *"if it undermines the conservation objectives"* (para 48).
- Where a plan or project has an effect on a site *"but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned"* (para 47).

[11] SI No. 2010/490

[12] ECJ Case C-127/02 "Waddenzee" Jan 2004.

3.9 An opinion delivered to the Court of Justice of the European Union[13] commented that: *"The requirement that an effect in question be 'significant' exists in order to lay down a 'de minimus' threshold. Plans or projects that have no appreciable effect on the site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."*

3.10 This opinion (the 'Sweetman' case) therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered 'trivial' or '*de minimus'*; referring to such cases as those *"which have no appreciable effect on the site"*. In practice such effects could be screened out as having no likely significant effect; they would be 'insignificant'.

Mitigation provided by the PPLP

3.11 Some of the potential effects of the Shepway District PPLP could be mitigated through the implementation of other proposals in the Plan itself, such as those relating to the provision of improved sustainable transport links (which would help to mitigate potential increases in air pollution associated with increased vehicle traffic) and the provision of green infrastructure within new developments (which would help mitigate increased pressure from recreational activities at European sites). The extent to which mitigation may be achieved through the emerging PPLP was considered during the screening process and has influenced the screening conclusions (see **Appendix 3** and **Chapter 4**).

3.12 These potentially mitigatory policies include:

- Policy RL12 – Former harbour railway line
- Policy C3 – Provision of open space
- Policy NE1 – Enhancing and managing access to the natural environment
- Policy NE2 – Biodiversity
- Policy NE3 – To protect the District's landscapes and countryside
- Policy NE5 – Light pollution and external illumination
- Policy NE8 – Integrated coastal zone management
- Policy NE9 – Development around the coast
- Policy CC1 – Reducing carbon emissions
- Policy CC2 – Sustainable construction
- Policy CC3 – SuDS

Screening assumptions and information used in reaching conclusions about likely significant effects

3.13 During the screening stage of the HRA, each policy was screened individually, which is consistent with current guidance and practice. For some types of impacts, screening for likely significant effects has been determined on a proximity basis, using GIS data to determine the proximity of potential development locations to the European sites that are the subject of the assessment. However, there are many uncertainties associated with using set distances as there are very few standards available as a guide to how far impacts will travel. Therefore, during the screening stage a number of assumptions have been applied in relation to assessing the likely significant effects on European sites that may result from the PPLP, as described below.

[13] Advocate General's Opinion to CJEU in Case C-258/11 Sweetman and others v An Bord Pleanala 22nd Nov 2012.

Physical damage/loss

3.14 Any development resulting from the PPLP would take place within Shepway District; therefore only European sites within the District boundary could be affected through physical damage or loss of habitat from within the site boundaries. As a result, Wye and Crundale Downs SAC; Lydden and Temple Downs SAC; Blean Complex SAC; and Dover to Kingdown Cliffs SAC, have been screened out of the assessment for physical damage and loss.

3.15 No development is proposed in the PPLP within the site boundaries of European sites that lie within Shepway District. Loss of habitat from outside the boundaries of a European site could still have an effect on site integrity if that habitat supports qualifying species from within the European sites. Of the European sites identified, only Dungeness SPA and Ramsar site supports mobile species requiring consideration of offsite habitat use.

3.16 Folkestone to Etchinghill Escarpment SAC and Parkgate Down SAC are not designated for their transient species and no development is proposed within their site boundaries, therefore offsite habitat loss or damage resulting from development in Shepway District will not significantly affect these sites.

3.17 **Therefore, likely significant effects relating to physical loss of or damage to habitat need only be considered in relation to Dungeness SAC, SPA and Ramsar site and only in relation to offsite habitat.**

Non-physical disturbance (noise, vibration and light)

3.18 Noise, vibration and lighting effects, e.g. during the construction of new housing or employment development, are most likely to disturb sensitive receptors such as birds and are thus a key consideration with respect to Dungeness SPA and Ramsar, where birds comprise all or part of the qualifying features.

3.19 It has been assumed that the effects of noise, vibration and light are most likely to be significant within a distance of 500 metres. There is also evidence of 300 metres being used as a distance up to which certain bird species can be disturbed by the effects of noise[14]; however, it has been assumed (on a precautionary basis) that the effects of noise, vibration and light pollution are most likely to cause an adverse effect if development takes place within 500 metres of a European site with qualifying features sensitive to these disturbances, or off-site habitat used for breeding, foraging or roosting.

3.20 Dungeness, SPA and Ramsar sites are the only European sites with mobile qualifying features or those susceptible to offsite disturbance. Other European sites within 500m of development allocations are designated for features which are not sensitive to non-physical disturbance (e.g. grassland habitat at Folkestone to Etchinghill Escarpment SAC, and shingle habitat and breeding great crested newts at Dungeness SAC) or are located outside the District and are sufficient distances to negate the risk of his impact type occurring.

3.21 **Therefore, likely significant effects of noise, vibration and light need to be considered only in relation to Dungeness SPA and Ramsar site, in relation to offsite areas of habitat only**.

Air pollution

3.22 Air pollution is most likely to affect European sites where plant, soil and water habitats are the qualifying features, but some qualifying animal species such as birds at Dungeness may also be affected indirectly through changes in plant communities and/or habitat succession or degradation. Deposition of pollutants to the ground and vegetation can alter the characteristics of the soil, affecting the pH and nitrogen availability that can then affect plant health, productivity and species composition.

3.23 In terms of vehicle traffic, nitrogen oxides (NOx, i.e. NO and NO_2) are considered to be the key pollutants. Deposition of nitrogen compounds may lead to both soil and freshwater acidification, and NOx can cause eutrophication of soils and water.

[14] British Wildlife Magazine. October 2007.

3.24 Based on the Highways Agency Design Manual for Road and Bridges (DMRB) Manual Volume 11, Section 3, Part 114 (which was produced to provide advice regarding the design, assessment and operation of trunk roads (including motorways)), it is assumed that air pollution from roads is unlikely to be significant beyond 200m from the road itself. Where increases in traffic volumes are forecast, this 200m buffer needs to be applied to the relevant roads in order to make a judgement about the likely geographical extent of air pollution impacts.

3.25 European Sites within 10km of Shepway District that are within 200m of strategic roads, and which have therefore been considered susceptible to likely significant effects as a result of air pollution include:

- Folkestone to Etchinghill Escarpment SAC – a relatively large proportion of the SAC is <200m from M20, A20, A259 and A260, which form part of the strategic road network around Folkestone.
- Dover to Kingsdown Cliffs SAC - a very small proportion of the SPA is located within 200m of the A2/Jubilee way, which provides a key strategic route between Folkestone and towns beyond Dover, including St Margaret's at Cliffe, Kingsdown, and Deal.
- Blean Complex SAC – a small proportion of the SAC is located c.30m from the A290 at its closest point.
- Lydden and Temple Downs SAC - a small proportion of the SAC is located within 200m of the A2.
- Dungeness, Romney Marsh and Rye Bay SPA and Ramsar site is located adjacent to the A259 in several places and part of the Ramsar site is also located within 200m of the A2070.

3.26 Dungeness SAC is not located within 200m of a strategic road network but is located within 200m of the Jury's Gap road which, despite being a minor road, was considered could conceivably represent a journey to work route, and therefore for completeness and in accordance with a precautionary principle was included in the Air Quality Assessment detailed in **Appendix 1**.

3.27 Wye and Crundale Downs SAC and Parkgate Down SAC are not located within 200m of a strategic road and have therefore been screened out of the assessment for air pollution.

Impacts of recreation

3.28 Recreation activities and human presence can have a significant effect on a European site as a result of erosion, trampling or general disturbance, for example through human presence, dog walking and anti-social activities such as fire and vandalism. Where PPLP policies are likely to result in an increase in the local population, or where an increase in visitor numbers to the area is considered likely, the potential for an increase in visitor numbers and the associated potential impacts at sensitive European sites was considered.

3.29 The SACs in the north of the study area are designated for chalk grasslands with orchids. These habitat types are typically low in nutrient levels and therefore recreational activities can damage the soil chemistry as a result of dog walking and associated nitrogen inputs. In addition, unmanaged recreational activities can adversely affect the site through physical damage such as trampling and erosion and from associated problems such as fire, and vandalism.

3.30 The Dungeness, Romney Marsh and Rye Bay SPA and Ramsar in the south of the study area are designated for their bird assemblages and are therefore susceptible to the effects of recreational activities associated with disturbance.

3.31 In light of the above, all of the European sites considered in this assessment will be screened for likely significant effects associated with recreational disturbance potentially resulting from the PPLP housing allocations.

Water quantity and quality

3.32 An increase in demand for water abstraction and treatment resulting from the growth could result in changes in hydrology at European sites, specifically a decrease in water quality or changes to water levels. Depending on the qualifying features and particular vulnerabilities of the European sites, there could be a likely significant effect on site integrity.

3.33 The following sites have been screened out from impacts associated with changes in water quantity and quality because they do not have hydrological connectivity with the proposed allocations and are designated for features (e.g. dry grasslands) which are of low sensitivity to increased water abstraction and treatment associated with the PPLP:

- Blean Complex SAC
- Dover to Kingsdown Cliffs SAC
- Folkestone to Etchinghill Escarpment SAC
- Lydden and Temple Ewell Downs SAC
- Parkgate Down SAC
- Wye and Crundale Downs SAC

3.34 The Dungeness SAC, SPA and Ramsar sites are designated for features which are susceptible to changes in water quantity and quality and have hydrological connectivity with allocations specified within the Plan. **As a result, the potential for likely significant effects associated with hydrological changes will be considered for the Dungeness sites only**.

Summary of screening assumptions

3.35 **Table 3.2** below summarises the screening assumptions that are being applied to the HRA of the PPLP. Where certain types of effects are screened out in **Table 3.2,** they did not need to be considered further so are not referred to in the screening matrix in **Appendix 3**.

Table 3.2: Summary of screening assumptions

European Site	Physical damage/ loss of habitat	Non-physical disturbance	Air pollution	Recreation	Water quantity and quality	Non-toxic contamination (invasive species)
Blean Complex SAC	Screened out	Screened out	**Screened in**	**Screened in**	Screened out	Screened out
Dover to Kingsdown Cliffs SAC	Screened out	Screened out	**Screened in**	**Screened in**	Screened out	Screened out
Folkestone to Etchinghill Escarpment SAC	Screened out	Screened out	**Screened in**	**Screened in**	Screened out	Screened out
Lydden and Temple Ewell Downs SAC	Screened out	Screened out	**Screened in**	**Screened in**	Screened out	Screened out
Parkgate Down SAC	Screened out	Screened out	Screened out	**Screened in**	Screened out	Screened out
Wye and Crundale Downs SAC	Screened out	Screened out	Screened out	**Screened in**	Screened out	Screened out

European Site	Physical damage/ loss of habitat	Non-physical disturbance	Air pollution	Recreation	Water quantity and quality	Non-toxic contamination (invasive species)
Dungeness SAC	**Screened in (offsite only)**	Screened out	**Screened in**	**Screened in**	**Screened in**	**Screened in**
Dungeness, Romney Marsh and Rye Bay SPA	**Screened in (offsite only)**	**Screened in (offsite only)**	**Screened in**	**Screened in**	**Screened in**	**Screened in**
Dungeness, Romney Marsh and Rye Bay Ramsar	**Screened in (offsite only)**	**Screened in (offsite only)**	**Screened in**	**Screened in**	**Screened in**	**Screened in**

Identification of other plans and projects which may have 'in-combination' effects

3.1 Regulation 102 of the Amended Habitats Regulations 2010 requires an Appropriate Assessment where 'a land use plan is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is not directly connected with or necessary to the management of the site'. The purpose of the in-combination effects assessment is to make sure that the effects of numerous small activities, which alone would not result in a significant effect, are assessed to determine whether their combined effect would be significant. It is therefore necessary to focus the assessment of in-combination effects on those elements of the plan that are not considered to have significant effects on their own.

3.2 The first stage in identifying 'in-combination' effects involves identifying which other plans and projects in addition to the Shepway District PPLP may affect the European sites that were the focus of this assessment.

3.3 There are a small number of potentially relevant plans and projects which could be considered. The review focused on planned spatial growth within the authorities adjacent to Shepway, and those with potential functional links with European sites that could be affected by the Shepway PPLP, as these are the ones most likely to give rise to in-combination effects:

- Dover District Council
- Canterbury City Council
- Ashford District Council
- Rother District Council

3.4 **Appendix 4** lists the plans that were considered, outlining the components of each that could have an impact on nearby European sites and considering the findings of the accompanying HRA work (where available).

3.5 The purpose of the review of other plans was to identify any components that could have an impact on the European sites that could also be affected by the Shepway PPLP, e.g. proposals for development near to the European sites which could have implications in terms of increased traffic, water use and recreation pressures and infrastructure development. The potential for the effects of these plans to combine with the effects of the Shepway PPLP has been considered in **Chapter 4**.

3.6 The HRAs of the adopted and emerging local plans of the four authorities adjacent to Shepway identified the following potential issues, depending on the borough or district concerned:

- Physical impacts on offsite habitat to Dungeness, Romney Marsh and Rye Bay SPA/Ramsar.
- Air pollution impacts to Blean Complex SAC; Lydden to Temple Ewell Downs SAC; and Dungeness SAC, Dungeness, Romney Marsh and Rye Bay SPA/Ramsar.
- Recreational impacts to Blean Complex SAC; Wye and Crundale SAC; Dover to Kingsdown Cliffs SAC; Lydden to Temple Ewell Downs SAC; Folkestone to Etchinghill Escarpment SAC; Dungeness SAC, and Dungeness, Romney Marsh and Rye Bay SPA/Ramsar.
- Water quality and quantity impacts to Dungeness, Romney Marsh and Rye Bay SPA/Ramsar.
- Urbanisation impacts to Lydden to Temple Ewell Downs SAC.

3.7 All of the HRAs undertaken to date have either concluded no likely significant effects on European sites either alone or in-combination with other plans and projects or have concluded no adverse effect on the integrity of the European sites either alone or in-combination with other plans or projects. The exception is Dover District Council's HRA of the LDF Dover Core Strategy, which requires the re-assessment of the Core Strategy once recommendations provided within the HRA are included.

4 HRA Screening Assessment

4.1 As described in **Chapter 4**, a screening assessment was carried out in order to identify the likely significant effects of the PPLP on the European sites in and around Shepway District. The full screening matrix, which sets out the decision making process used for this assessment can be found in **Appendix 3** and the findings are summarised below.

Significant effects unlikely

4.2 The following policies would not result in development because they either set out criteria relating to development proposed under other policies, or they seek to protect the natural environment. These are:

- Policy HB1 Quality Places Through Design
- Policy HB2 Cohesive Design
- Policy HB3 Internal and External Space Standards
- Policy HB4 Self-build and Custom Housebuilding Development
- Policy HB5 Replacement Dwellings in the Countryside
- Policy HB6 Local Housing Needs in Rural Areas
- Policy HB7 Dwellings to Support a Rural-based Enterprise
- Policy HB8 Alterations and Extensions to Residential Buildings
- Policy HB9 Annexe Accommodation
- Policy HB10 Development of Residential Gardens
- Policy HB11 Loss of Residential Care Homes and Institutions
- Policy HB12 Development of New or Extended Residential Institutions (C2 Use)
- Policy HB13 Houses in Multiple Occupation (HMOs)
- Policy HB14 Accommodation for Gypsies and Travellers
- Policy E2 Redevelopment of Existing Employment Sites
- Policy E3 Tourism
- Policy E4 Hotels and Guest Houses
- Policy E5 Touring and Static Caravan, Chalet and Camping Sites
- Policy E6 Farm Diversification
- Policy E7 Reuse of Rural Buildings
- Policy E8 Provision of Fibre to the Premises
- Policy RL1 Retail Hierarchy
- Policy RL2 Folkestone Major Town Centre
- Policy RL3 Hythe Town Centre
- Policy RL4 New Romney Town Centre
- Policy RL5 Cheriton District Centre
- Policy RL6 Sandgate Local Centre

- Policy RL7 Other District and Local Centres
- Policy RL8 Development Outside Town, District and Local Centres
- Policy RL9 Design, Location and Illumination of Advertisements
- Policy RL10 Shop Fronts, Blinds and Security Shutters
- Policy RL11 Former Silver Spring Site, Park Farm
- Policy RL12 Former Harbour Railway Line
- Policy C1 Creating A Sense of Place
- Policy C2 Safeguarding Community Facilities
- Policy C3 Provision of Open Space
- Policy C4 Children's Play Space
- Policy T1 Street Hierarchy and Site Layout
- Policy T2 Parking Standards
- Policy T3 Residential Garages
- Policy T4 Parking for Heavy Goods Vehicles (HGVs)
- Policy T5 Cycle Parking
- Policy NE1 Enhancing and Managing Access to the Natural Environment
- Policy NE2 Biodiversity
- Policy NE3 Protecting the District's Landscapes and Countryside
- Policy NE4 Equestrian Development
- Policy NE5 Light Pollution and External Illumination
- Policy NE6 Land Stability
- Policy NE7 Contaminated Land
- Policy NE8 Integrated Coastal Zone Management
- Policy NE9 Development Around the Coast
- Policy CC1 Reducing Carbon Emissions
- Policy CC2 Sustainable Design and Construction
- Policy CC3 Sustainable Drainage Systems (SuDS)
- Policy CC5 Small Scale Wind Turbines and Existing Development
- Policy CC6 Solar Farms
- Policy HW1 Promoting Healthier Food Environments
- Policy HW2 Improving the Health and Wellbeing of the Local Population and Reducing Health Inequalities
- Policy HW3 Development That Supports Healthy, Fulfilling and Active Lifestyles
- Policy HW4 Promoting Active Travel
- Policy HE1 Heritage Assets
- Policy HE2 Archaeology
- Policy HE3 Local List of Heritage Assets
- Policy HE4 Folkestone's Historic Gardens

Significant effects likely or uncertain

4.3 Whilst no policies are certain to result in a significant effect, for many there is uncertainty and therefore, in line with the precautionary approach being applied in the HRA, until significant effects can be ruled out, they are treated as giving rise to 'likely significant effects'.

4.4 The screening assessment identified a lack of certainty as to whether the following policies would result in likely significant effects on European sites:

- Policy UA1 East Station Goods Yard, Folkestone
- Policy UA2 Rotunda and Marine Parade Car Parks, Lower Sandgate Road, Folkestone
- Policy UA3 The Royal Victoria Hospital, Radnor Park Avenue, Folkestone
- Policy UA4 3-5 Shorncliffe Road, Folkestone
- Policy UA5 Ingles Manor, Castle Hill Avenue, Folkestone
- Policy UA6 Shepway Close, Folkestone
- Policy UA7 Former Gas Works, Ship Street, Folkestone
- Policy UA8 Highview School, Moat Farm Road, Folkestone
- Policy UA9 Brockman Family Centre, Cheriton
- Policy UA10 The Cherry Pickers Public House, Cheriton
- Policy UA11 Affinity Water, Shearway Road, Cheriton
- Policy UA12 Encombe House, Sandgate
- Policy UA13 Smiths Medical Campus, Hythe
- Policy UA14 Land at Station Road, Hythe
- Policy UA15 Land at the Saltwood Care Centre, Hythe
- Policy UA16 St Saviour's Hospital, Seabrook Road, Hythe
- Policy UA17 Foxwood School, Seabrook Road, Hythe
- Policy UA18 Princes Parade, Hythe
- Policy UA19 Hythe Swimming Pool, Hythe
- Policy RM1 Land off Cherry Gardens, Littlestone
- Policy RM2 Land off Victoria Road West, Littlestone
- Policy RM3 Land rear of the Old School House, Church Lane, New Romney
- Policy RM4 Land west of Ashford Road, New Romney
- Policy RM5 Land adjoining The Marsh Academy, Station Road, New Romney
- Policy RM6 Kitewell Lane, rear of the Ambulance Station, Lydd
- Policy RM7 Land South of Kitewell Lane, Lydd
- Policy RM8 Station Yard, Station Road, Lydd
- Policy RM9 Former Sands Motel, Land adjoining pumping station, Dymchurch Road, St Mary's Bay
- Policy RM10 Land rear of Varne Boat Club, Coast Drive, Greatstone
- Policy RM11 Car park, Coast Drive, Greatstone
- Policy RM12 The Old Slaughterhouse, 'Rosemary Corner', Brookland
- Policy RM13 Lands north and south of Rye Road, Brookland
- Policy RM14 Land adjacent to Moore Close, Brenzett

- Policy ND1 Former Officers' Mess, Aerodrome Road, Hawkinge
- Policy ND2 Mill Lane to the rear of Mill Farm, Hawkinge
- Policy ND3 Land adjacent to Kent Battle of Britain Museum, Aerodrome Road, Hawkinge
- Policy ND4 Land east of Broad Street, Lyminge
- Policy ND5 General Sellindge Policy
- Policy ND6 Former Lympne Airfield
- Policy ND7 Camping and Caravan Site, Stelling Minnis
- Policy ND8 Land adjoining 385 Canterbury Road, Densole
- Policy ND9 Etchinghill Nursery, Etchinghill
- Policy ND10 Land adjacent to the Golf Course, Etchinghill
- Policy CC4 Wind Turbine Development
- Policy E1 Allocated Employment Sites

4.5 These policies could result in the development of housing, employment land and/or other development which could have significant effects in relation to offsite physical disturbance (loss of supporting habitat) from development, habitat degradation and general disturbance from increased recreational activities and air pollution from increased vehicle traffic resulting in a deterioration in the quality and/or extent of qualifying features.

Potential mitigation

4.6 As described above, particular policies could provide mitigation for the potential effects of development on European sites and this has been reflected in the screening matrix in **Appendix 3** and has been taken into account in the screening conclusions. There are also specific provisions within a number of the policies that could provide mitigation and these are also referred to in **Appendix 3** Key mitigation policies are summarised below:

- **Policy C3 - Provision of open space:** This policy promotes the provision of open space and therefore has potential to contribute towards avoiding and mitigating visitor pressures on European sites.
- **Policy NE1 - Enhancing and managing access to the natural environment:** this policy actively promotes managing access to European sites and requiring or enhancing land to divert recreation away from those designations by the provision of enhanced facilities elsewhere. The plan specifically recognises the threat of recreational pressure on the Dungeness complex, and also recognises, through conclusions within the SA that Folkestone to Etchinghill Escarpment SAC will also require specific attention. The Council together with Rother District Council is commissioning a second stage in a study that will provide evidence on recreational pressure and an appropriate strategy to mitigate it and this is likely to represent a key piece of mitigation in ensuring other policies do not significantly affect European sites.
- **Policy NE2 – Biodiversity:** This policy is likely to act in a mitigatory capacity by ensuring that development seeks to avoid or minimise adverse effects on biodiversity.
- **Policy NE8 - Integrated coastal zone management:** This policy may help to mitigate impacts associated with recreational coastal access at Dungeness through provision of resources for management of the coastal zone.
- **Policy NE9 – Development around the coast**: This policy is likely to contribute towards preventing significant effects on European sites as a result of coastal development by recognising the ecological sensitives of the coastal features in this region and presuming against development which would result in harm.
- **Policy CC1 - Reducing carbon emissions:** This policy is likely to contribute towards reducing carbon emissions and therefore may help to mitigate impacts on European sites through associated improvements in air quality given that policies that result in reduced carbon emissions can often result in beneficial indirect reductions in other pollutants, such as

NO_x. Air pollution is a particular pressure facing the Folkestone to Etchinghill Escarpment SAC and Dungeness SAC.

- **Policy CC2 – Sustainable design and construction**: This policy is likely to have a positive effect on the efficient use of water and energy. Promotion of more sustainable and cleaner transport options including investment in public transport is likely to contribute towards reducing traffic emissions and may help to mitigate impacts of air quality on habitats, particularly at Folkestone to Etchinghill Escarpment SAC.
- **Policy CC3** – **Sustainable Drainage Systems (SuDS)**: This policy is likely to have a positive effect on the efficient use of water and improvements in water quality and is likely to contribute towards minimising potential adverse effects on Dungeness complex in particular as a result of pollution and changes in water quality.

4.7 **Sustainable Access Strategy (SAS)**: As specified in Policy NE1, preparation of an SAS for the Dungeness/Romney Marsh/Rye Bay Natura 2000 sites is currently underway. At the time of writing, visitor surveys had been completed and broad recommendations provided, which are considered in detail as part of the screening and appropriate assessment stages of this report. The requirement for an SAS was identified as part of the combined HRA of the Dungeness Complex for the Shepway and Rother Core Strategies. A detailed strategy is currently being prepared, and this strategic approach is likely to form a key component in mitigating potential adverse effects on the Dungeness complex of European sites associated with increases in recreational pressure.

Screening assessment

Blean Complex SAC

Air Pollution

4.8 The Blean complex is located c.9.9km to the north west of Shepway District and situated on the northwest edge of Canterbury. Air pollution is a recognised threat to the woodland habitats for which this SAC is designated. A relatively small proportion of the SAC is located within 200m of the A290. This section of road is located over 20 miles from Folkestone and given that it is positioned beyond Canterbury, the majority of traffic journeys between north Kent's coastal towns and Shepway's site allocations would be expected to bypass Canterbury by using the A2 to the west or the A28 to the east. As a result, the potential traffic increases and associated air pollution along this road as a result of the Shepway PPLP are likely to be low. Nevertheless, in line with a precautionary approach, this site was included in the Air Quality Assessment (see Appendix 1), which concluded that the **Shepway PPLP will not result in likely significant effects on the Blean Complex SAC as a result of changes in air quality, either alone or in-combination with other plans and projects**.

Recreation

4.9 A well-established approach to avoiding recreational pressures has been developed as part of planning decisions which involve the Thames Basin Heaths SPA (TBH SPA). The TBH SPA, located in southern England, is designated for heathland birds and is particularly sensitive to recreational pressures. To ensure adverse effects on the TBH SPA are avoided, a Joint Strategic Partnership involving Natural England (NE) and relevant planning authorities was established. The Partnership produced a Delivery Framework which uses a 'zone' system based on distance from the SPA. Given the particular sensitivities of the TBH SPA to recreational pressure, the findings and recommendations of the Delivery Framework provide useful contextual information in reaching assumptions in relation to recreational impacts associated with the Shepway PPLP.

4.10 The TBH Delivery Framework (DF) – which is endorsed by Natural England, and which was scrutinised for robustness and appropriateness by the Technical Assessor of the South East Plan – suggests that at distances between 400m and 5km, residential housing is likely to result in significant effects on Annex II heathland birds as a result of recreation. These distances have been based on various research commissioned by Natural England which investigated people's recreational movements, behaviour and distance travelled to pursue recreational activities at such sites. Importantly, the research indicates that beyond 5km, the effect of recreational pressures

from the majority of housing developments is likely to be minimal. It specifies that large housing schemes of over 50 dwellings may require consideration up to 7km from the SPA.

4.11 The habitat types which comprise the Blean Complex SAC are broadly comparable with those of the TBH SPA including lowland heathland and woodland habitats and therefore the research which has informed the TBH SPA Delivery Framework is considered to be directly relevant in assessing the potential for recreational impacts on this SAC through recreation. As a result of a distance of 9.9km from the closest housing allocations, and a distance of c.20km from Folkestone, **the Shepway PPLP is not predicted to result in a significant effect upon the Blean Complex SAC as a result of recreation, either alone or in-combination with other plans and projects**.

4.12 In light of the above, **the Blean Complex SAC has been screened out of likely significant effects as a result of recreation and is not considered further in this report**.

Dover to Kingsdown Cliffs SAC

Air pollution

4.13 The grassland habitats for which this SAC is designated are susceptible to deposition of nitrogen associated with traffic emissions, which can act as a fertiliser, encouraging non-target plant species to dominate and resulting in increased scrub succession which can limit the extent of, or degrade the quality of, the designated grassland feature.

4.14 As specified in the air quality assessment, a single transect was modelled into this SAC, from the A2 (Jubilee Way). This is a major road but also lies 146m from the SAC at its closest. The assessment identified this as the only road within 200m of the SAC that could conceivably constitute a journey to work route for residents of Shepway. Baseline NOx concentrations throughout the modelled transect were slightly above the critical level.

4.15 The air quality assessment forecast that the PPLP would result in a considerable increase in flows on the A2, from a 2031 Do Nothing of c.17,000 AADT to c.29,000 AADT. However, because of the distance of the road from the SAC this has a limited effect.

4.16 The air quality assessment concluded that "*there would be no likely significant effect alone or in-combination with other projects and plans*", and therefore the **Shepway PPLP will not result in likely significant effects on the Dover to Kingsdown Cliffs SAC, either alone or in-combination with other plans and projects.**

Recreation

4.17 The SAC is located 8.5km outside of Shepway, and the distance between the SAC and Folkestone is 10km. As described above for the Blean Complex SAC, the effect of recreational pressures from the majority of housing developments at these distances is likely to be minimal. It is recognised that the habitats present within the Dover to Kingsdown Cliffs SAC offer a relatively unique attraction for visitors but similarly accessible open grassland sites occur on chalk cliffs and escarpments in the vicinity of Folkestone, and therefore the contribution of site allocations on increasing visitor pressure on Dover to Kingsdown Cliffs SAC is likely to be negligible. Furthermore, the Site Improvement Plan for this SAC does not list recreational disturbance as a current pressure or threat. In light of the above, the **Shepway PPLP is not predicted to result in a significant effect upon the Dover to Kingsdown Cliffs SAC as a result of recreation, either alone or in-combination with other plans and projects.**

Folkestone to Etchinghill Escarpment SAC

4.18 Key threats to the Folkestone to Etchinghill Escarpment SAC that have been identified in Natural England's Site Improvement Plan and the HRA screening assumptions include air pollution and recreational pressures.

Air pollution

4.19 The SAC is located in the north-east of the Shepway District, situated along a natural chalk escarpment at the northern edge of Folkestone. The SAC is composed of a total area of 263.25 ha, supporting broadleaved woodland and calcareous grasslands. The grassland habitats for which this SAC has been designated are susceptible to atmospheric deposition of nitrogen associated with vehicular emissions. The Site Improvement Plan specifies that current levels of nitrogen

deposition exceed the critical load for chalk grassland habitat at the site, and recognises that air pollution as a result of nitrogen deposition is an existing pressure at the site.

4.20 The majority of the SAC is located beyond 200m from main roads and therefore the potential for air quality related effects in these areas as a result of the PPLP is considered minimal. Areas of the SAC at increased risk include of air pollution include the following component SSSI units located in the south east of the SAC, in close proximity to main strategic roads on the northern outskirts of Folkestone:

- SSSI Unit 7 – the A260 (Canterbury Road) is adjacent to Sugar Loaf Hill within the SAC; the A20 is adjacent to Castle Hill and Round Hill within the SAC, and the A259 which is 65m to the south of the Sugar Loaf Hill section of the SAC.
- SSSI Unit 8 – the A260 (Canterbury Road) is adjacent to Wingate Hill within the SAC, and the B2011 is adjacent to Creteway Down at the south easternmost section of the SAC.

4.21 Discussion with Philip Williams, the Natural England officer responsible for the site, and a review of the SSSI site condition assessments was undertaken to confirm the current condition of the component SSSI units of the SAC in areas susceptible to the effects of air quality. This approach confirmed that in terms of current condition, Unit 7 of the component Folkestone to Etchinghill Downs Escarpment SSSI is currently in favourable condition. This Unit meets all of the condition objectives including in terms of species diversity, scrub control an absence of negative factors and the presence of target orchid species. The most recent condition assessment of Unit 8 confirmed that the unit is in 'unfavourable recovering' condition due to undergrazing resulting in scrub encroachment. In summary, 95% of the Folkestone to Etchinghill Escarpment SSSI is in 'favourable' or 'favourable recovering' condition, with less than 5% classified as 'unfavourable no-change' or 'unfavourable declining'. Nevertheless, it is recognised that Common Standards Monitoring, which is used to monitor the condition of the component SSSIs, was not designed to recognise adverse effects associated with deposition of pollutants, and often habitats are slow to display visible signs of the effects of changes in air quality. Therefore, the absence of apparent adverse factors does not necessarily indicate an absence of effects associated with nutrient enrichment and airborne pollutants.

4.22 The Natural England Site Improvement Plan (SIP) lists air pollution as a key pressure for the site and confirms that the critical load range for calcareous grassland has been exceeded at the site. A review of the Air Pollution Information System (APIS) confirmed that between 2012-2014 nitrogen deposition was found to be on average 14.4 kg N/ha/yr for the SAC which is below the critical load range of 15 – 25kg N/ha/yr. However, a maximum average level of 15.4kg N/ha/yr has been recorded during this period, which is beyond the lower critical range threshold by 0.4kg N/ha/yr.

4.23 Natural England as part of the SIP recommended trying to control, reduce and ameliorate atmospheric nitrogen impacts with a Site Nitrogen Action Plan (SNAP), a government improvement programme which aims to identify, tackle and reduce sources of atmospheric nitrogen and trying to restore and maintain habitats to mitigate the impact of the atmospheric nitrogen. However, discussions with Kirk Alexander, Project Manager at the White Cliffs Partnership who oversee management at the site, confirmed that no such plan has yet been produced or implemented.

4.24 Policy CC2 provides the key mitigatory policy in respect of air quality included in the PPLP, because it specifically promotes efforts to reduce the amount and impact of vehicular pollution through the provision of greener alternatives including public transport investment.

4.25 As described above, a key effect of increased nitrogen deposition is nutrient enrichment leading to increased rates of succession and increases in the spread and abundance of dominant species at the expense of target species and species richness. The SSSI units in areas susceptible to nitrogen deposition are currently in 'favourable' or 'unfavourable recovering' condition despite the existing levels of nitrogen in the air, and the historic, long-term presence of main roads in the vicinity of this SAC. This may indicate that the potential effect of nutrient enrichment on chalk grassland habitat at this location is, at least partly, controlled and avoided via the provision of appropriate management such as grazing and mechanical scrub control. Both of the relevant SSSI units are currently being actively managed using both of these methods and therefore in light of the above, the SAC may show some resilience to the effects of nitrogen deposition.

4.26 The air quality assessment provided in **Appendix 1** looked at the key measures of particular relevance regarding air quality impacts. These include; i) concentration of oxides of nitrogen (known as NOx) in the atmosphere, and ii) direct determination of the rate of the resulting nitrogen deposition. The air quality assessment explains that, in relation to NOx; "*The main importance is as a source of nitrogen, which is then deposited on adjacent habitats (including directly onto the plants themselves) either directly (known as dry deposition) or washed out in rainfall (known as wet deposition). The deposited nitrogen can then have a range of effects, primarily growth stimulation or inhibition, but also biochemical and physiological effects such as changes to chlorophyll content. NOx may also have some effects which are un-related to its role in total nitrogen intake (such as the acidity of the gas potentially affecting lipid biosynthesis) but the evidence for these effects is limited and they do not appear to occur until high annual concentrations of NOx are reached. The guideline atmospheric concentration of NOx advocated by Government for the protection of vegetation is 30 micrograms per cubic metre (µgm-3), known as the Critical Level. This is driven by the role of NOx in nitrogen deposition and in particular in growth stimulation and inhibition. If the total NOx concentration in a given area is below the critical level, it is unlikely that nitrogen deposition will be an issue unless there are other sources of nitrogen (e.g. ammonia). If it is above the critical level then local nitrogen deposition from NOx could be an issue and should be investigated*".

4.27 The air quality assessment also explains that "*calculating nitrogen deposition rates rather than relying purely on scrutiny of NOx concentrations has the advantage of being habitat specific (the critical level for NOx is entirely generic; in reality different habitats have varying tolerance to nitrogen) and, for many habitats, of being directly relatable to measurable effects on the ground through scrutiny of published dose-response relationships that do not exist for NOx. Unlike NOx, the nitrogen deposition rate below which current evidence suggests that effects should not arise is different for each habitat*".

4.28 In assessing the effects of the PPLP on Folkestone to Etchinghill Escarpment SAC, the air quality assessment identified that the baseline NOx concentrations where the SAC lies adjacent to the very busy A20 are high. By 2031, total flows on the A20 are forecast to increase to c. 50,000 AADT 'in combination', and the bulk of this increase is attributable to the PPLP (c. 5,000 AADT). Whilst NOx concentrations throughout the modelled transect are forecast to experience a net reduction on all links.

4.29 The assessment considered a 'Do Something' scenario with the 2017 Base, and showed the forecast 'in-combination' change in NOx concentrations to 2031, including the PPLP. It states that, "*for the A20, it can be seen that the PPLP will retard the forecast improvement in NOx by a worst-case 3 µgm-3 (10% of the critical level) at the closest point to the A20 and even at 30-40m from the roadside will retard improvement by c. 1 µgm-3. This still leaves a substantial net forecast improvement of c. 26 µgm-3 but is certainly a large retardation. The primarily role of NOx for vegetation is as a source of nitrogen. The retardation of forecast improvement attributable to the PPLP is clearly high enough to mean the resulting nitrogen deposition must be modelled directly to determine what botanical effect would result*".

4.30 In assessing the effect of NOx on nitrogen deposition, the air quality assessment goes on to explain that: "*since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. However, since most of the emitted NOx is not deposited at the roadside, the change in nitrogen deposition rates due to the PPLP is forecast to be lower than the change in NOx concentrations*".

4.31 The air quality assessment takes into account forecast improvements in NOx reductions over the plan period, and crucially, if the forecast improvement is realised in practice it will bring the deposition rates below the critical load at all links, even adjacent to the A20.

4.32 The air quality assessment concluded that "*Given that the 'in combination' deposition rate is a) forecast to be below the critical load of 15 kgN/ha/yr and well below the rate of 25 kgN/ha/yr at which Caporn et al report a decline in diversity in calcareous grassland, b) forecast to fall further to 2031 and c) only retarded by the PPLP to a small extent along even the most affected road,* ***no likely significant effect is expected alone or in combination despite the elevated NOx concentrations***".

4.33 Nevertheless, the conclusions presented within the air quality assessment are based on forecast reductions in NOx and deposition rates over the plan period, and therefore, in line with a

precautionary approach, the following recommendation has been made to provide a sufficient level of certainty that likely significant effects would be avoided:

- **For the A20 in particular the PPLP should include a commitment to monitoring roadside NOx at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures if an improving trend is not recorded in practice. Reporting on this metric could be tied to the planned cycle of 5-year reviews of the PPLP**.

4.34 Notably, the air quality assessment was based on future predicted traffic levels and air quality trends within the southeast and also accounts for growth in neighbouring authorities. Therefore it takes into account the 'in-combination' scenario. In light of the conclusions of the updated air quality assessment, providing that the recommendations made within that assessment, as summarised above, are committed to and implemented as part of the PPLP, together with the inclusion of Policy CC2 within the PPLP to promote reductions in air pollution, **it can be concluded that the Shepway PPLP will not result in likely significant effects on the Folkestone to Etchinghill Escarpment SAC as a result of air pollution, either alone or in-combination with other plans and projects**.

Recreation

4.35 The chalk grasslands and orchids, for which the SAC is designated, are susceptible to recreational activities including dog walking and associated nutrient enrichment which may alter the soil chemistry and increase the prevalence of competitive species, or by physical disturbances such as through trampling, vandalism, or fire. Due to the proximity of the site to Folkestone and other towns and villages in north east Shepway, parts of the SAC already receive relatively high levels of recreational access and discussions with the White Cliffs Countryside Partnership (WCCP) Project Manager, Kirk Alexander, revealed recent damage by trampling and theft of the rare orchid species, which has resulted in the management team to consider the potential for additional protective measures to conserve the orchid populations. Nevertheless, recreation at the site is currently well managed and recreation is not identified as a current pressure or threat in Natural England's Site Improvement Plan.

4.36 The SAC is managed by the WCCP in partnership with Natural England, to maintain and restore the extent, distribution, structure, function and supporting processes of the chalk grassland and important orchid populations for which the SAC is designated. The condition summary of the Folkestone to Etchinghill Escarpment SSSI, which encompasses the SAC, indicates that 95% of the SSSI is currently in favourable or unfavourable but recovering condition.

4.37 The SAC Conservation Management plan is implemented by the WCCP, which seeks to secure chalk downland habitat restoration and creation around Dover and Folkestone through re-introducing grazing management, the provision of new infrastructure and encouraging a partnership between landowners, managers and communities. Key components of the current management of the SAC include cattle-grazing, provision of fencing and gates, invasive species control and mechanical scrub management.

4.38 The HRA of the Shepway Core Strategy identified that north and east Folkestone, Lyminge, Hawkinge, and possibly east Hythe will all lie within the core recreational catchment area of the SAC. In particular, housing in Hawkinge was identified as being likely to contribute to increased recreational visits to the SAC. The HRA concluded that a 'worst-case' increase in visitor numbers of 13% would be unlikely to be unmanageable given the current successful management being implemented and the condition of the SAC. Crucially, however, the HRA of the Core Strategy identified that "*precautionary monitoring of recreational activity at the site is required such that any future need to introduce recreation management can be triggered"*. The HRA identified specific safeguards incorporated into the Core Strategy and concluded that, given the mechanisms already in place to manage and monitor the SAC, together with the provision of green infrastructure the Shepway Core Strategy would be unlikely to lead to significant effects on Folkestone to Etchinghill Escarpment SAC as a result of recreational pressure.

4.39 Natural England provided the following response to the conclusions of the Shepway Core Strategy HRA in relation to the effects of recreation:

"*The assumptions made by the HRA regarding the four SACs outside of the Dungeness Complex appear reasonable however, some of the survey data is still not available (visitor survey at Folkestone to Etchinghill Escarpment SAC, due for completion Summer 2011) and exactly how some of these assumptions will play out remains a concern for Natural England. The Conclusion drawn for Folkestone to Etchinghill Escarpment and Dover to Kingsdown Cliffs SACs are of particular concern given their location to large housing proposals and also the attraction they pose to tourists in the area.*

"We require a revisit of the predicted impacts when the final survey data is complete in order to gain a more robust understanding of the recreational pressure these sites are currently experiencing. Taking a precautionary approach to managing the risks regarding the assumptions made, Natural England require a monitoring programme to be put in place to identify whether these assumptions come to fruition and help inform how development should proceed during the lifetime of the plan. Any policies which direct growth to areas where impacts as a result of recreational pressures are possible but unclear due to ongoing development of an evidence base should state that 'The council will revisit the rate, scale, and/or distribution of development across the district to respond to the findings of new evidence'. This is an approach that has been taken in the wider south-east to address similar issues of uncertainty."

4.40 In light of the above findings of the HRA of the Core Strategy, and Natural England's subsequent comments, it is clear that a responsive and adaptable approach to implementing the PPLP will be required to ensure the potential for significant effects are minimised. In particular, this relates to a requirement for monitoring of recreation at the site. The HRA of the Shepway Core Strategy referred to a visitor strategy which was underway in 2011. However, liaison with Shepway Council, Natural England, and WCCP confirms that the findings of such a survey has not been published or made available. Unfortunately therefore, the recommendations of the HRA of the Core Strategy, together with those detailed within the consultation response issued by Natural England, which specified a requirement for implementation of the developments proposed within the Core Strategy to review and respond appropriately to the findings of this visitor strategy, cannot be undertaken at this stage. As a result, this assessment draws on the visitor study completed for the Lydden and Temple Ewell Downs SAC, undertaken to inform the Whitfield urban Extension. Lydden and Temple Ewell Downs SAC is also designated for the presence of chalk grassland and provides a similar visitor experience to the Folkestone to Etchinghill Downs SAC. As a result, parameters can be drawn from this study to help inform this assessment. The visitor study presented the following key conclusions:

- The majority of visitors to the NNR / SAC are of local origin (50% living within 2km of the NNR / SAC) and make very regular visits, daily or at least several times per week.
- Most (75%) make the journey to the NNR / SAC by walking rather than driving, although car parking is very limited in close proximity to most of the formal access points.
- The majority of visitors (75%) live within 4km of the SAC.
- Dog walking is the primary reason for visiting the NNR / SAC, with almost as many dogs as people encountered during the course of the three surveys.
- The majority of dogs are allowed off their leads during all or part of their visit.
- During the summer months there is an increase in the number of people visiting because of the wildlife interest of the area, but dog walking remains the reason that most people visit the NNR / SAC.
- The majority of visitors walk between 1 – 3km within the NNR / SAC, with less than 10% of visits involving a walk of more than 3km. Visitor access is predominantly within the two easternmost parcels of the NNR /SAC.
- Routes followed within the NNR / SAC are not random, with visitors following identifiable paths or 'desire lines' for much of their routes.
- Proximity to the visitors' homes and the lack of alternative sites within walking distance were cited by approximately two thirds of visitors questioned as being the reasons for visiting this particular location rather than another.

4.41 The visitor study concluded that the provision of appropriately designed green infrastructure within the Whitfield Urban Extension area will provide effective mitigation for potential impacts on the SAC.

4.42 The above study found that 75% of visitors to the SAC lived within 4km. This is in keeping with the results of visitor studies undertaken for heathland SPAs in the south of England, such as the Thames Basin Heaths. A joint strategic partnership (JSP) was formed to address the potential effects of recreational pressures on this SPA. The JSP produced a Delivery Framework which set out the mitigation and avoidance measures required. The primary measure specified within the Delivery Framework is a requirement to provide suitable alternative natural greenspace for new residential development within 5km. This example demonstrates the importance and effectiveness of providing new open space alongside new residential developments in mitigating recreational pressures on sensitive sites.

4.43 In light of the above, proposals within the PPLP to locate 1,140 dwellings in the Folkestone and Hythe urban area, and a further 491 dwellings proposed within the towns and villages in the North Downs area, the majority of which are within 5km of the SAC, has the potential to result in increased recreational visits to the Folkestone to Etchinghill Escarpment SAC. Those dwellings in close proximity to the SAC, including proposals for 30 dwellings at Etchinghill, 184 dwellings at Hawkinge, and those within the Folkestone urban area, are more likely to contribute significantly to increased recreational visits to the site.

4.44 Another key finding of the Lydden and Temple Ewell Downs Visitor Survey, and similar to the studies undertaken to inform the Thames Basin Heaths Delivery Framework, is that people tend to follow desire lines and utilise regular routes. Whilst this can lead to a concentration of negative effects to specific locations, it may also infer that direct pressures to the wider site can be restricted and efforts to manage and restrict recreational activities can be more efficiently focused. This is likely to be particularly so for Folkestone to Etchinghill Escarpment SAC because the site is actively managed, including provision of gates and fencing, and the presence of on-site wardening. In addition the qualifying features of grassland and orchids are typically only susceptible to direct effects associated with recreation, for example, plant collecting, localised nutrient enrichment from dogs, and trampling and erosion associated with walking and illegal use of motorbikes. Furthermore, much of the SAC is located on steep escarpments which are not conducive to recreational activities and therefore likely to be resilient to associated adverse effects.

4.45 Importantly, the PPLP has built on the measures specified within Core Strategy and taken on board the recommendations provided by Natural England in response to the HRA of the Core Strategy. In particular, the PPLP contains the following safeguards in relation to recreational pressure:

- **Policy NE1** specifies that the council will "*manage access to SACs/SPAs and require or enhance land to divert recreation activities away from those designations by the provision of enhanced facilities elsewhere, for example urban parks"*.
- **Policy ND9, Etchinghill Nursery** – specifically refers to the component SSSI of the SAC, stating that "*mitigation/enhancement measures are investigated to avoid adverse effects on the Folkestone to Etchinghill Escarpment SSSI"*.
- **Policies, ND2 and ND3**, Hawkinge – specify that open spaces and planting will be required, and development will only be permitted where the proposal achieves the highest quality of design of both building and surrounding space to help maintain the Kent Downs AONB (which the Folkestone to Etchinghill Escarpment SAC lies within) as a special place.
- **Policy C3, Provision of Open Space** - specifies that developments of 5 or more dwellings will be expected to contribute to or provide open space unless there is sufficient existing open space. The open space would be expected to accord with minimum standards and major development would be expected to provide a minimum of 3.2ha of open space per 1,000 of population, including at least 1.8 ha of natural open space.

4.46 In addition to the above, the Council will be updating their Green Infrastructure Plan which will identify areas such as Biodiversity Opportunity Areas (BOAs) where enhancements to biodiversity can be targeted. This provides an additional opportunity to incorporate strategic provision of high

quality alternative open space which provides an alternative to the use of the Folkestone to Etchinghill Escarpment SAC.

4.47 In light of the above information, and the successful management of recreation currently being implemented at the site, these measures are considered likely to be successful in mitigating the effects of recreation on the SAC. However, **the following key mitigation measures are recommended to enable a sufficient level of certainty in concluding that the PPLP will not result in likely significant effects**:

- **Visitor Study** – it is recommended that a visitor study of the Folkestone to Etchinghill Escarpment SAC is completed. This would provide a detailed baseline of recreation at the site, against which future successes or failures could be measured and depending on the findings, should be repeated during the implementation of the PPLP (see 'monitoring' below). This would ensure that the Council adopts a proactive and flexible approach to managing the potential effects of recreation, and would provide a means of recognising potential adverse effects at the earliest opportunity, enabling changes in site management or provisional of additional mitigation measures to be implemented as appropriate, before significant effects on the SAC are realised.
- **Monitoring** – As specified by Natural England in their response to the Core Strategy HRA, a monitoring programme should be put in place, which repeats the method of the Visitor Study, to identify whether the mitigation measures provided remain effective, and to identify where future modifications to management or provision of additional mitigation is required to avoid significant effects on the SAC. It is recommended that the appropriate frequency of monitoring is agreed via consultation with Natural England, and informed as an ongoing iterative process in line with the latest survey findings.
- **Project Level Assessment** – site specific planning applications, especially larger ones in proximity to the SAC, will need to consider the requirement to undertake project level HRA, and where appropriate would be expected to incorporate necessary safeguards in line with the policy safeguards included within the PPLP.
- **Green Infrastructure Plan** – The proposed updated Green Infrastructure Plan will identify areas such as Biodiversity Opportunity Areas (BOAs) where enhancements to biodiversity can be targeted. It is recommended that this study recognises and promotes opportunities for provision of strategic high quality alternative open space as this may help to future-proof future development by focusing recreational activities away from Folkestone to Etchinghill Escarpment SAC.

4.48 **Providing the above recommendations are committed to, and successfully implemented, the Shepway PPLP is unlikely to result in significant effects on the Folkestone to Etchinghill Escarpment SAC, either alone or in-combination with other plans and projects as a result of recreation.**

Lydden and Temple Ewell Downs SAC

Air Pollution

4.49 Sections of the Lydden and Temple Ewell Downs SAC are within 200m of a section of the A2 which runs between Dover and Canterbury. The air quality assessment provided in Appendix 1, confirms that two representative transects were modelled into this SAC, one south-west into the SAC from the A2 and the other north-east into the SAC from Canterbury Road. Both links lie 90-95m from the SAC and this means that the area most affected by vehicle emissions lies well outside the SAC boundary.

4.50 The air quality modelling showed that, in terms of oxides of Nitrogen, the PPLP will play no part in retarding the forecast improvement in NOx on Canterbury Road and a very small role in retarding the forecast improvement along this section of the A2.

4.51 In terms of nitrogen deposition, the PPLP plays no part in retarding the forecast improvement along Canterbury Road and only a nominal role in retarding improvement along the A2. This was considered ecologically insignificant.

4.52 The air quality assessment concluded that given that the 'in combination' deposition rate is a) forecast to be below the critical load and well below the rate at which Caporn et al report a decline

in diversity in calcareous grassland, b) forecast to fall further to 2031 and c) barely retarded by the PPLP, no likely significant effect is expected alone or in-combination despite the elevated NOx concentrations.

4.53 **Therefore, the Shepway PPLP is not predicted to result is likely significant effects on Lydden and Temple Ewell Downs SAC as a result of changes in air quality, either alone or in-combination with other plans and projects**.

Recreation

4.54 This site is located approximately 8.5km to the northeast of Folkestone. As per the reasoning provided above for the Dover to Kingsdown Cliffs SAC, the distance of this site from housing allocations within Shepway is considered sufficient to negate impacts associated with recreational pressures.

4.55 In addition, as described above as part of the assessment of air pollution, the road connections between this site and housing allocations within Shepway are not direct. Furthermore, there are several similar sites, in closer proximity to Folkestone and housing allocations in the north of Shepway, which would be expected to provide a similar visitor experience. Therefore housing allocations proposed within the PPLP are not expected to have a notable effect on visitor numbers at this site.

4.56 As a result of the above, the **Shepway PPLP is not predicted to result in a significant effect upon the Lydden and Temple Ewell Downs SAC as a result of recreation, either alone of in-combination with other plans and projects.**

Parkgate Down SAC

Recreation

4.57 Parkgate Down is currently managed as a nature reserve by the Kent Wildlife Trust (KWT). No public rights of way enter the site and a warden is employed by KWT to manage and monitor the site and oversee implementation of access restrictions to protect sensitive ecological features including the orchid assemblage for which the site is designated as an SAC. The entire site is currently in favourable condition as evidence of the current successful management. Furthermore, the site is located in excess of 5km from any notable residential allocations. Indeed, the only allocations within 5km of the site include a proposed 11 residential dwellings at Stelling Minnis to the west and a further five at Elham to the south east. As a result, the increase in visitors at the site as a result of the PPLP is likely to be minimal, and would be unlikely to jeopardise the success of the existing management regime. **Therefore, in summary, the Shepway PPLP is not predicted to result in likely significant effects to Parkgate Down SAC, either alone or in-combination with other plans and projects**.

Dungeness SAC

Air Pollution

4.58 The air quality assessment included in Appendix 1 reported that the PPLP will effectively play no part in retarding the forecast improvement in NOx. This is probably due to the small part this road plays in journeys to work arising from Shepway, and forecast additional traffic on this road by 2031 as a result of the PPLP is so small that it constitutes zero AADT. The air quality assessment concluded that "*there would be no likely significant effect either alone or in-combination with other projects and plans*".

4.59 **Therefore, the Shepway PPLP will not result in likely significant effects on Dungeness SAC as a result of air pollution, either alone, or in-combination**.

Physical Damage/Loss (offsite)

4.60 Great crested newt is a transitory species that will utilise habitats beyond the SAC boundary and is therefore potentially susceptible to loss of offsite habitat. This species is known to extend up to 500m from a breeding pond but typically the majority of a breeding population stays much closer to breeding sites and latest Natural England guidelines recognise that the potential for impacts associated with the loss of terrestrial habitat are much reduced beyond 250m from a breeding site.

4.61 A review of ordnance survey mapping indicates the presence of a pond with the site allocation of Policy RM2 and therefore it is possible that this site supports GCN. Nevertheless, the policy allocation is located approximately 210m to the west of the SAC and the intervening habitat comprises densely arranged residential dwellings. Therefore, movement of GCN between the allocation and SAC is unlikely and in the event that the allocation land supported a GCN population, it would not represent part of the SAC metapopulation and impacts upon such a population would not result in significant effects on the SAC population.

4.62 Policies RM10 and RM11 which are located close to the SAC comprise bare earth and amenity grassland and a review of ordnance survey mapping indicates an absence of potentially suitable breeding sites within 500m and with ecological connectivity to the policy allocations.

4.63 **In light of the above, the Shepway PPLP is not predicted to result in likely significant effects on the Dungeness SAC as a result of physical loss or damage, either alone or in-combination**.

Recreation

4.64 The Rye Harbour, Camber, Dungeness and Shepway Visitor Surveys recently completed to inform a proposed Sustainable Access Strategy, suggest that the SAC is subject to relatively high levels of recreation from the local population, holiday-makers and day trippers. Key pressures as a result of direct public access to the vegetated shingle habitats include trampling, disturbance, nutrient enrichment (dog walking) and damage. Any increase in recreational pressure from proposed development in the surrounding area therefore has the potential to significantly affect the SAC.

4.65 The SAC is situated in close proximity to development proposed under Policies RM1-RM11 with approximately 750 dwellings proposed within 1.5km of the SAC. The proposed development under these policies could, in-combination, give rise to potential for increased recreation to impact the SAC. Policies which are likely to contribute to mitigating the effect of recreation on the Dungeness SAC include Policy C3: Provision of open space; Policy NE1: Enhancing and managing access to the natural environment; Policy NE2: Biodiversity; and Policy NE9: Development around the coast.

4.66 Despite the inclusion of mitigating policies within the PPLP, given the proximity of residential allocations to the SAC, there is uncertainty whether the mitigation proposed will prove effective at this stage. As a result, **further detailed assessment at the Appropriate Assessment stage is required to understand the effectiveness of the mitigation measures proposed to determine whether the site allocations specified within the Shepway PPLP will adversely affect the integrity of the SAC qualifying features**.

Water Quality

4.67 An increase in the number of houses in the southern part of Shepway has the potential to increase the discharge in the quantity of pollutants reaching aquatic ecosystems upon which the SAC qualifying features (most notably GCN) depend. The housing proposed in the Romney Marsh area will result in increased sewage effluent which will be treated by a sewage water treatment works (STW) which discharges into a tributary which drains through Dungeness point.

4.68 A review of water quality was undertaken as part of the joint HRA of the Rother and Shepway District Councils' Core Strategies in relation to Dungeness (SAC/SPA/Ramsar)[15]. The joint HRA reviewed the Water Cycle Study undertaken as part of this study and identified that there may be treatment capacity issues at Lydd STW if the rate of delivery outpaces the infrastructure and capacity improvements that were to be delivered by 2012. No capacity issues were identified for New Romney. The capacity improvements detailed in Shepway's Core Strategy policy AMP5 are now operational and the core strategy recognised the importance of phasing in paragraph 5.120 which stated that delivery of development at Lydd should "*be phased in line with delivery of utility network upgrades, particularly to protect the green infrastructure and water environment in the area"*.

[15] URS Scott Wilson (2011), Rother and Shepway Core Strategies HRA (Dungeness SAC, Dungeness to Pett Level SPA and SPA extension and Dungeness, Romney Marsh and Rye Bay proposed Ramsar site)

4.69 The HRA of the Joint Core Strategies concluded that 'with the recommendations incorporated, *"it is considered that the Rother and Shepway Core Strategies would have sufficient safeguards in policy/supporting text that they would be unlikely to lead to significant effects on the Dungeness international sites through water quality impacts"*.

4.70 Natural England in their consultation response specified that *"if the recommendations set out in the HRA are addressed as suggested in the Core Strategies then Natural England would support the conclusion 6.6.1 of the HRA in relation to water quality*".

4.71 Importantly, the Shepway PPLP builds on the level of protection afforded to aquatic habitats via the Policy CC2 (Sustainable Construction) which will seek to implement efficient use of water, and Policy CC3 (SUDs) which promotes the efficient use of water and improvements in water quality. Both of these policies are likely to provide additional safeguards in preventing reductions in water quality within the SAC and therefore, **it is concluded that the Shepway PPLP will not result in likely significant effects on the Dungeness SAC as a result of changes in water quality either alone, or in-combination with other plans and projects**.

Water Quantity

4.72 The designated features of the SAC are highly dependent upon maintenance of the supporting hydrological regime. Changes in water quantity have the potential to reduce or degrade the extent of qualifying features, for example through changes in salinity, drying down resulting in reductions in extent of available habitat (e.g. GCN ponds), and reductions in ground water upon which shingle communities may depend.

4.73 The joint HRA of the Rother and Shepway Core Strategies confirmed that 20% of the Veolia Water (VW), whom manage the water supply in Shepway, supply comes from the Denge gravels, which underlie the SAC and contribute to the maintenance of the shingle habitat and GCN ponds. In terms of water quantity, VW report in their water resource management plan that if it is necessary to reduce the deployable output of the Denge Marshes to protect the SAC, as informed by the Environment Agency review of consents, it will be possible to do so through water saving efficiencies (leakage repair). In addition, the consumption in this water supply is forecast to reduce due to the decommissioning of both Dungeness A and B power stations.

4.74 Natural England in their consultation response to the HRA of the Core Strategies confirmed that *"If the recommendations set out in the HRA are addressed as suggested in the Core Strategies then Natural England would support the conclusion 7.4.1 of the HRA in relation to water resources"*. The above conclusions are considered to remain valid, and are further strengthened by the policies described above which seek to increase efficient use of water. Therefore, **it is concluded that the Shepway PPLP will not result in likely significant effects on the Dungeness SAC, either alone or in-combination ith other plans and projectsas a result of changes in water quantity**.

Non-toxic Contamination (Invasive Species)

4.75 Existing residential developments adjacent to the SAC have led to the establishment and spread of invasive species from gardens bordering the designated site. The presence of invasive species in the SAC has the potential to impact existing plant communities on the shingle and dune habitats. Key issues with invasive species include smothering and out-competition of native species. An increase in development adjacent to the boundary of the SAC therefore has the potential to result in likely significant effects on the site.

4.76 Analysis of the PPLP identified two policies that propose housing allocations adjacent to the SAC, which therefore have the potential to spread invasive species from gardens into the SAC. Policies RM10 and RM11 propose small scale development of 5 and 16 dwellings in an existing urban area next to the SAC. The distance of all other proposed development in the PPLP was considered sufficiently distant to negate the potential for significant effects from non-toxic contamination occurring. The adjacent component SSSI unit (no.53) is currently in favourable condition with no reported significant effects associated with invasive species despite the presence and proximity of existing residential dwellings. Furthermore, the sand dune habitat types in this area represent relatively hostile environments which are likely to support the establishment of specialist plant species only. As a result, such habitats present at this location are likely to demonstrate resilience to the establishment and spread of typical garden plant species within the wider SAC. Finally, any establishment of invasive species would likely be highly localised and given that this

area is currently managed by Natural England, any introductions of invasive species from surrounding gardens would likely to be detected and monitored, and if necessary managed appropriately.

4.77 In light of the above, **residential housing specified in the Shepway PPLP is considered unlikely to result in significant effects on the Dungeness SAC either alone, or in-combination with other plans and projects, as a result of non-toxic contamination**.

Dungeness, Romney Marsh and Rye Bay SPA/Ramsar

Physical damage/loss (offsite)

4.78 SPA birds such as golden plover and Bewick's swan are dependent upon pasture and arable farmland for feeding. These habitat types occur within several of the site allocations and therefore offsite physical loss may reduce the extent of habitats for foraging SPA birds in winter.

4.79 Loss of offsite habitat is not expected to result in fragmentation or severance given that all the allocations are within or adjacent to existing settlements and will not therefore disrupt the connectivity of interspersed semi-natural habitat networks within the local area.

4.80 Loss of offsite habitat has the potential to affect SPA/Ramsar species only due to their transitory nature and dependency on habitat types located outside the SPA/Ramsar boundary. Non-bird qualifying features of the Ramsar site are habitat specialists that are considered unlikely to be dependent on or affected by the loss of brownfield, arable and pastoral habitats likely to be lost by the proposed site allocations, and therefore loss of offsite habitat is considered in respect of birds only.

4.81 In summary, **the loss of offsite habitat as a result of housing and employment allocations within the PPLP has the potential to result in likely significant effects on the qualifying SPA/Ramsar bird species as a result of loss of foraging habitat upon which such bird species may depend, and will therefore require further consideration at the Appropriate Assessment stage**.

Non-physical disturbance

4.82 As described in Section 3, it has been assumed that the potential for non-physical disturbance of the SPA/Ramsar qualifying features is negligible at distances beyond 500m. Site allocations within 500m of the SPA/Ramsar are those proposed under Policies RM1, RM2, RM10 and RM11 and a single employment allocation at Dengemarsh Road, Lydd.

4.83 As mentioned above, policy RM2 proposes 70 residential dwellings located 210m to the west of the SPA/Ramsar, whilst policies RM1, RM10 and RM11 propose 10, 5 and 16 dwellings respectively, close to the Ramsar site at New Romney. The SPA boundary (which is not concurrent with the Ramsar boundary) is located in excess of 500m from these site allocations and the qualifying features of the Ramsar which are particularly susceptible to non-physical disturbance are limited to birds. The sand dune and tidal habitats located adjacent to these housing allocations is not suitable for supporting the bird species which represent individual reasons for qualification as part of the Ramsar designation. As a result the importance of the habitats in proximity to the housing allocations relate solely to the bird assemblage. Non-physical disturbance of birds using tidal and inter-tidal habitat at this location is expected to be negligible given the extent of similar habitat along this stretch of the coast and the relatively small scale of the development proposed here.

4.84 Furthermore, the interspersing area between policies RM1 and RM2 and the Ramsar boundary comprises existing residential dwellings and therefore the potential for significant effects associated with noise, dust and lighting arising from this policy would expect to be negligible. Finally, these policies specifically recognise the proximity of the SSSI (concurrent with the Ramsar at this location) and highlights the potential need for specific mitigation, whilst policies RM10 and RM11 recognise the proximity of the Ramsar and specify the requirement for biodiversity enhancements to ensure adverse effects are minimised.

4.85 It is unlikely that significant effects will arise from the employment allocation at Dengemarsh Road, Lydd. This is due to the fact that the area proposed for development is already an established employment and is therefore unlikely to cause additional non-physical disturbances to the SPA/Ramsar.

4.86 In light of the factors described above, it is considered unlikely that non-physical disturbance from development will have a significant adverse effect given the distance of most of the proposed development in the PPLP, the low sensitivity of the qualifying features at locations close to allocations and the inclusion of mitigatory policies, including Policy NE2: Biodiversity and Policy NE9: Development around the coast. **In summary, the Shepway PPLP is not predicted to result in likely significant effects to Dungeness SPA/Ramsar, either alone or in-combination with other plans and projects.**

Recreation

4.87 Dungeness SPA/Ramsar is part of a larger complex of sites, including Dungeness SAC. This complex of sites receives high levels of recreation throughout the year from the local population, holiday-makes and day trippers. A key pressure as a result of direct access to the SPA/Ramsar is disturbance of intertidal areas and wetlands used by qualifying bird species. Recreational activities in these areas have the potential to affect breeding and overwintering birds, through direct disturbance of birds and features of importance to these birds, such as foraging and nesting sites. Other pressures include trampling, nutrient enrichment and damage to the shingle habitat and its associated plant communities. These pressures have the potential to result in a significant effect to the SPA/Ramsar as a result of increased recreational pressure from proposed development within the PPLP.

4.88 No significant adverse effects are considered in relation to the qualifying features of the Ramsar site, including invertebrates, great crested newt, water vole and plant species, because these species are typically resilient to the above pressures, or occur primarily in habitats which are inaccessible to recreational disturbance such as wet ditches, marshes and other wetland habitats.

4.89 The SPA/Ramsar site is situated in close proximity to proposed development with up to 400 dwellings proposed within 2.5 km of the SPA/Ramsar site. These include policies RM1-RM14. Although, these provide for relatively low levels of development the extent to which this may affect the SPA/Ramsar is uncertain, taking into account –in-combination effects. A number of policies in the PPLP are likely to provide mitigation, and the Sustainable Access Strategy currently being prepared, which adopts a pro-active strategic approach to avoiding recreational impacts in the future, is also likely to represent a key mitigation measure. However, in line with a precautionary approach a more detailed assessment of current and future visitor trends and distribution of potential impacts is required to reach a robust decision. Therefore, a **more detailed assessment is required at the Appropriate Assessment stage to identify the potential for increased recreation to adversely affect the integrity of the Dungeness, Romney Marsh and Rye Bay SPA/Ramsar site.**

Air pollution

4.90 Areas of the Dungeness SPA/Ramsar site are situated within 200m of the strategic road network including the A268, A259 and A2070. As described in the screening assumptions in Section 3, main roads within 200m of a sensitive receptor have potential to adversely affect the habitat composition and soil chemistry of the site through deposition of airborne pollutants, particularly Nitrogen. Increased air pollution in proximity to the Dungeness SPA/Ramsar site may result in the degradation of habitat types upon which the qualifying features depend.

4.91 Approximately 1.7% of the SPA and 3.1% of the Ramsar site are located within 200m of the primary road network in the Romney Marsh area. The majority of SPA and Ramsar habitats present within this 200m zone comprise arable fields, grasslands, ditch networks and a tidal section of the River Rother on the outskirts of Rye. These habitats have not been identified as sensitive features to air pollution in the Natural England SIP and the grassland and arable habitats present within this zone represent actively farmed agricultural land which is unlikely to be adversely affected by localised increases in nitrogen deposition associated with the Shepway PPLP.

4.92 Mitigatory policies in the PPLP, including Policy NE3: Biodiversity, Policy CC1: Reducing carbon emissions and Policy CC2: Sustainable construction, are likely to provide additional protection to the SPA/Ramsar by helping to reduce emissions along these road networks.

4.93 Furthermore, the air quality assessment provided in **Appendix 1** indicates that there would be a substantial forecast net improvement in NOx concentrations, even allowing for PPLP growth in-combination with other plans and projects, and the total NOx concentrations would remain below

the critical level. In respect of nitrogen deposition, the air quality assessment concludes, "*given that a) the existing deposition rate is modelled to be well below the critical load for this habitat and is likely to fall further to 2031 and that b) the PPLP will not play a material role in retarding any resulting habitat improvement, no likely significant effect is expected alone or in combination. This is particularly the case since only 5% of the total area of the SAC lies within 200m of the A2 and thus would be affected at all by the road*".

4.94 **In summary, the Shepway PPLP will not result in likely significant effects on Dungeness SPA/Ramsar as a result of air pollution, either alone or in-combination with other plans and projects**.

Water quality and quantity

4.95 Development in the south of Shepway District has the potential to degrade and alter key habitats, such as grazing marshes and lakes that are used specifically by qualifying bird species for roosting, feeding and breeding. Housing proposed in the Romney Marsh area will result in increased sewage effluent which will be treated by a sewage water treatment works (STW) which discharges into a tributary which drains through Dungeness point. Key issues include increased pollution and demand for water as a result of increased housing. Qualifying features most likely to be affected by changes to water quality include those dependent on freshwater ecosystems within the Dungeness complex, such as wetland birds, mammals, invertebrates and aquatic plants. Changes in water levels may also result in significant effects on ponds used by qualifying GCN populations as a result of changes in the water level, chemistry, turbidity, and associated changes in aquatic macrophytes availability.

4.96 A review of water quality was undertaken as part of the HRA of the Rother and Shepway District Councils Core Strategies in relation to Dungeness (SAC/SPA/Ramsar). The HRA reviewed the Water Cycle Study undertaken as part of this study and identified that there may be treatment capacity issues at Lydd STW if the rate of delivery outpaces the infrastructure and capacity improvements that were to be delivered by 2012. No capacity issues were identified for New Romney. The capacity improvements detailed in the Shepway Core Strategy policy AMP5 are now operational and the core strategy recognised the importance of phasing in paragraph 5.120 which stated that delivery of development at Lydd should "*be phased in line with delivery of utility network upgrades, particularly to protect the green infrastructure and water environment in the area"*.

4.97 The HRA of the Core Strategies concluded that "*with the recommendations incorporated, it is considered that the Rother and Shepway Core Strategies would have sufficient safeguards in policy/supporting text that they would be unlikely to lead to significant effects on the Dungeness international sites through water quality impacts*".

4.98 Natural England in their consultation response specified that "*if the recommendations set out in the HRA are addressed as suggested in the Core Strategies then Natural England would support the conclusion 6.6.1 of the HRA in relation to water quality*".

4.99 Importantly, the Shepway PPLP builds on the level of protection afforded to aquatic habitats via the Policy CC2 (Sustainable Construction) which will seek to implement efficient use of water, and Policy CC3 (SUDs) which promotes the efficient use of water and improvements in water quality. Both of these policies are likely to provide additional safeguards in preventing reductions in water quality within the SPA.

4.100 With regards to water quantity, any changes in water levels are likely to have a significant effect on SPA/Ramsar species through changes in salinity, drying down or flooding resulting in reductions in the extent of available habitat, such as grazing marshes, and reductions in ground water upon which plant communities may depend. Natural England's SIP highlights the requirement for infrastructure to manage water levels and movement. It is particularly important to manage the extensive network of ditches that run through the SPA/Ramsar, which supply water to many areas within the site and support qualifying features such as water vole.

4.101 The HRA of the Rother and Shepway Core Strategies confirmed that 20% of the Veolia Water (VW), whom manage the water supply in Shepway, comes from the Denge gravels, which underlie the SPA/Ramsar site and contribute to the maintenance of the shingle habitat and GCN ponds. In terms of water quantity, VW report in their water resource management plan that if it is necessary to reduce the deployable output of the Denge Marshes to protect the SAC, as informed

by the Environment Agency review of consents, it will be possible to do so through water saving efficiencies (leakage repair). In addition, the consumption in this water supply is forecast to reduce due to the decommissioning of both Dungeness A and B power stations.

4.102 Natural England in their consultation response to the HRA of the Core Strategies confirmed that *"If the recommendations set out in the HRA are addressed as suggested in the Core Strategies then Natural England would support the conclusion 7.4.1 of the HRA in relation to water resources"*. The above conclusions are considered to remain valid, and are further strengthened by the policies described above which seek to increase efficient use of water.

4.103 **Overall, it is concluded that the Shepway PPLP will not result in likely significant effects on the Dungeness SPA/Ramsar site, either alone, or in-combination with other plans and projects, as a result of changes in water quality and quantity.**

Non-toxic contamination (invasive species)

4.104 Proposed development adjacent to Dungeness SPA/Ramsar site has the potential to increase the spread and establishment of invasive species from nearby gardens. Existing urban areas next to the Ramsar site have already been recorded to cause the spread of invasive species in localised areas, which has resulted in the smothering and out competition of native plant communities in shingle and dune habitats.

4.105 All development proposals in policies in the PPLP are located a sufficient distance from the SPA to negate the potential for significant effects as a result of non-toxic contamination. Therefore the potential for this affect relates to the Ramsar site only.

4.106 Similarly to the SAC, Policies RM10 and RM11 propose small scale development of 5 and 16 dwellings in an existing urban area next to the Ramsar. The adjacent component SSSI unit (no.53) is currently in favourable condition with no reported significant effects associated with invasive species despite the presence and proximity of existing residential dwellings. Furthermore, the sand dune habitat types in this area represent relatively hostile environments which are likely to support the establishment of specialist plant species only. As a result, such habitats present at this location are likely to demonstrate resilience to the establishment and spread of typical garden plant species within the wider Ramsar site. Finally, any establishment of invasive species would likely be highly localised and given that this area is currently managed by Natural England, any introductions of invasive species from surrounding gardens would likely to be detected and monitored, and if necessary managed appropriately.

4.107 In light of the above, **residential housing specified in the Shepway PPLP is considered unlikely to result in significant effects on the Dungeness SAC, either alone, or in-combination with other plans and projects, as a result of non-toxic contamination**.

Wye and Crundale Downs SAC

Recreation

4.108 This SAC is located to the west of Shepway, being approximately 14km to the west of Folkestone and over 5km from the closest site allocation. As a result the likelihood of recreational impacts associated with the PPLP is low. When the minimum standards for provision of public open space specified within the plan are considered together with the Site Improvement Plan, which does not specify recreational activities as a current pressure or threat, the PPLP is considered unlikely to result in significant effects on this site as a result of recreation, either alone or in-combination. **Therefore, in summary, the Shepway PPLP is not predicted to result in likely significant effects to Wye and Crundale Downs SAC, either alone or in-combination with other plans and projects.**

In-combination effects

4.109 As described in **Chapter 3**, a review was undertaken of other plans and projects which could lead to likely significant effects on Natura 2000 sits when considered in combination with the Shepway PPLP. The detailed review of neighbouring plans can be found in **Appendix 4** and the findings are summarised below.

4.110 A review of the HRAs of neighbouring local plans concluded that Canterbury City Council and Rother District Council were not considered to result in likely significant effects on European sites in combination with Shepway District Council. Rother District Council at the screening stage was not able to rule out likely significant effects in relation to Dungeness European sites, which resulted in a joint HRA of Rother and Shepway District Core Strategies. This, together with input from key consultees such as Natural England and the RSPB, led to recognition of the strategic approach required to protect the Dungeness Complex and, as a result, led to a commitment to prepare a Sustainable Access Strategy (SAS). Production of the SAS is currently underway, with visitor surveys completed and outline recommendations published. This strategy will set out monitoring requirements and identify the key measures required to ensure adverse effects on the SAC/SPA/Ramsar as a result of in-combination visitor pressure from Shepway and Rother Districts, and further afield, are avoided. In addition, this strategic approach will provide feedback to enable the districts to identify and respond to any potential significant effects at the earliest opportunity. More consideration of the SAS and its role in negating in-combination effects at the Dungeness Complex is provided in **Chapter 5**: Appropriate Assessment.

4.111 No likely significant effects was also concluded in relation to Ashford District Council Local Plan either alone or in-combination with neighbouring districts. Indeed, this assessment did not include Shepway District due to the negligible likelihood of significant effects occurring as a result of the districts in-combination.

4.112 Similarly, no review of in combination effects with Shepway District was undertaken for Dover District Council. The HRA of the Dover District Local Plan concluded that there is potential for likely significant effects on Lydden to Temple Ewell Downs SAC and Folkestone to Etchinghill Escarpment SAC as a result of air pollution, both alone and in-combination with other plans and projects, (including within Shepway) unless policy wording is strengthened relating to alleviating pressure on the A2 in the vicinity of the SACs. Recommendations included the need for an appropriate assessment and a transportation assessment for any development that will increase traffic within 200m of the SACs and where a new development will have a significant impact upon the trunk road network. The air quality modelling undertaken to support this HRA, as provided in **Appendix 1**, includes forecast changes in air quality in-combination with Shepway's neighbouring authorities, including Dover, and therefore the 'in-combination scenario has been fully considered in the conclusions presented above.

Projects which could have in-combination effects

4.113 A review of national infrastructure planning in the south east of England [16] identified the M20 Junction 10a with potential to result in likely significant effects in-combination with Shepway District Plan. The M20 runs through Shepway District towards Folkestone with junction 10a situated to the west of Shepway in Ashford District. The project is currently at the pre-examination stage, if this project is approved the potential impacts in-combination with Shepway District should be considered.

Summary of screening conclusions

4.114 **Table 4.1** below summarises the screening conclusions reached in this HRA. Those impacts shown in grey were screened out in line with the screening assumptions provided in **Section 3**. Impact types for which a conclusion of 'No Likely Significant Effect' (LSE) was reached are shown in green. Those potential impacts where LSE's cannot be ruled out are shown in orange and these are considered in more detail at the Appropriate Assessment stage in **Section 5.**

[16] https://infrastructure.planninginspectorate.gov.uk/projects/south-east/

Table 4.1: Summary of screening conclusions

European site	Physical damage/ loss of habitat (Offsite)	Non-physical Disturbance	Air Pollution	Recreational Disturbance	Water Quantity and Quality	Non-toxic contamination (invasive species)
Blean Complex SAC	Screened out	Screened out	No LSE	No LSE	Screened out	Screened out
Dover to Kingsdown Cliffs SAC	Screened out	Screened out	No LSE	No LSE	Screened out	Screened out
Folkestone to Etchinghill Escarpment SAC	Screened out	Screened out	No LSE	No LSE	Screened out	Screened out
Lydden and Temple Ewell Downs SAC	Screened out	Screened out	No LSE	No LSE	Screened out	Screened out
Parkgate Down SAC	Screened out	Screened out	Screened out	No LSE	Screened out	Screened out
Wye and Crundale Downs SAC	Screened out	Screened out	Screened out	No LSE	Screened out	Screened out
Dungeness SAC	No LSE	Screened out	No LSE	Uncertain – proceed to AA	No LSE	No LSE
Dungeness SPA	Uncertain – proceed to AA	No LSE	No LSE	Uncertain – proceed to AA	No LSE	No LSE
Dungeness Ramsar	Uncertain – proceed to AA	No LSE	No LSE	Uncertain – proceed to AA	No LSE	No LSE

5 Appropriate Assessment

Dungeness, Romney Marsh and Rye Bay SPA and Ramsar

5.1 The Dungeness, Romney Marsh and Rye Bay SPA and Ramsar site are located in the southern part of Shepway. Much of the site extends into the adjacent Rother District boundary. The qualifying features of the SPA relate to a variety of wetland bird species while the Ramsar site is designated for its bird assemblage, populations of mute swan, shoveler and aquatic warbler, in addition to wetland habitats, bryophytes including thread moss, vascular plants including greater water parsnip, water vole, great crested newt, medicinal leech and a ground beetle, also the marsh mallow moth and a lagoon snail.

5.2 The SPA and Ramsar site are considered together in this section as many of their qualifying features are similar (birds) and/or rely on the same habitats and are susceptible to the same pressures. Where different conclusions are reached in relation to the SPA and the Ramsar site this is made clear in the sections below.

Conservation Objectives

5.3 The conservation objectives for the SPA are, subject to natural change, to maintain the waterbird assemblage and populations of breeding and non-breeding species of wetland birds (see **Appendix 2**) in favourable condition.

5.4 As described in **Chapter 4**, the Shepway PPLP has the potential to significantly affect the Dungeness SPA/Ramsar as a result of recreational disturbance and loss of offsite supporting habitat.

5.5 Recreation has the potential to adversely affect the SPA/Ramsar bird assemblage as a result of disturbance, and may also degrade the shingle and plant communities for which the Ramsar is designated as a result of nutrient enrichment, and trampling and erosion associated with both legal and illegal (off road vehicles) forms of recreation.

5.6 The potential for loss of offsite supporting habitat to adversely affect the integrity of the SPA/Ramsar is considered in relation to birds only because other qualifying features are not susceptible to this impact type or such impacts were ruled out at the Screening Stage (e.g. great crested newt).

Recreation

5.7 Recreational pressure has been identified as a key threat to Dungeness SPA/Ramsar and significant effects associated with increases in local housing and subsequent potential increases in visitation to the site could not be ruled out at the Screening Stage.

5.8 As discussed above, Dungeness SPA/Ramsar forms a complex series of overlapping and standalone sites, which includes Dungeness SSSI, Dungeness SAC, Dungeness RSPB Nature Reserve, Dungeness Point and National Nature Reserve and Rye Harbour Local Nature Reserve. The SPA/Ramsar broadly stretches from Romney Warren Golf course in Shepway to Pett Level in Rother District. The two sites also extend inland towards Bromley Green in Ashford. The two sites do not share concurrent boundaries with the Ramsar incorporating an additional c.130ha of habitat, primarily associated with the low lying fields and ditches between Lydd and Rye, and tidal habitats to the south and east of Dungeness Point.

5.9 Sections of the SPA/Ramsar are subject to high levels of visitor pressure from a range of different types of recreation. Primary activities include walking, dog walking, kite surfing, fishing and wildlife watching. Illegal activities, including motorbike scrambling and use of off road vehicles have also been recorded at the site and threaten to result in direct damage to the shingle habitat and vegetation through trampling and erosion. There is concern that increased recreation pressure from the surrounding area, due to residential development will lead to increases in the

existing levels of recreational pressure and subsequently to adverse effects on the integrity of the SPA/Ramsar birds. Key threats to the SPA/Ramsar site include disturbance to qualifying birds and important features used by them, as well as trampling, disturbance, nutrient enrichment and damage to the shingle habitat and its associated plant communities.

5.10 A joint HRA[17] of Shepway and Rother District's Core Strategies has been undertaken in relation to Dungeness SAC/SPA/Ramsar sites (Dungeness Complex). The HRA concluded that an integrated approach would be required in order to deal with increasing pressure from recreation and tourism. Natural England supported this approach however highlighted the following concerns:

"The HRA recommends 5.5.2 that Owing to the potential for recreation/tourism to lead to disturbance, Council Policy should adopt an integrated approach to this issue. Natural England would fully support this approach if this included taking account of new housing development. However, having set out the measures and recommendations in the HRA it is disappointing that these are not fully reflected in the relevant policies within the Core Strategies. Natural England would seek their inclusion, such as the suggestion of a sustainable access strategy. Indeed, without their inclusion, the Core Strategy is unlikely to be considered sound. Furthermore there are additional measures that could be considered such as a the provision of greenspace outside of the international designations as a way to relieve the recreation pressure on the International sites, As stated above in our comments under Policy CSD4: Green Infrastructure, there is a need to state that part of the reason why GI provision is required alongside new development is to relieve recreation pressure on the European sites. Measures to ensure that developers provide or contribute towards providing alternative greenspace to assist with visitor control and recreation management has not been incorporated into policy. Until such changes are made to the policies to ensure that a more robust approach is adopted to protect the international sites from disturbance, Natural England advises that with regard to impacts from disturbance, the Core Strategy policies are not sufficient to demonstrate conformity with the Conservation of Habitats and Species Regulations 2010".

5.11 The above issues raised by Natural England have since been incorporated into the Shepway PPLP and notably have resulted in the development of a Sustainable Access Strategy (SAS) to ensure that an integrated approach will be adopted in addressing the issues associated with recreational disturbance on the Dungeness Complex both presently and in the future. The SAS is currently part complete and comprises the following key stages:

- Stage 1 (Visitor Surveys) has been completed. It comprises a comprehensive visitor survey and provides initial key recommendations.
- Stage 2 (The Strategy) is currently in progress and will develop a strategy which recognises existing key pressures and threats, recommends measures required to address current and future pressures, and identifies and sets out future monitoring requirements to ensure that there is a robust feedback loop.

5.12 Onsite visitor surveys undertaken as part of Stage 1 concluded that 70% of those interviewed visited the site from the local area or as a day trip whilst the remaining 30% were on holiday. Greater proportions of holiday makers were recorded visiting Camber Sands beach (outside of the SAC) and Greatstone. In addition to this, onsite visitor surveys identified 64% of people surveyed were visiting the site for the first time or visited less than once a month and only 20% of people surveyed visited the site at least once a week.

5.13 The origin of visitors at Dungeness Point was also assessed, which revealed that visitors within 0 to 5km of the SAC comprised a very small proportion of visitors (4%) whilst a much greater proportion (67%) were found to travel 30km or more.

5.14 The initial conclusions presented in the Stage 1 report indicates that users of the Dungeness complex predominantly visit the site irregularly and are more likely to travel from areas further away rather than from the local area. This is reflective of the specific and unique recreational opportunities that the Dungeness Complex offers and suggests that any increases in local housing would be expected to result in relatively low levels of subsequent increase in recreational pressure on the Dungeness SPA/Ramsar.

[17] URS Scott Wilson (2011), Rother and Shepway Core Strategies HRA (Dungeness SAC, Dungeness to Pett Level SPA and SPA extension and Dungeness, Romney Marsh and Rye Bay proposed Ramsar site)

5.15 The overall aim of the SAS is to provide a joined up mechanism for avoiding significant impacts on the Dungeness Complex, either alone or in-combination as a result of the combined pressures across the Shepway and Rother Districts and from contributory pressures from further afield. Crucially, the SAS will set out requirements for infrastructure improvements and will include monitoring and feedback to ensure that significant effects are identified at the earliest opportunity. The SAS is yet to be produced and therefore the extent and detail of the strategy is as yet unknown. Nevertheless, it is expected that the strategy will only be adopted when the joint Councils are satisfied of its effectiveness, following consultation with Natural England and likely input from the RSPB. Furthermore, the Strategy represents a key recommendation stemming from detailed consultation as part of the joint HRA of the Rother and Shepway Core Strategies in relation to the Dungeness Complex. As a result, there is a high level of confidence that the SAS will provide an effective platform for implementing avoidance and/or remedial management measures prior to the realisation of adverse effects on the integrity of qualifying features and this approach provides a key mitigation measure in avoiding adverse effects on the Dungeness SPA/Ramsar.

5.16 The strategic approach to managing visitor pressure at the Dungeness complex, as described above, is complemented by a range of mitigatory policies included within the Shepway PPLP. Including most notably, Policy C3 (provision of open space), which will ensure that new housing meets the specified minimum requirements in terms of provision of open space and this is likely to further minimise the potential for local residents to focus recreational activities of the SPA/Ramsar.

5.17 In addition, Section 12 (Natural Environment) of the PPLP recognises the importance of mitigating the effects of recreational pressure on the Dungeness SPA(and SAC) stating that "*access will also need to be managed due to the potentially damaging impact of recreational activity on over-wintering birds at the Dungeness SPA/SAC. Measures may include access management at Dungeness, such as increased wardening, and the creation/enhancement of appropriate green infrastructure to improve local access in less sensitive areas. Shepway District Council and Rother District Council have commissioned a study to consider how access to Dungeness may be managed and inform the final drafting of policy. Additional work will be undertaken as part of the Green Infrastructure Strategy review to establish a network of corridors and assets*". Furthermore, Policy NE1 (enhancing and managing access to the natural environment) states that the Council will "*manage access to SACs / SPA and require or enhance land to divert recreation activities away from those designations by the provision of enhanced facilities elsewhere, for example urban parks*".

5.18 The provision of alternative greenspace in mitigating the effect of recreational pressures on sensitive European sites is actively encouraged by Natural England elsewhere, for example it forms a key component of the Thames Basin Heaths Delivery Framework in southern England. And therefore the strategic approach to incorporating protective measures specified in the PPLP is considered likely to provide an effective measure in mitigating significant effects.

5.19 These safeguards, when considered together with the quantum of proposed development in the Romney Marsh area and the strategic approach to managing and avoiding recreational pressure being adopted through the SAS, are considered sufficiently robust to provide certainty that the site allocations can be implemented without adverse effects on the integrity of the Dungeness SPA/Ramsar.

5.20 Importantly however, to enable a finding of no adverse effect on integrity, the Council will need to recognise the findings of the SAS (when published) and adopt a flexible approach in delivering the PPLP by ensuring that any additional recommendations and mitigation measures are provided in line with the conclusions made. Importantly, the SAS provides a baseline against which to measure the status of recreational pressures going forward. It is likely that future updated monitoring will be required to ensure that any significant effects in relation to recreational pressures are recognised and avoided through refinements in the strategy before they have the potential to result in adverse effects on the qualifying features of the Dungeness, Romney Marsh and Rye Bay SPA/Ramsar.

5.21 **Providing the Council adopts the flexible, strategic and pro-active approach described above, successfully implements the recommendations of the SAS, and ensures that the mitigation policies in the plan are successfully implemented, the Shepway PPLP will not**

result in adverse effects on the integrity of the Dungeness, Romney March and Rye Bay SPA/Ramsar as a result of recreational pressure, either alone or in-combination with other plans and projects.

Habitat loss/damage (offsite)

5.22 The Shepway PPLP allocates a number of sites for employment and housing development within close proximity of the SPA and Ramsar site, in areas where habitats may provide suitable offsite foraging for SPA/Ramsar bird species. Policies RM1-RM14 and E1 (Mountfield Road Phase 3 and 4) were identified during the screening stage as potentially resulting in likely significant effects on the SPA and Ramsar site as a result of offsite habitat loss.

5.23 A more detailed assessment of the potential of these site allocations to support SPA/Ramsar birds was undertaken by cross referencing known habitat preferences for the qualifying bird species against the broad habitat types within the allocation, as indicated by a review of aerial imagery.

5.24 This enabled an indication of the relative importance of allocations for SPA and Ramsar birds to be recognised. Known habitat preferences were taken from Birds of the Western Palearctic and British Trust for Ornithology and are summarised in **Table 5.4** below.

Table 5.1: Typical offsite habitat preferences for SPA and Ramsar birds

Bird species		Comments on broad habitat types of potential importance	Susceptible to loss of offsite habitat allocated within PPLP (taking into account proposed modifications)
SPA			
1	Aquatic warbler	Coastal reed beds	No – habitats upon which this species depends will not be affected
2	Avocet	Wetland (coastal and freshwater). Closely associated with water and adjacent sparsely vegetated ground	No – habitats upon which this species depends will not be affected
3	Bittern	Wetland (reed bed specialist)	No – habitats upon which this species depends will not be affected
5	Hen Harrier	Coastal and freshwater marsh and wetland (winter only). Rough grassland, and ditch embankments where functionally linked to coastal grasslands, wetland and riparian habitat	No – habitats upon which this species depends will not be affected
6	Golden Plover	Winter feeding on broad range of wetland and farmland including arable and pasture, short grazed grassland, harvest fields and floodplains	**Yes – may utilise arable and short grazed pasture within site allocations**
7	Marsh harrier	Wide ranging - coastal and freshwater marsh and wetland. Rough grassland, and ditch embankments where functionally linked to coastal grasslands, wetland and riparian habitat	No – habitats upon which this species depends will not be affected
8	Little tern	Coastal wetland, coastal shingle, sandy or stony ground and associated open water.	No – habitats upon which this species depends will not be affected

Bird species		Comments on broad habitat types of potential importance	Susceptible to loss of offsite habitat allocated within PPLP (taking into account proposed modifications)
9	Common tern	Wetland (coastal and freshwater), shingle, sandy or stony ground associated with open water, open water.	No – habitats upon which this species depends will not be affected
10	Sandwich tern	Wetland (coastal and freshwater) shingle, sandy or stony ground associated with open water, open water.	No – habitats upon which this species depends will not be affected
11	Ruff	Wetlands. Dry grasslands and harvested fields will be used but their preference is much stronger for wetland sites (both coastal and freshwater).	No – habitats upon which this species depends will not be affected
12	Shoveler	Open water	No – habitats upon which this species depends will not be affected
13	Bewick's swan	Will feed on arable fields and pasture	**Yes – may utilise arable and short grazed pasture within site allocations**
14	Mediterranean gull	Wetland (coastal and freshwater)	No – habitats upon which this species depends will not be affected
RAMSAR			
1	Aquatic warbler	Coastal reed beds	No – habitats upon which this species depends will not be affected
2	Mute swan	Various wetland habitats	No – habitats upon which this species depends will not be affected
3	Shoveler	Open water	No – habitats upon which this species depends will not be affected

5.25 The review of habitat preferences revealed that many of the species for which the SPA/Ramsar is designated are not dependent upon the offsite habitat types found within the site allocations including grassland and arable farmland. Indeed, all of the Ramsar bird species, and 12 of the 14 SPA qualifying species could be ruled out from significant adverse effects because they are habitat specialists, including marine or wetland (coastal and freshwater) habitats which are not reliant upon the brownfield, grassland and arable habitats potentially affected by the site allocations. As a result, the potential for significant effects as a result of the loss of offsite habitat is limited to the following two species for which the SPA is designated:

- Golden plover (short-grazed grasslands and arable only).
- Bewick's swan (pasture and arable farmland only).

5.26 In addition, a further three species which contribute to the SPA qualification for supporting a bird assemblage of over 20,000 birds were identified as being susceptible to loss of offsite habitat. These include:

- White fronted goose (pasture and arable).
- Wigeon (flood prone pastures/arable only).

- Lapwing (pasture and arable).

5.27 The SPA regularly supports 34,625 water birds. This amount greatly exceeds the assemblage qualification threshold of 20,000 birds. Therefore, the loss of small parcels of offsite habitat located within or adjacent to existing settlements at Lydd and New Romney with potential to support those species which are listed as contributing to the SPA assemblage (but are not present in sufficient numbers to represent a qualifying feature in their own right), is unlikely to result in adverse effects on the integrity of the Dungeness SPA because of the broader extent of suitable habitats available.

5.28 Because the majority of species listed as part of the assemblage are not dependent upon the habitat types potentially affected, the number of birds as an assemblage is unlikely to change significantly. The effect of site allocations in the PPLP would not be expected to reduce the total number of the bird assemblage to such an extent that the threshold is at risk either alone or in-combination with other plans and projects. As a result, the potential for significant effects on the SPA bird assemblage has been ruled out and potential for adverse effects as a result of loss of offsite habitat limited to the specific SPA species, golden plover and Bewick's swan. These species are referred to below as 'target bird species'.

5.29 Following the establishment of typical habitat preferences for each species, each allocation site in the south of Shepway (near to Dungeness) was assessed for its potential suitability for golden plover and Bewick's swan using aerial photography combined with professional judgement which considered functional ecological connectivity with the SPA and similar wetland habitat types, and proximity both to the SPA and to negative factors such as existing settlements where edge effects and recreational disturbance are already likely to occur.

Employment and Housing Allocations

5.30 Following a review of aerial photography, consideration of the ecological connectivity, and proximity to negative factors for each of the employment and housing allocations within Shepway, the following sites were identified as having potential to support the SPA bird species, golden plover and Bewick's swan. These sites supported extensive areas of short grazed pasture and/or arable fields with potential to support the above bird species during winter foraging:

- Policy E1 (Mountfield Road – Phase 3 and 4)
- Policy RM2
- Policy RM4

5.31 The remaining site allocations not listed above were considered to have low or no potential to support the SPA/Ramsar qualifying bird species based on distance, presence of unsuitable habitat types, existing levels of usage and disturbance, and size and shape of field enclosures. For example, small allocations adjacent to existing urban edges and with proximal boundary features were not considered suitable for the target SPA species because these species typically select feeding areas with far reaching visibility and openness.

5.32 In light of the above, the potential for loss of offsite habitat as a result of the proposed site allocations to adversely affect qualifying bird species is restricted to golden plover and Bewick's swan, largely because these depend upon favoured arable and short grazed grasslands for feeding.

5.33 It is recognised that the area of pasture and arable land uses which will be lost as a result of the above Policies, represents a tiny proportion of this habitat resources in the wider landscape, and therefore the reliance of this species on the housing allocation sites is considered likely to be low. In addition, Policy RM2 specifically recognises the requirement to provide mitigation measures in relation to the nearby SSSI and Ramsar site. Nevertheless, in order to provide sufficient certainty in concluding no adverse effect either alone or in-combination, it is recommended that mitigation measures are incorporated into the PPLP, as detailed below.

Mitigation

5.34 In order to ensure that there are no significant effects specific wording will be required to ensure that the above policies require a detailed assessment for these species and that a suitable project level assessment is carried out. For such sites, wording must be provided to ensure appropriate measures are taken to mitigate impacts, such as provision of alternative habitat, and/or

contributions towards enhancing strategic sites for these species elsewhere, if required. In addition, phasing of site allocations coupled with site specific bird survey data for golden plover and Bewick's swan will be required to ensure that cumulative effects on this species can be monitored during the lifetime of the PPLP. If significant numbers of SPA birds are likely to be affected either alone or in-combination, provision of suitable mitigation in the form of habitat provision or enhancement may be required in parallel with developments coming forward. As described above, the site allocations are consider to be of low importance for SPA birds due to their habitat preferences and/or the abundance of similar habitat types in the wider landscape. As a result, whilst the requirement for mitigation in the form of alternative habitat provision is considered unlikely to be required, a commitment to site specific project level assessments of the above policies will provide the necessary safeguards to ensure that adverse effects are avoided.

5.35 **Provided that the above recommendation is incorporated into the Shepway PPLP, adverse effects on the integrity of the SPA and Ramsar site are not expected either alone or in-combination with other plans and projects, as a result of offsite habitat loss or damage.**

Dungeness SAC

Conservation Objectives

5.36 The conservation objectives for this site are, subject to natural change, to maintain the annual vegetation of drift lines, perennial vegetation of stony banks and populations of great crested newt in favourable condition.

5.37 The screening stage concluded that the Shepway PPLP could potentially result in significant adverse effects on the SAC as a result of recreation only. The likelihood of adverse effects and mitigation requirements is discussed below.

Recreation

5.38 As described above for Dungeness SPA/Ramsar, recreational pressure has been identified as a key threat to Dungeness SAC and the potential for significant effects as a result of increases in recreational pressures resulting from the PPLP could not be ruled out at the Screening stage.

5.39 The SAC designation relates to the vegetation communities of the drift lines and stony banks, and the population of great crested newts. These features are resilient to the non-physical disturbance events described above for the SPA/Ramsar but are susceptible to recreational impacts such as trampling and erosion, nutrient enrichment from dog fouling and damage from illegal use of off road vehicles which has resulted in the permanent scarring of the shingle ridges which support qualifying plant communities.

5.40 Whilst the qualifying features of the SAC differ from those of the SPA and Ramsar, they are similarly susceptible to increased or unmanaged recreational pressures, and therefore the assessment of impacts in light of mitigation measures provided above for the SPA/Ramsar is equally applicable to the SAC. Crucially, the strategic approach adopted by the Council in managing and monitoring access at Dungeness provides an effective platform for avoiding adverse effects on the integrity of the SAC qualifying features as a result of recreation. This is further strengthened by the inclusion of mitigatory policy safeguards in the Shepway PPLP as described above.

5.41 In summary, **providing the Council adopts the flexible, strategic and pro-active approach described above, successfully implements the recommendations of the SAS, and ensures that the mitigation policies in the PPLP are successfully implemented, the Shepway PPLP will not result in adverse effects on the integrity of the Dungeness SAC qualifying features as a result of recreational pressure either alone or in-combination with other plans and projects.**

6 Conclusions and Next Steps

6.1 Most policies and potential sources of impact were ruled out at the Screening Stage. However, this relied on the successful implementation of safeguards provided within the PPLP and specific mitigation where detailed in Section 4, and specified within the Screening Matrix in **Appendix 3**. Of particular importance is the requirement for specific avoidance and mitigation in relation to the potential effects of recreation and changes in air quality on the Folkestone to Etchinghill Escarpment SAC. With regards to recreation, this includes completion of a visitor study, monitoring, project level HRA assessment as appropriate, and identifying and promoting opportunities for strategic provision of alternative greenspace as part of the Green Infrastructure Plan. In relation to changes in air quality, recommendations include a commitment to monitoring roadside NOx at the A20 at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures if an improving trend is not recorded in practice. Reporting on this metric could be tied to the planned cycle of 5-year reviews of the PPLP.

6.2 Potential likely significant effects which could not be ruled out at the Screening Stage included the potential for recreation to adversely affect the Dungeness complex (SAC/SPA/Ramsar) through bird disturbance and degradation of habitat, and the potential for loss of offsite habitat to adversely affect bird species populations of the Dungeness SPA and Ramsar which may rely on such habitats for foraging and loafing. These issues were taken forward to the Appropriate Assessment stage to determine whether the effects predicted would result in adverse effects on the integrity of the European sites in question.

6.3 The habitat types which will be lost as a result of the site allocations are considered to be of low importance for SPA birds due to species habitat preferences and/or the abundance of similar habitat types in the wider landscape. As a result, whilst the requirement for mitigation, such as alternative habitat provision, is considered unlikely to be required, as a precaution, site specific project level assessments of development proposals coming forward under policies E1 (Mountfield Road), RM2 and RM4 will be required to provide the necessary level of certainty to ensure that adverse effects on the SPA are avoided.

6.4 With regards to recreational pressures, the strategic approach adopted by the Council in managing and avoiding recreational pressure, both via the SAS and through mitigatory policies specified within the PPLP provides a mechanism for ensuring that adverse effects can be avoided by adopting an iterative approach to future management of Dungeness. This approach, and the mitigation measures built into the PPLP fulfil the recommendations made by Natural England in response to the Shepway Core Strategy HRA, and therefore no adverse effects on the Dungeness SAC/SPA/Ramsar is predicted as a result of recreational pressure. However, it should be recognised that this conclusion is reliant on Shepway Council's successful implementation of the mitigation provided for in the PPLP, successful delivery of the recommendations arising from the forthcoming Sustainable Access Strategy (SAS), and ensuring that there is sufficient flexibility to implement potential refinements and remedial actions in the future in line with updates to the SAS.

6.5 The SAS will provide a baseline with which to measure the effect of recreational pressure going forward. It is likely that future updated monitoring and iterative revisions to the SAS will be required to ensure that any significant effects in relation to recreational pressures are recognised and avoided through a 'feedback loop' provided for in the strategy, enabling refinements to be implemented prior to the realisation of adverse effects on the qualifying features of the Dungeness, Romney Marsh and Rye Bay SPA/Ramsar. This will be a key requirement of the forthcoming SAS.

6.6 **In conclusion, the Appropriate Assessment concluded that the Shepway PPLP will not result in adverse effects on the Dungeness SAC, SPA, or Ramsar, or other European sites, either alone or in-combination with other plans and projects**.

Appendix 1

Air Quality Assessment of European Sites – Report to inform HRA of Shepway Local Plan

Air Quality Assessment of European Sites

Report to inform HRA of Shepway Local Plan

Shepway District Council

23 November 2017

Quality information

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1. Introduction

1.1 In order to assist with the Habitat Regulations Assessment of the Shepway Places & Policies Local Plan (PPLP) AECOM was commissioned to undertake traffic modelling and subsequent air quality modelling and ecological interpretation of the effects of the PPLP on internationally important wildlife sites in Shepway and beyond. AECOM were also asked to undertake a similar exercise for the Core Strategy Review (CSR) to 2037 for two different growth quanta: 6,500 dwellings and 8,000 dwellings.

1.2 The air quality effects of the PPLP on internationally important wildlife sites are associated with the extent to which housing and employment growth in the PPLP will use roads within 200m of any such sites for journeys to work as this is the main cause of daily traffic movements from housing/employment. The sites and links chosen for analysis in this study were therefore based on the likelihood that the links would experience anything other than a nominal increase in daily journeys to work arising from Shepway District. The modelled links/designated sites were:

- A2 (Jubilee Way) at Dover to Kingsdown Cliffs SAC;
- Jury's Gap Road at Dungeness SAC;
- A259 (New Winchelsea Road), A259 (New Road/Guldeford Road), A268 (Rye Road) and Jury's Gap Road at Dungeness, Romney Marsh & Rye Bay SPA and Ramsar site;
- A2 and Canterbury Road at Lydden to Temple Ewell Downs SAC; and
- Crete Road West, A20, A259 (Churchill Avenue and A260 (Canterbury Road) at Folkestone to Etchinghill Escarpment SAC.

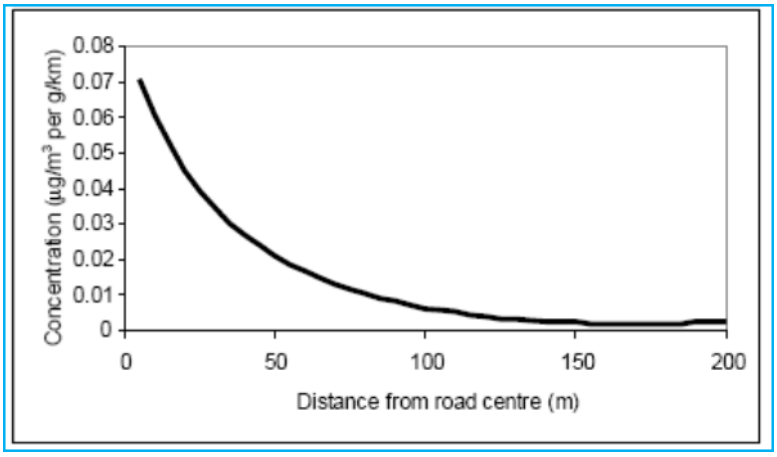
1.3 In addition, the Blean Complex SAC was modelled for completeness although it was considered unlikely that significant journey to work traffic arising from Shepway would pass this SAC given the distance of the SAC from the district.

1.4 All modelling took account not only of forecast traffic growth arising from the PPLP (or CSR) but also forecast growth arising from all other sources (e.g. surrounding authorities) over the same time period. Therefore the modelling for each link is 'in combination' with other plans and projects. The CSR modelling essentially extended the time period for the PPLP modelling to 2037 and increased the modelled quantum of housing delivery to either 6,500 dwellings or 8,000 dwellings.

2. Methodology

2.1 Traffic modelling and air quality impact assessment was undertaken in line with the standard Design Manual for Roads and Bridges (DMRB) methodology[1]. As a general rule vehicle exhaust emissions are considered to only have a local effect within a narrow band along the roadside; typically within 200m of the centreline of the road. Beyond 200m emissions should generally have dispersed sufficiently that atmospheric concentrations are essentially background levels. The rate of decline is steeply curved rather than linear. In other words concentrations will decline rapidly as one begins to move away from the roadside, slackening to a more gradual decline over the rest of the distance up to 200m.

Figure 1: Traffic contribution to concentrations of pollutants at different distances from a road



2.2 There are two measures of particular relevance regarding air quality impacts from vehicle exhausts. The first is the concentration of oxides of nitrogen (known as NOx) in the atmosphere. The main importance is as a source of nitrogen, which is then deposited on adjacent habitats (including directly onto the plants themselves) either directly (known as dry deposition) or washed out in rainfall (known as wet deposition). The deposited nitrogen can then have a range of effects, primarily growth stimulation or inhibition[2], but also biochemical and physiological effects such as changes to chlorophyll content. NOx may also have some effects which are un-related to its role in total nitrogen intake (such as the acidity of the gas potentially affecting lipid biosynthesis) but the evidence for these effects is limited and they do not appear to occur until high annual concentrations of NOx are reached. The guideline atmospheric concentration of NOx advocated by Government for the protection of vegetation is 30 micrograms per cubic metre (μgm^{-3}), known as the Critical Level. This is driven by the role of NOx in nitrogen deposition and in particular in growth stimulation and inhibition. If the total NOx concentration in a given area is below the critical level, it is unlikely that nitrogen deposition will be an issue unless there are other sources of nitrogen (e.g. ammonia). If it is above the critical level then local nitrogen deposition from NOx could be an issue and should be investigated.

2.3 The second important metric is a direct determination of the rate of the resulting nitrogen deposition. Calculating nitrogen deposition rates rather than relying purely on scrutiny of NOx concentrations has the advantage of being habitat specific (the critical level for NOx is entirely generic; in reality different habitats have varying tolerance to nitrogen) and, for many habitats, of being directly relatable to measurable effects on the ground through scrutiny of published dose-response relationships that do not exist for NOx. Unlike NOx, the nitrogen deposition rate below which current evidence suggests that effects should not arise is different for each habitat. The rate (known as the Critical Load) is provided on the UK Air Pollution Information System website (www.apis.ac.uk) and is expressed as a quantity (kilograms) of nitrogen over a given

[1] Design Manual for Roads and Bridges, Volume 11, Section 3 Part 1 (HA207/07) and subsequent Interim Advice Notes
[2] The addition of nitrogen is a form of fertilization, which can have a negative effect on habitats over time by encouraging more competitive plant species that can force out the less competitive species that are more characteristic of such habitats.

area (hectare) per year ($kgNha^{-1}yr^{-1}$). More recently, there has also been research compiled[3] which investigates nitrogen dose-response relationships in a range of habitats.

2.4 For completeness, rates of acid deposition were also calculated. Acid deposition derives from both sulphur and nitrogen. It is expressed in terms of kiloequivalents (keq) per hectare per year. The thresholds against which acid deposition is assessed are referred to as the Critical Load Function. The principle is similar to that for a nitrogen deposition Critical Load but it is calculated very differently.

2.5 In April 2017 a High Court judgment[4] (colloquially known as the Ashdown Forest judgment) partially quashed the Lewes District and South Downs National Park Joint Core Strategy. This was on the basis that the HRA supporting the Joint Core Strategy only considered its own contribution to changes in traffic flows (and specifically whether such flows would exceed 1000 Annual Average Daily Traffic) in determining whether there would be a likely significant air quality effect on Ashdown Forest SPA. The judge ruled that the HRA had thus explicitly failed to undertake any form of assessment 'in combination' with growth in other authorities that would affect the same road links and that this was in contravention of the Conservation of Habitats and Species Regulations 2010.

2.6 The air quality modelling undertaken for this exercise avoided the problems that led to the successful Ashdown Forest Judicial Review for two reasons:

- Even when the change in flows due to the PPLP was forecast to be below 1,000 AADT air quality modelling was still undertaken; and
- The air quality modelling is in accordance with standard methodology in Volume 11 of the Design Manual for Roads and Bridges. This method inherently involves modelling growth in surrounding authorities (such as Dover and Rother) to generate a forecast of future flows known as the 'Do Minimum' scenario. PPLP growth was then factored into the Do Minimum scenario to create the 'Do Something' scenario. Therefore, the Do Something scenario reported in the appendices represents the forecast total flows expected by 2031 or 2037 based on the traffic modelling available, irrespective of source.

2.7 The Do Minimum scenario draws upon a government database tool called the National Trip End Model Presentation Programme (TEMPro version 7.2). This contains data for each local authority district in England regarding expected changes in population, households, workforce and employment (in addition to data such as car ownership). The traffic modellers used this to forecast the change in traffic flows that would occur due to growth other than the PPLP over the period to 2031 and growth other than the CSR to 2037 (e.g. that arising from Dover, Rother and further afield). The result was the Do Minimum scenario. Growth in the PPLP (or CSR) was then modelled by manually distributing trips on the network (taking account of census journey to work routes) and the results were factored into the Do Minimum scenario to create the Do Something scenario. Comparing the Do Something scenario with the Base case therefore enables one to see the effect of all forecast traffic growth on the roads in question 'in combination', within the context of forecast improvement in vehicle emission factors and background nitrogen deposition rates over the same timescale.

2.8 Using the generated traffic scenarios, and information on average vehicle speeds and percentage heavy duty vehicles (both of which influence the emissions profile), air quality specialists calculated expected NOx concentrations, nitrogen deposition rates and acid deposition rates for those road links where traffic flows were forecast to increase. For some road sections multiple transects were modelled to account for the influence of the predominant wind direction.

2.9 The predictions of nitrogen deposition and annual mean NO_X concentrations are based on the assessment methodology presented in Annex F of the Design Manual for Roads and Bridges

[3] Compiled and analysed in Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

[4] http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html [accessed 26/10/2017]

(DMRB), Volume 11, Section 3, Part 1 (HA207/07)[5] for the assessment of impacts on sensitive designated ecosystems due to highways works. Background data for the predictions for 2031 (or 2037) were sourced from the Department of Environment, Food and Rural Affairs (Defra) background maps. Background nitrogen deposition rates were sourced from the Air Pollution Information System (APIS) website[6].

2.10 Given that the assessment years (2031/2037) are a considerable distance into the future, it is important for the air quality calculations to take account of improvements in background air quality and vehicle emissions that are expected nationally over the plan period. Making an allowance for a realistic improvement in background concentrations and deposition rates is in line with the Institute of Air Quality Management (IAQM) position[7] as well as that of central government[8]. Although in recent years improvements have not kept pace with predictions, the general long-term trend for NOx has been one of improvement (particularly since 1990) despite an increase in vehicles on the roads[9]. Guidance note HA207/07 advises that background rates are reduced by 2% per year to allow for an improvement in background air quality over the project/plan period as a result of ongoing (inter)national initiatives to improve emissions and the expected improvement in vehicle emissions over that period.

2.11 However, due to the uncertainty in the rate with which projected future vehicle emission rates and background pollution concentrations are improving, the assumption was made in this modelling that conditions in 2023 (the approximate midpoint between the base year and the years of assessment) are representative of conditions in both 2031 and 2037 (the years of assessment). This approach is widely used within the professional air quality community and accounts for known recent improvements in vehicle technologies (new standard Euro 6/VI vehicles), whilst excluding the more distant and therefore more uncertain projections on the future evolution of the vehicle fleet. AECOMs professional judgment is that such an approach provides a more realistic impression of conditions in 2031 and 2037 than assuming no improvement in emission rates or background concentrations, but still remains conservative and defensible.

2.12 Annual mean concentrations of NOx were calculated at two 200m transects modelled back from all links. Predictions were made using the latest version of ADMS-Roads using emission rates derived from the Defra Emission Factor Toolkit (version 6.0.2) which utilises traffic data in the form of 24-hour Annual Average Daily Traffic (AADT), detailed vehicle fleet composition and average speed. The end of the PPLP (2031) and CSR (2037) periods were selected for the future scenarios as this is the point at which the total emissions due to plan traffic will be at their greatest.

2.13 Once the air quality calculations were complete, they were subject to ecological interpretation. Traditionally, the implications of the 'in combination' scenario would only have been discussed if the forecast change in flows due to the PPLP exceeded either 1,000 AADT or 1% of the critical level (for NOx) or load (for nitrogen and acid deposition). In the light of the Ashdown Forest case AECOM began the examination of the air quality modelling with a discussion of the 'in combination' scenario.

2.14 This considered factors such as whether the critical level or critical load is currently exceeded or is forecast to be exceeded 'in combination' and whether improvements in background rates and emission factors are expected to offset the 'in combination' increase in pollution to a large extent. The ecological interpretation of any deterioration (or retardation of improvement) due to the PPLP considers the presence of SAC/SPA features within the affected area (or the potential for them to be present in the future), the extent of the affected area as a proportion of the entire European site and the degree of deterioration/retardation forecast, within the context of

[5] Design Manual for Roads and Bridges, HA207/07, Highways Agency
[6] Air Pollution Information System (APIS) www.apis.ac.uk
[7] http://www.iaqm.co.uk/text/position_statements/vehicle_NOx_emission_factors.pdf
[8] For example, The UK Government's recent national Air Quality Plan also shows expected improvements over the relevant time period (up to 2031) https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017
[9] Emissions of nitrogen oxides fell by 69% between 1970 and 2015. Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/579200/Emissions_airpollutants_statisticalrelease_2016_final.pdf [accessed 08/06/17]

experimentally derived nitrogen dose-response relationships that have now been established for a variety of habitats. This includes consideration of existing background nitrogen deposition rates as it has been established that many habitats become less sensitive to additional nitrogen inputs the higher the background deposition rate (and thus the more nitrogen is already present in excess).

2.15 The following Scenarios were modelled for each link and each designated site:

- Base Case
- End of PPLP period (2031) Do Minimum (i.e. all expected growth without the PPLP)
- End of PPLP period (2031) Do Something (i.e. all expected growth including the PPLP)
- End of CSR period (2037) Do Minimum
- End of Core Strategy Review period (2037) Do Something (6,500 residential units)
- End of Core Strategy Review period (2037) Do Something (8,000 residential units)

2.16 In the results sections that follow, the 2031 situation is discussed first, followed by the 2037 situation. In each chapter the European sites are discussed in turn.

2.17 Case law has established that ‘appropriate assessment’ is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to appropriate assessment rather than determination of likely significant effects. Therefore it is legal to undertake the fullest level of technical assessment possible and still term the analysis an investigation into likely significant effects. Drawing the line between the studies that belong in the 'likely significant effects' section of analysis and those that belong in the 'appropriate assessment' of the analysis is therefore a judgment to be made by each competent authority. The ultimate legal requirement is that, whether the analysis is termed an investigation into likely significant effects or an appropriate assessment, the analysis supports the conclusion. In this report AECOM has chosen to discuss the entire analysis using the term ‘likely significant effect’. However, we can confirm that the technical analyses undertaken would also support an ‘appropriate assessment’ if the competent authority chose to discuss the assessment in terms of ‘adverse effects on integrity’.

3. Likely Significant Effects of PPLP growth (2031)

Blean Complex SAC

Oxides of Nitrogen

3.1 The modelled transect is shown on Map CWB1. Baseline NOx concentrations at the closest part of this site to the modelled road (the A290 Blean Hill) are well below the critical level (30 μgm^{-3}) according to Defra data, at 11 μgm^{-3}. This is probably due partly to the distance of the SAC from the road (60m at the closest point) and partly to the rural location of the SAC. In a rural location ammonia from agriculture can be expected to be the biggest local source of nitrogen, rather than combustion (NOx).

3.2 Comparison of the 'Do Minimum' scenario with the 2017 Base shows the forecast change in NOx concentrations to 2031, without taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout the modelled transect are forecast to experience a net reduction of c. 2 μgm^{-3} notwithstanding expected growth in traffic flows over that same period.

3.3 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time including the PPLP. It can be seen that the PPLP will effectively play no part in retarding the forecast improvement in NOx. This is probably due to the small part this road plays in journeys to work arising from Shepway: only a further 77 AADT are forecast on this road by 2031 as a result of growth in the district.

Nitrogen deposition

3.4 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. Baseline nitrogen deposition rates are high despite the low NOx concentrations, which supports the view that ammonia from agriculture may be the primary source of atmospheric nitrogen in this area. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease and the PPLP plays no part in retarding that improvement.

Acid deposition

3.5 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Conclusion

3.6 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Dover to Kingsdown Cliffs SAC

Oxides of Nitrogen

3.7 A single transect (shown on Map DKC1) was modelled into this SAC, from the A2 (Jubilee Way). This is a major road but also lies 146m from the SAC at its closest. This is the only road within 200m of the SAC that could conceivably constitute a journey to work route for residents of Shepway. Baseline NOx concentrations throughout the modelled transect are slightly above the critical level (30 μgm^{-3}) according to Defra data, at 33 μgm^{-3}.

3.8 The PPLP is forecast to result in a considerable increase in flows on the A2, from a 2031 Do Nothing of c. 17,000 AADT to c. 29,000 AADT. However, because of the distance of the road from the SAC this has a limited effect.

3.9 Comparison of the 'Do Minimum' scenario with the 2017 Base shows the forecast change in NOx concentrations to 2031, without taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout the modelled transect are forecast to experience a net reduction of just over 2 μgm^{-3} notwithstanding expected growth in traffic.

3.10 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time including the PPLP. It can be seen that, notwithstanding the substantial increase in traffic due to the PPLP, the PPLP will play a modest part in retarding the forecast improvement in NOx of c.0.5 μgm^{-3}, which still leaves a net forecast improvement of just below 2 μgm^{-3}. Nonetheless, this retardation of forecast improvement is not enough to dismiss the botanical effects without modelling the resulting nitrogen deposition directly.

Nitrogen deposition

3.11 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. However, since most of the emitted NOx is not deposited at the roadside the change in nitrogen deposition rates due to the PPLP is forecast to be even lower than the change in NOx concentrations. Baseline nitrogen deposition rates on all modelled transects are fairly low at c. 13 kgN/ha/yr (compared to a critical load range for calcareous grassland of 15-20 kgN/ha/yr), which reflects the distance of the site from the road. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease by c. 1.5 kgN/ha/yr, notwithstanding the forecast growth in traffic due to the PPLP 'in combination' with all other expected development.

3.12 The PPLP plays a very limited part in retarding that improvement due to the distance of the SAC from the roadside: the retardation due to the PPLP is forecast to be 0.02-0.03 kgN/ha/yr or a further 2-3 milligrams of nitrogen per square metre over the course of a year[10]. This is ecologically insignificant and no retardation of any expected improvement in vegetation would occur. Moreover, there is reason to believe that using a critical load of 15 kgN/ha/yr for calcareous grassland may be quite conservative. Research commissioned by Natural England has concluded that calcareous habitats are less affected by nitrogen deposition than less well pH buffered systems[11] and that a decline in the frequency of characteristic calcareous grassland species and a lower number of rare and scarce species has only been recorded in the cited research at deposition rates above 25 kgN/ha/yr[12].

3.13 Given that the 'in combination' deposition rate is a) forecast to be is below the critical load of 15 kgN/ha/yr and well below the rate of 25 kgN/ha/yr at which Caporn et al report a decline in diversity in calcareous grassland, b) forecast to fall further to 2031 and c) barely affected by the PPLP, no likely significant effect is expected alone or in combination.

Acid deposition

3.14 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Conclusion

3.15 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

[10] For ease of comparison, a teaspoon of salt typically weighs 5000-6000 milligrams and a pinch of salt (c. 1/16th of a teaspoon) weighs roughly 300 milligrams

[11] Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210. Page 45

[12] Ibid. pages 38 and 41

Dungeness SAC

Oxides of Nitrogen

3.16 A single transect was modelled into this SAC, from Jurys Gap Road (shown on Map DRMB1). This is the only road within 200m of the SAC that could conceivably constitute a journey to work route for residents of Shepway. Baseline NOx concentrations at the closest part of this site to the modelled road are well below the critical level (30 μgm^{-3}) according to Defra data, at 12 μgm^{-3}, despite the fact that Jury's Gap Road immediately abuts the SAC. This is probably due to the rural location of the SAC and its distance from the nearest significant combustion sources. Jury's Gap Road is a minor road with very low measured base flows of 2,300 AADT.

3.17 Comparison of the 'Do Minimum' scenario with the 2017 Base shows the forecast change in NOx concentrations to 2031, without taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout the modelled transect are forecast to experience a net reduction of c. 1-3 μgm^{-3} notwithstanding expected minor growth in traffic flows over that same period (an estimated 54 AADT from all sources).

3.18 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time including the PPLP. It can be seen that the PPLP will effectively play no part in retarding the forecast improvement in NOx. This is probably due to the small part this road plays in journeys to work arising from Shepway: forecast additional traffic on this road by 2031 as a result of the PPLP is so small that it constitutes zero AADT[13].

Nitrogen deposition

3.19 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. Baseline nitrogen deposition rates are fairly low at c. 10 kgN/ha/yr, which reflects the remoteness of the site. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease and the PPLP plays no part in retarding that improvement.

Acid deposition

3.20 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Conclusion

3.21 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Dungeness, Romney Marsh & Rye Bay SPA and Ramsar site

Oxides of Nitrogen

3.22 A total of five transects were modelled in various locations around this SPA and Ramsar site, in order to reflect the small number of roads (other than farm tracks and other very minor routes) that lie within 200m. The modelled roads are:

- A268 Rye Road (DRMB3) – transect modelled into the saltmarsh of Rye Harbour;
- A259 New Winchelsea Road (DRMB5) – coastal floodplain and grazing marsh;
- A259 New Road/Guldeford Road (Maps DRMB6 and DRMB7) – coastal floodplain and grazing marsh;

[13] This does not mean that literally no additional journeys are forecast but rather that any additional journeys are expected to be sufficiently few and infrequent that they would not represent an increase in annual average daily traffic.

- Jury's Gap Road is within 200m of the SPA/Ramsar site as well as Dungeness SAC. The habitat here is coastal vegetated shingle. This road has already been discussed so is not discussed further below.

3.23 A single transect was modelled into the SPA/Ramsar site in each case, except for the A259 New Road/Guldeford Road where two transects were modelled: one (DRMRB6) at Rye, into the saltmarsh habitat of Rye Harbour and the second (DRMRB7) on the coastal floodplain and grazing marsh habitat of the East Guldeford Levels, north-east of Rye.

3.24 Baseline NOx concentrations at the closest part of this site to all modelled roads are well below the critical level (30 μgm^{-3}) according to Defra data, being typically 10 - 12 μgm^{-3}. This is probably due to the distance of the SPA/Ramsar site from some of these links (40m at the closest point from A259 New Winchelsea Road, 168m at the closest point from the A268 Rye Road). Even the highest concentrations, adjacent to the busiest sections of road (the A259 New Road/Guldeford Road) are modelled to be 22 – 23 μgm^{-3} and this rapidly falls to just 15-16 μgm^{-3} at 10-15m from the roadside. This is probably attributable to the rural location of the SPA/Ramsar site and the modest base flows on even the busiest road (c, 10,700 AADT on the A259 New Road/Guldeford Road).

3.25 Comparison of the 'Do Minimum' scenario with the 2017 Base shows the forecast change in NOx concentrations to 2031, without taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout all the modelled transects are forecast to experience a net reduction of c. 2 - 7 μgm^{-3} (depending on distance from the road and business of that road) notwithstanding expected growth in traffic flows over that same period.

3.26 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time including the PPLP. It can be seen that the PPLP will effectively play no part in retarding the forecast improvement in NOx along most of the links (making a contribution of zero[14] to 0.1 μgm^{-3}). For the busiest road (A259 New Road/Guldeford Road) the retardation is greater, but is still only 0.7 μgm^{-3} at the roadside, leaving a net forecast improvement of c. 6 μgm^{-3}. There would thus be a substantial forecast net improvement in NOx concentrations even allowing for PPLP growth and the total NOx concentrations would remain below the critical level.

Nitrogen deposition

3.27 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. Baseline nitrogen deposition rates on all modelled transects are fairly low at c. 11-12 kgN/ha/yr (compared to a critical load range for floodplain grazing marsh of 20-30 kgN/ha/yr), which reflects the remoteness of the site. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease.

3.28 The PPLP plays a very limited part in retarding that improvement: even adjacent to the busiest road (A259 New Road/Guldeford Road) the retardation due to the PPLP will be 0.04 kgN/ha/yr. To put this into context, even for nitrogen sensitive habitats such as lowland heathland, modelled dose-response relationships[15] have identified that at background deposition rates of 10 kgN/ha/yr (the approximate deposition rate forecast at the roadside by 2031 in this model) an increase of 0.8 kgN/ha/yr (i.e. 20 times that forecast due to the PPLP) would be required to reduce species richness by one[16]. Floodplain grazing marsh is relatively tolerant of nitrogen deposition (hence its higher critical load) and therefore it is probable than considerably more than 0.8 kgN/ha/yr would be required to cause a measurable effect.

[14] Note that zero does not literally mean that no NOx will be contributed but rather that whatever contribution the planned growth is forecast to make is too small to show in the model

[15] Summarised in Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210. Table 21.

[16] This is a good indicator of the effect of nitrogen deposition on vegetation as it arises at low background deposition rates, is easily detectable and occurs across different habitats. Note that 'reduction in species richness' only means that fewer species are recorded in a randomly placed 2m x 2m quadrat. Therefore, it does not mean species are 'lost' from the affected area, it simply means that at least one species occurs at a reduced frequency.

3.29 Given that a) the existing deposition rate is modelled to be well below the critical load for this habitat and is likely to fall further to 2031 and that b) the PPLP will not play a material role in retarding any resulting habitat improvement, no likely significant effect is expected alone or in combination. This is particularly the case since only 5% of the total area of the SAC lies within 200m of the A2 and thus would be affected at all by the road.

Acid deposition

3.30 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Conclusion

3.31 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Folkestone to Etchinghill Escarpment SAC

Oxides of Nitrogen

3.32 A total of six transects were modelled into this SAC (Maps FEE1 to FEE6). The modelled links, which all lie adjacent to the SAC, are:

- Crete Road West (two transects were modelled, one of which lies between the A20 and A260);
- The A20 (west of the SAC, prior to entering tunnel under the escarpment);
- The A259 Churchill Avenue; and
- The A260 Canterbury Road (two transects were modelled as the SAC lies on both sides of this road).

3.33 Where multiple roads lie within 200m of the same part of the SAC the combined effect of all the roads has been modelled.

3.34 Unsurprisingly baseline NOx concentrations where the SAC lies adjacent to the very busy A20 (two-way base flows of c. 44,000 AADT) are high, modelled to be c. 71 μgm^{-3} (more than double the critical level), falling below the critical level at c. 30m from the roadside. The next highest baseline concentrations are adjacent to A260 (being c. 30 μgm^{-3}), with the other links having baseline concentrations well below the critical level (18-19 μgm^{-3} even at the roadside).

3.35 By 2031, total flows on the A20 are forecast to increase to c. 50,000 AADT 'in combination', and the bulk of this increase is attributable to the PPLP (c. 5,000 AADT).

3.36 Comparison of the 'Do Minimum' scenario with the 2017 Base shows the forecast change in NOx concentrations to 2031, <u>without</u> taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout the modelled transect are forecast to experience a net reduction on all links.

3.37 For the A20, this improvement is forecast to be in the vicinity of c. 14-29 μgm^{-3} within 10m of the road, notwithstanding expected growth in traffic flows over that same period, although they will remain above the critical level throughout that zone. For the other links the existing flows are considerably lower and thus the expected reduction in NOx concentrations due to improved vehicle emissions is also lower, being c. 3-8 μgm^{-3} depending on the link and the point on the transect.

3.38 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time <u>including</u> the PPLP. For the A20, it can be seen that the PPLP will retard the forecast improvement in NOx by a worst-case 3 μgm^{-3} (10% of the critical level) at the closest point to the A20 and even at 30-40m from the roadside will retard improvement by c. 1 μgm^{-3}. This still leaves a substantial net forecast improvement of c. 26 μgm^{-3} but is certainly a large retardation. The primarily role of NOx for

vegetation is as a source of nitrogen. The retardation of forecast improvement attributable to the PPLP is clearly high enough to mean the resulting nitrogen deposition must be modelled directly to determine what botanical effect would result[17].

3.39 For all other links a similar pattern is seen i.e. a net improvement in NOx concentrations that is forecast to be retarded by traffic associated with the PPLP. However, in the cases the scale of retardation is smaller. For the second busiest road (the A260) this retardation is forecast to be c. 1 μgm^{-3} at the roadside, falling steeply to 0.3 μgm^{-3} by 10m from the roadside. For the smaller roads the retardation of improvement due to the PPLP is considerably smaller, being 0.2-0.3 μgm^{-3} even at the roadside.

Nitrogen deposition

3.40 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. However, since most of the emitted NOx is not deposited at the roadside the change in nitrogen deposition rates due to the PPLP is forecast to be lower than the change in NOx concentrations.

3.41 Baseline nitrogen deposition rates on all modelled transects are moderate at c. 14 - 17 kgN/ha/yr (compared to a critical load range for calcareous grassland of 15-20 kgN/ha/yr). The highest rates are unsurprisingly adjacent to the busiest road (A20). Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease by c. 1.7 – 2.7 kgN/ha/yr, notwithstanding the forecast growth in traffic due to the PPLP 'in combination' with all other expected development. The greatest forecast reduction is adjacent to the A20. If the forecast improvement is realised in practice it will bring the deposition rates below the critical load at all links, even adjacent to the A20.

3.42 The part played by the PPLP in retarding that improvement reflects the pattern for NOx concentrations in that the retardation would be greatest along the A20. However, because not all NOx is deposited as nitrogen within 200m of the roadside the actual magnitudes of retardation are lower. On most links the retardation is a nominal worst-case 0.01 kgN/ha/yr (nominal because if it were any smaller it would not appear in the model results at all). For the A260 the worst-case retardation is a larger, but still very small, 0.04 kgN/ha/yr (in other words it would make the difference between a deposition rate of 13.05 kgN/ha/yr and 13.09 kgN/ha/yr which in ecological terms is essentially the same rate since no habitats studies to date reveal themselves to be responsive to such small changes in deposition rate). For the most affected road, the A20, the retardation is greater still, but nonetheless small, at 0.15 kgN/ha/yr (1% of the critical load). Moreover, there is reason to believe that using a critical load of 15 kgN/ha/yr for calcareous grassland may be quite conservative as already discussed.

3.43 Given that the 'in combination' deposition rate is a) forecast to be below the critical load of 15 kgN/ha/yr and well below the rate of 25 kgN/ha/yr at which Caporn et al report a decline in diversity in calcareous grassland, b) forecast to fall further to 2031 and c) only retarded by the PPLP to a small extent along even the most affected road, no likely significant effect is expected alone or in combination despite the elevated NOx concentrations.

Acid deposition

3.44 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Recommendation

3.45 Although no mitigation is identified as being required, the conclusions of this assessment do depend in part on forecast improvements in background NOx concentrations and deposition rates due to (inter)national initiatives and if those improvements were not realised in practice the PPLP would make a large contribution to raising NOx concentrations even if that is not forecast to translate into an ecologically significant increase in nitrogen deposition.

[17] The critical level for NOx is entirely generic. Therefore, while it can be used as a broad guide to any likely issues, nitrogen deposition rates need to be calculated to get a true picture of the resulting ecological effect, because different habitats have different susceptibility to additional nitrogen in practice, and only a proportion of NOx is deposited as nitrogen within 200m of the roadside.

3.46 In light of this, it is recommended that for the A20 in particular the PPLP includes a commitment to monitoring roadside NOx at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures if an improving trend is not recorded in practice. Reporting on this metric could be tied to the planned cycle of 5-year reviews of the PPLP/Core Strategy. This SAC has been singled out because along the A20 it has NOx concentrations that are currently high and are expected to remain above the critical level (albeit considerably improved compared to the 2017 baseline) even by 2031.

Lydden and Temple Ewell Downs SAC

Oxides of Nitrogen

3.47 Two representative transects were modelled into this SAC, one south-west into the SAC from the A2 (Map LTED1) and the other north-east into the SAC from Canterbury Road (Map LTED2). Both links lie 90-95m from the SAC and this means that the area most affected by vehicle emissions lies well outside the SAC boundary.

3.48 Baseline NOx concentrations at the closest part of this site to the modelled roads are well below the critical level (30 μgm^{-3}) according to Defra data, at c.13 μgm^{-3}. This is probably due partly to the distance of the SAC from the road and partly to the rural location of the SAC. In a rural location ammonia from agriculture can be expected to be the biggest local source of nitrogen, rather than combustion (NOx).

3.49 Comparison of the 'Do Minimum' scenario with the 2017 Base for both links shows the forecast change in NOx concentrations to 2031, without taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout the modelled transects are forecast to experience a net reduction of c. 2 μgm^{-3} notwithstanding expected growth in traffic flows over that same period.

3.50 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time including the PPLP. It can be seen that the PPLP will play no part in retarding the forecast improvement in NOx on Canterbury Road and a very small role (0.1 μgm^{-3} throughout the transect) in retarding the forecast improvement along this section of the A2.

Nitrogen deposition

3.51 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. Baseline nitrogen deposition rates are moderately high at c. 17 kgN/ha/yr, despite the low NOx concentrations. This supports the view that ammonia from agriculture may be the primary source of atmospheric nitrogen in this area. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease by c. 2kgN/ha/yr. The PPLP plays no part in retarding that improvement along Canterbury Road and only a nominal role (0.01 kgN/ha/yr or a further 2-3 milligrams of nitrogen per square metre over the course of a year[18]) in retarding improvement along this stretch of the A2 (nominal because if it were any smaller it would not appear in the model results at all). This is ecologically insignificant and no retardation of any expected improvement in vegetation would occur. Moreover, there is reason to believe that using a critical load of 15 kgN/ha/yr for calcareous grassland may be quite conservative as already discussed.

3.52 Given that the 'in combination' deposition rate is a) forecast to be below the critical load of 15 kgN/ha/yr and well below the rate of 25 kgN/ha/yr at which Caporn et al report a decline in diversity in calcareous grassland, b) forecast to fall further to 2031 and c) barely retarded by the PPLP, no likely significant effect is expected alone or in combination despite the elevated NOx concentrations.

[18] For ease of comparison, a teaspoon of salt typically weighs 5000-6000 milligrams and a pinch of salt (c. 1/16th of a teaspoon) weighs roughly 300 milligrams

Acid deposition

3.53 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Conclusion

3.54 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans

Overall conclusion

3.55 Having modelled the PPLP growth from 2017 to 2031 the conclusion is that there will be no likely significant effect on any internationally important wildlife site either alone or in combination with other projects and plans.

3.56 Although no mitigation is identified as being required, the conclusions of this assessment do depend in part on forecast improvements in background NOx concentrations and deposition rates due to (inter)national initiatives and if those improvements were not realised in practice the PPLP would make a large contribution to raising NOx concentrations even if that is not forecast to translate into an ecologically significant increase in nitrogen deposition.

3.57 In light of this, it is recommended that for the A20 within 200m of Folkestone to Etchinghill Escarpment SAC the PPLP includes a commitment to monitoring roadside NOx at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures to be triggered if an improving trend is not recorded in practice. Reporting on this metric could be tied to any planned regular reviews of the PPLP/Core Strategy. This SAC has been singled out because along the A20 it has NOx concentrations that are currently high and are expected to remain above the critical level (albeit considerably improved compared to the 2017 baseline) even by 2031.

4. Likely Significant Effects of 2037 Core Strategy Review (6,500 dwellings)

Blean Complex SAC

4.1 Modelling of this 2037 Core Strategy Review scenario underlines the fact that the modelled road plays a small part in journeys to work arising from Shepway; even extending the assessment year to 2037 and modelling 6,500 dwellings the total change in flows due to Shepway between 2017 and 2037 is only 234 AADT. Since the SAC is 60m from the road at its closest point the modelling continues to show that growth in Shepway will have a negligible effect on NOx concentrations and nitrogen/acid deposition rates at this SAC.

4.2 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Dover to Kingsdown Cliffs SAC

Oxides of Nitrogen

4.3 The contribution of growth in Shepway to 2037 to traffic flows on the A2 (Jubilee Way) is very large, with a forecast increase of nearly 28,000 AADT compared to the Do Minimum scenario for the same year. However, because the SAC lies 146m from the A2 at its closest the area most affected by this road is outside the SAC.

4.4 Comparison of the 'Do Minimum' scenario with the 2017 Base shows the forecast change in NOx concentrations to 2037, without taking account of growth in Shepway. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2037, NOx concentrations throughout the modelled transect are forecast to experience a net reduction of just over 2.4 μgm^{-3} notwithstanding expected growth in traffic flows over that same period.

4.5 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2037, this time including growth in Shepway. It can be seen that growth in Shepway is forecast to retard the forecast improvement in NOx by up to 1.3 μgm^{-3} (approximately 50% of that which is otherwise forecast at this distance from the road). This is probably due to the very large change in forecast flows on this section of the A2 due to growth in Shepway despite the considerable distance of the SAC from the roadside. Clearly, this retardation of forecast improvement is not enough to dismiss the botanical effects without modelling the resulting nitrogen deposition directly.

4.6 It should, however, be noted that this is based on a cautious assumption in the modelling, namely that no improvement in background NOx will occur after 2023. If in fact such improvements did continue (as one could expect) then it may well offset the majority of the retardation forecast in this modelling. Moreover, it should be noted that the affected area of the SAC overlaps almost entirely with management unit 15 of the underlying SSSI, which is identified in the latest available Natural England condition assessment as 'unfavourable no change'. The assessment states that '*Unit remains unmanaged and without appropriate remedies in place. Fails on numerous criteria, including scrub cover, sward height, species composition and grass to herb ratio. Some shorter grass persists along informal paths, which has harebell, salad burnet, sainfoin, autumn gentian*'. A long-term severe lack of management is likely to render this part of the site much less vulnerable to changes in NOx and nitrogen deposition than a well-managed site would be, and the introduction of appropriate management would have a much greater effect on restoring the botanical quality of the sward than any measures to address NOx concentrations.

Nitrogen deposition

4.7 As already discussed, baseline nitrogen deposition rates on all modelled transects are fairly low at c. 13 kgN/ha/yr (compared to a critical load range for calcareous grassland of 15-20 kgN/ha/yr), which reflects the distance of the site from the road. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease by c. 1.5 kgN/ha/yr, notwithstanding the forecast growth in traffic due to growth in Shepway 'in combination' with all other expected development.

4.8 Despite the large increase in flows and the associated retardation of improvement in NOx concentrations, growth in Shepway to 2037 plays a very limited part in retarding that improvement due to the distance of the SAC from the roadside and the fact that much of the emitted NOx is not locally deposited as nitrogen: the retardation due to Shepway growth is forecast to be 0.05-0.07 kgN/ha/yr or a further 5-7 milligrams of nitrogen per square metre over the course of a year[19]. This is ecologically insignificant and no retardation of any expected improvement in vegetation would occur. Moreover, as already discussed there is reason to believe that using a critical load of 15 kgN/ha/yr for calcareous grassland may be quite conservative.

4.9 Given that the 'in combination' deposition rate is a) forecast to be is below the critical load of 15 kgN/ha/yr and well below the 25 kgN/ha/yr rate at which Caporn et al report a decline in diversity in calcareous grassland, b) forecast to fall further to 2037 and c) barely affected by the PPLP, no likely significant effect is expected alone or in combination.

Acid deposition

4.10 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is minimal this carries across to the acid deposition calculations.

Conclusion

4.11 When the forecast change in NOx concentrations is converted into a forecast change in nitrogen deposition rates it is possible to conclude that there would be no likely significant effect either alone or in combination with other projects and plans.

Dungeness SAC

4.12 A single transect was modelled into this SAC, from Jurys Gap Road. This is the only road within 200m of the SAC that could conceivably constitute a journey to work route for residents of Shepway. It can be seen that Shepway growth to 2037 will effectively play no part in retarding the forecast improvement in NOx, nitrogen deposition or acid deposition. This is probably due to the small part this road plays in journeys to work arising from Shepway: forecast additional traffic on this road by 2037 as a result of Shepway growth is so small that it constitutes zero AADT[20].

4.13 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans

Dungeness, Romney Marsh & Rye Bay SPA and Ramsar site

4.14 For this SPA and Ramsar site the modelling for the 2037 scenario is almost identical to that for the 2031 scenario. This is probably due to the fact that on all links the expected flows by 2037 due to the CSR are only slightly higher than those forecast to 2031. For example, even on the busiest road (A259 New Road/Guldeford Road) only a further 111 AADT are forecast by 2037 under the CSR scenario than were forecast to 2031 under the PPLP scenario. This reflects the fact that none of the modelled roads are particularly busy, with the A259 having measured 2017 base flows of c. 10.700 AADT. As such they are of limited use as journey to work routes for

[19] For ease of comparison, a teaspoon of salt typically weighs 5000-6000 milligrams and a pinch of salt (c. 1/16th of a teaspoon) weighs roughly 300 milligrams

[20] This does not mean that literally no additional journeys are forecast but rather that any additional journeys are expected to be sufficiently few and infrequent that they would not represent an increase in annual average daily traffic.

Shepway residents who are focussed at the opposite end of the district around Folkestone and Hythe.

4.15 The conclusions of the 2031 analysis therefore carry over to the 2037 analysis. It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans

Folkestone to Etchinghill Escarpment SAC

Oxides of Nitrogen

4.16 Along the busiest link (the A20/M20) the forecast increase in two-way flows due to growth in Shepway increases from c. 5,000 AADT (using the 2031 scenario) to c. 8,000 (using the 2037 scenario) with commensurate increases in retardation of 'in combination' NOx improvement and nitrogen deposition rate.

4.17 Comparison of the 'Do Something' scenario with the 2017 Base shows that, for the A20, Shepway growth will retard the forecast improvement in NOx by a worst-case 7 μgm^{-3} (23% of the critical level) at the closest point to the A20, compared to a retardation of 3 μgm^{-3} (10% of the critical level) at the same point under the 2031 scenario. DMRB Interim Advice Note 174/12[21] classifies both of these as a 'large' change (which it defines in line with Institute of Air Quality Management practice as a change equivalent to more than 10% of the critical level). Shepway growth will retard improvement by c. 1 μgm^{-3} up to 100m from the roadside under the 2037 scenario (compared to up to 30-40m from the roadside under the 2031 scenario).

4.18 This still leaves a substantial net forecast improvement of c. 22 μgm^{-3} at the closest point to the A20 but is certainly a very large retardation in the improvement that would otherwise arise. The primarily role of NOx for vegetation is as a source of nitrogen. The retardation of forecast improvement attributable to Shepway growth from 2017-2037 is clearly high enough to mean the resulting nitrogen deposition must be modelled directly to determine what botanical effect would result[22].

Nitrogen deposition

4.19 The main difference from the 2031 results is that, since the retardation of improvement in NOx concentrations is greater due to the additional traffic arising from Shepway growth, the retardation of improvement in nitrogen deposition rates also increases. At the most affected point (adjacent to the A20/M20) the difference is a retardation of 0.36 kgN/ha/yr for the 2037 scenario compared to a retardation of 0.15 kgN/ha/yr for the 2031 scenario. This is 2.4% of the critical load, which DMRB Interim Advice Note 174/12 classifies as a 'small' change (which it defines as a change equivalent to less than 5% of the critical level), Moreover, as already discussed there is some reason to believe that using a critical load of 15 kgN/ha/yr for calcareous grassland may be quite conservative.

4.20 Furthermore, a considerable net 'in combination' improvement is still forecast (a forecast reduction of 2.68 kgN/ha/yr with growth in Shepway, compared to 2.83 kgN/ha/yr without growth in Shepway) and that forecast is based on the conservative assumption that there will be no further reduction in background NOx concentrations or nitrogen deposition rates after 2023. Given this, the fact that the 'in combination' NOx concentrations are forecast to be more than 22 μgm^{-3} better than the current baseline, and the fact that deposition rate is forecast to be below the critical load of 15 kgN/ha/yr by 2037 even adjacent to the A20/M20 and well below the 25 kgN/ha/yr rate at which Caporn et al report a decline in diversity in calcareous grassland no likely significant effect is expected alone or in combination despite the elevated NOx concentrations.

[21] The Design Manual for Roads and Bridges Interim Advice Note 174/12 Updated advice for evaluating significant local air quality effects for users of DMRB Volume 11, Section 3, Part 1 'Air Quality (HA207/07)

[22] The critical level for NOx is entirely generic. Therefore, while it can be used as a broad guide to any likely issues, nitrogen deposition rates need to be calculated to get a true picture of the resulting ecological effect, because different habitats have different susceptibility to additional nitrogen in practice, and only a proportion of NOx is deposited as nitrogen within 200m of the roadside.

Acid deposition

4.21 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is very small this carries across to the acid deposition calculations.

Recommendation

4.22 Although no mitigation is identified as being required, the conclusions of this assessment do depend in part on forecast improvements in background NOx concentrations and deposition rates due to (inter)national initiatives and if those improvements were not realised in practice the CSR would make a large contribution to raising NOx concentrations even if that is not forecast to translate into an ecologically significant increase in nitrogen deposition.

4.23 In light of this, it is recommended that for the A20 in particular the CSR includes a commitment to monitoring roadside NOx at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures to be triggered if an improving trend is not recorded in practice. Reporting on this metric could be tied to 5-year reviews of the Core Strategy and associated documents. This SAC has been singled out because along the A20 it has NOx concentrations that are currently high and are expected to remain above the critical level (albeit considerably improved compared to the 2017 baseline) even by 2037.

4.24 Moreover, since the forecast change in NOx concentrations due to the CSR is well over 10% of the CL (23%) there is a distinct possibility that Natural England may raise concerns over such a large retardation of otherwise forecast improvement in pollution even if it is not expected to translate directly to negative botanical effects on the SAC. It is therefore recommended that the Council and its transport modelling team investigate available traffic solutions that would be able to reduce the retardation of NOx concentrations to at least 10% of the critical level at the closest point to the A20, if not lower.

Lydden and Temple Ewell Downs SAC

4.25 The modelling results and conclusions for this SAC are very similar to those for the 2031 scenario. The main differences are that the 2037 scenario forecasts a retardation of 0.3 μgm^{-3} in improvement of NOx concentrations at the closest point to the A2 compared to 0.1 μgm^{-3} for the 2031 scenario. This translates into a worst-cast 0.02 kgN/ha/yr retardation of improvement in nitrogen deposition rates compared to 0.01 kgN/ha/yr under the 2031 scenario. However, the same ecological interpretation and conclusion applies and a substantial net improvement in NOx concentrations and nitrogen and acid deposition rates is still forecast.

4.26 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Overall conclusion

4.27 Having modelled the CSR growth from 2017 to 2037 the conclusion is that there will be no likely significant effect on any internationally important wildlife site either alone or in combination with other projects and plans.

4.28 Although no mitigation is identified as being required, the conclusions of this assessment do depend in part on forecast improvements in background NOx concentrations and deposition rates due to (inter)national initiatives and if those improvements were not realised in practice the CSR would make a large contribution to raising NOx concentrations even if that is not forecast to translate into an ecologically significant increase in nitrogen deposition.

4.29 In light of this, it is recommended that for the A20 within 200m of Folkestone to Etchinghill Escarpment SAC the CSR includes a commitment to monitoring roadside NOx at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures to be triggered if an improving trend is not recorded in practice. Reporting on this metric could be tied to 5-year reviews of the Core Strategy and associated documents. This SAC has been singled out because along the

A20 it has NOx concentrations that are currently high and are expected to remain above the critical level (albeit considerably improved compared to the 2017 baseline) even by 2037.

5. Likely Significant Effects of 2037 Core Strategy Review (8,000 dwellings)

Blean Complex SAC

5.1 Modelling results and conclusions regarding the contribution of growth in Shepway District are identical to those under the 2031 scenario and the 6,500 dwelling 2037 scenario. It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Dover to Kingsdown Cliffs SAC

5.2 Modelling results and conclusions regarding the contribution of growth in Shepway District are virtually identical to those under the 6,500 dwelling 2037 scenario. The forecast worst-case retardation of improvement in NOx concentrations increases from 1.3 μgm^{-3} to 1.5 μgm^{-3} while the forecast retardation of improvement in nitrogen deposition rates increases from 0.07 to 0.08 kgN/ha/yr. These changes are not sufficiently large to alter the conclusions. It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Dungeness SAC

5.3 Modelling results and conclusions regarding the contribution of growth in Shepway District are identical to those under the 2031 scenario and the 6,500 dwelling 2037 scenario. It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Dungeness, Romney Marsh & Rye Bay SPA and Ramsar site

5.4 Modelling results and conclusions regarding the contribution of growth in Shepway District are identical to those under the 6,500 dwelling 2037 scenario. It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans.

Folkestone to Etchinghill Escarpment SAC

5.5 Modelling results and conclusions regarding the contribution of growth in Shepway District are similar to those under the 6,500 dwelling 2037 scenario. The forecast worst-case retardation of improvement in NOx concentrations increases from 7.6 μgm^{-3} to 8.6 μgm^{-3}. DMRB Interim Advice Note 174/12 classifies both of these as a 'large' change. The forecast retardation of improvement in nitrogen deposition rates increases from 0.36 (2.4% of the critical load) to 0.41 kgN/ha/yr (2.7% of the critical load). DMRB Interim Advice Note 174/12 classifies both of these as a 'small' change. These differences are thus not sufficiently large to alter the conclusions.

5.6 Given this, the fact that the 'in combination' NOx concentrations are forecast to be more than 21 μgm^{-3} better than the current baseline, and the fact that deposition rate is forecast to be below the critical load of 15 kgN/ha/yr by 2037 even adjacent to the A20/M20 and well below the 25 kgN/ha/yr rate at which Caporn et al report a decline in diversity in calcareous grassland no likely significant effect is expected alone or in combination despite the elevated NOx concentrations.

Recommendation

5.7 Although no mitigation is identified as being required, the conclusions of this assessment do depend in part on forecast improvements in background NOx concentrations and deposition rates due to (inter)national initiatives and if those improvements were not realised in practice

the PPLP would make a large contribution to raising NOx concentrations even if that is not forecast to translate into an ecologically significant increase in nitrogen deposition.

5.8 In light of this, it is recommended that for the A20 in particular the PPLP includes a commitment to monitoring roadside NOx at regular intervals over the plan period in order to track the projected improvements in air quality. This would also enable the introduction of any specific local measures to be triggered if an improving trend is not recorded in practice. Reporting on this metric could be tied to 5-year reviews of the PPLP/Core Strategy and associated documents. This SAC has been singled out because along the A20 it has NOx concentrations that are currently high and are expected to remain above the critical level (albeit considerably improved compared to the 2017 baseline) even by 2031.

5.9 Moreover, since the forecast change in NOx concentrations due to the CSR is well over 10% of the CL (23%) there is a distinct possibility that Natural England may raise concerns over such a large retardation of otherwise forecast improvement in pollution even if it is not expected to translate directly to negative botanical effects on the SAC. It is therefore recommended that the Council and its transport modelling team investigate available traffic solutions that would be able to reduce the retardation of NOx concentrations to at least 10% of the critical level at the closest point to the A20, if not lower.

Lydden and Temple Ewell Downs SAC

Oxides of Nitrogen

5.10 Two transects were modelled into this SAC, one south-west into the SAC from the A2 and the other north-east into the SAC from Canterbury Road. Both links lie 90-95m from the SAC and this means that the area most affected by vehicle emissions lies well outside the SAC boundary.

5.11 Baseline NOx concentrations at the closest part of this site to the modelled roads are well below the critical level (30 μgm^{-3}) according to Defra data, at c.13 μgm^{-3}. This is probably due partly to the distance of the SAC from the road and partly to the rural location of the SAC. In a rural location ammonia from agriculture can be expected to be the biggest local source of nitrogen, rather than combustion (NOx).

5.12 Comparison of the 'Do Minimum' scenario with the 2017 Base for both links shows the forecast change in NOx concentrations to 2031, without taking account of the PPLP. Due to the forecast improvements in vehicle emission factors and the resulting reduction in background NOx concentrations and nitrogen deposition rates to 2031, NOx concentrations throughout the modelled transects are forecast to experience a net reduction of c. 2 μgm^{-3} notwithstanding expected growth in traffic flows over that same period.

5.13 Comparison of the 'Do Something' scenario with the 2017 Base shows the forecast 'in combination' change in NOx concentrations to 2031, this time including the PPLP. It can be seen that the PPLP will play no part in retarding the forecast improvement in NOx on Canterbury Road and a very small role (0.1 μgm^{-3} throughout the transect) in retarding the forecast improvement along this section of the A2.

Nitrogen deposition

5.14 Unsurprisingly, since NOx is the main source of nitrogen from vehicle exhaust emissions, the results from the NOx analysis carry over to the nitrogen deposition calculations. Baseline nitrogen deposition rates are moderately high at c. 17 kgN/ha/yr, despite the low NOx concentrations. This supports the view that ammonia from agriculture may be the primary source of atmospheric nitrogen in this area. Due to the forecast improvement in NOx concentrations over the plan period nitrogen deposition rates are also forecast to decrease by c. 2kgN/ha/yr. The PPLP plays no part in retarding that improvement along Canterbury Road and only a nominal role (0.01 kgN/ha/yr or a further 2-3 milligrams of nitrogen per square metre over the course of a year[23]) in retarding improvement along this stretch of the A2 (nominal because if it were any smaller it would not appear in the model results at all). This is

[23] For ease of comparison, a teaspoon of salt typically weighs 5000-6000 milligrams and a pinch of salt (c. 1/16th of a teaspoon) weighs roughly 300 milligrams

ecologically insignificant and no retardation of any expected improvement in vegetation would occur.

5.15 Moreover, there is reason to believe that using a critical load of 15 kgN/ha/yr for calcareous grassland may be quite conservative. Research commissioned by Natural England has concluded that calcareous habitats are less affected by nitrogen deposition than less well pH buffered systems[24] and that a decline in the frequency of characteristic calcareous grassland species and a lower number of rare and scarce species is only recorded at deposition rates above 25 kgN/ha/yr[25].

5.16 Given that the 'in combination' deposition rate is a) forecast to be below the critical load of 15 kgN/ha/yr and well below the rate of 25 kgN/ha/yr at which Caporn et al report a decline in diversity in calcareous grassland, b) forecast to fall further to 2031 and c) barely retarded by the PPLP, no likely significant effect is expected alone or in combination despite the elevated NOx concentrations.

Acid deposition

5.17 There are two sources of acid deposition: sulphur and nitrogen. Since sulphur is no longer emitted by vehicle exhausts the only source of acid derived from traffic is nitrogen. Since the effect of the PPLP in retarding the forecast improvement in nitrogen deposition rates is negligible this carries across to the acid deposition calculations.

Conclusion

5.18 It is therefore concluded that there would be no likely significant effect either alone or in combination with other projects and plans

Overall conclusion

5.19 The overall conclusion is identical to that for the CSR (6,500 dwellings) scenario for 2037.

[24] Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210. Page 45

[25] Ibid. pages 38 and 41

Appendix A Air Quality Modelling Results 2031 (PPLP)

In the table below, DM is Do Minimum and DS is Do Something. DS-Base is the change due to all forecast traffic growth between 2017 and 2031, while DS-DM thus shows the contribution of the PPLP. Negative numbers in the DS-DM and DS-Base columns indicate a forecast reduction (improvement). Zeros do not necessarily mean a literal absence of emissions/deposition but that the contribution is too small to show in the model reporting (deposition rates are rarely reported to more than two decimal places to avoid a spurious impression of precision). The colours in the table are decorative and have no significance.

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	Base	(2031)	(2031)	(DS-DM)	(DS-BL)
	Blean Complex SAC																
1	CWB_1_60m	60	11.2	8.9	8.9	0.0	-2.3	22.69	20.08	20.08	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
2	CWB_1_65m	65	11.1	8.9	8.9	0.0	-2.3	22.68	20.08	20.08	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
3	CWB_1_70m	70	11.1	8.8	8.8	0.0	-2.2	22.68	20.07	20.08	0.00	-2.60	1.73	1.72	1.72	0.00	0.00
4	CWB_1_75m	75	11.0	8.8	8.8	0.0	-2.2	22.68	20.07	20.07	0.00	-2.60	1.73	1.72	1.72	0.00	0.00
5	CWB_1_80m	80	10.9	8.7	8.7	0.0	-2.2	22.67	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
6	CWB_1_90m	90	10.8	8.7	8.7	0.0	-2.2	22.67	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
7	CWB_1_100m	100	10.8	8.6	8.6	0.0	-2.1	22.66	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
8	CWB_1_110m	110	10.7	8.6	8.6	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
9	CWB_1_120m	120	10.7	8.6	8.6	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
10	CWB_1_130m	130	10.6	8.5	8.5	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
11	CWB_1_140m	140	10.6	8.5	8.5	0.0	-2.1	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
12	CWB_1_150m	150	10.5	8.5	8.5	0.0	-2.0	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
13	CWB_1_160m	160	10.5	8.5	8.5	0.0	-2.0	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
14	CWB_1_185m	185	10.5	8.5	8.5	0.0	-2.0	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
	Dover to Kingsdown Cliffs SAC																
15	DKC_1_146m	146	33.8	31.5	32.0	0.5	-1.8	12.77	11.28	11.31	0.03	-1.47	0.97	0.97	0.97	0.00	0.00
16	DKC_1_151m	151	33.8	31.4	32.0	0.5	-1.8	12.77	11.28	11.30	0.03	-1.47	0.97	0.96	0.97	0.00	0.00

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)
17	DKC_1_156m	156	33.7	31.4	31.9	0.5	-1.8	12.77	11.28	11.30	0.03	-1.46	0.97	0.96	0.97	0.00	0.00
18	DKC_1_161m	161	33.7	31.4	31.9	0.5	-1.8	12.76	11.27	11.30	0.03	-1.46	0.97	0.96	0.97	0.00	0.00
19	DKC_1_166m	166	33.6	31.3	31.8	0.5	-1.8	12.76	11.27	11.30	0.02	-1.46	0.97	0.96	0.97	0.00	0.00
20	DKC_1_176m	176	33.5	31.3	31.7	0.4	-1.8	12.76	11.27	11.29	0.02	-1.46	0.97	0.96	0.97	0.00	0.00
21	DKC_1_186m	186	33.4	31.3	31.7	0.4	-1.8	12.75	11.27	11.29	0.02	-1.46	0.97	0.96	0.97	0.00	0.00
22	DKC_1_196m	196	33.3	31.2	31.6	0.4	-1.7	12.75	11.27	11.29	0.02	-1.46	0.97	0.96	0.97	0.00	0.00
	DungenessSAC																
23	DRMRB_1_0m	0	12.2	9.6	9.6	0.0	-2.6	10.50	9.24	9.24	0.00	-1.25	0.80	0.79	0.79	0.00	-0.01
24	DRMRB_1_5m	5	10.9	8.8	8.8	0.0	-2.0	10.42	9.20	9.20	0.00	-1.22	0.79	0.79	0.79	0.00	0.00
25	DRMRB_1_10m	10	10.4	8.5	8.5	0.0	-1.8	10.40	9.19	9.19	0.00	-1.21	0.79	0.78	0.78	0.00	0.00
26	DRMRB_1_15m	15	10.1	8.4	8.4	0.0	-1.7	10.38	9.18	9.18	0.00	-1.20	0.79	0.78	0.78	0.00	0.00
27	DRMRB_1_20m	20	9.9	8.3	8.3	0.0	-1.6	10.37	9.17	9.17	0.00	-1.20	0.78	0.78	0.78	0.00	0.00
28	DRMRB_1_30m	30	9.7	8.2	8.2	0.0	-1.5	10.36	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
29	DRMRB_1_40m	40	9.5	8.1	8.1	0.0	-1.5	10.35	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
30	DRMRB_1_50m	50	9.5	8.0	8.0	0.0	-1.4	10.35	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
31	DRMRB_1_60m	60	9.4	8.0	8.0	0.0	-1.4	10.34	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
32	DRMRB_1_70m	70	9.4	8.0	8.0	0.0	-1.4	10.34	9.15	9.15	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
33	DRMRB_1_80m	80	9.3	8.0	8.0	0.0	-1.4	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
34	DRMRB_1_90m	90	9.3	7.9	7.9	0.0	-1.4	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
35	DRMRB_1_100m	100	9.3	7.9	7.9	0.0	-1.3	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
36	DRMRB_1_125m	125	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
37	DRMRB_1_150m	150	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
38	DRMRB_1_175m	175	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
39	DRMRB_1_200m	200	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
	Dungeness, Romney Marsh & Rye																

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link Bay SPA/Ramsar site	From Road (m)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	Base	(2031)	(2031)	(DS-DM)	(DS-BL)
40	DRMRB_2_0m	0	11.8	9.3	9.3	0.0	-2.5	11.57	10.20	10.20	0.00	-1.37	0.89	0.88	0.88	0.00	-0.01
41	DRMRB_2_5m	5	10.8	8.8	8.8	0.0	-2.1	11.52	10.17	10.17	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
42	DRMRB_2_10m	10	10.4	8.5	8.5	0.0	-1.9	11.49	10.16	10.16	0.00	-1.34	0.88	0.87	0.87	0.00	0.00
43	DRMRB_2_15m	15	10.1	8.3	8.3	0.0	-1.7	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
44	DRMRB_2_20m	20	9.9	8.2	8.2	0.0	-1.7	11.47	10.14	10.14	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
45	DRMRB_2_30m	30	9.7	8.1	8.1	0.0	-1.6	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
46	DRMRB_2_40m	40	9.5	8.0	8.0	0.0	-1.5	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
47	DRMRB_2_50m	50	9.4	8.0	8.0	0.0	-1.5	11.44	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
48	DRMRB_2_60m	60	9.4	7.9	7.9	0.0	-1.4	11.44	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
49	DRMRB_2_70m	70	9.3	7.9	7.9	0.0	-1.4	11.44	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
50	DRMRB_2_80m	80	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
51	DRMRB_2_90m	90	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
52	DRMRB_2_100m	100	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
53	DRMRB_2_125m	125	9.2	7.8	7.8	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
54	DRMRB_2_150m	150	9.2	7.8	7.8	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
55	DRMRB_2_175m	175	9.2	7.8	7.8	0.0	-1.3	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
56	DRMRB_2_200m	200	9.1	7.8	7.8	0.0	-1.3	11.42	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
57	DRMRB_3_168m	168	11.0	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
58	DRMRB_3_173m	173	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
59	DRMRB_3_178m	178	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
60	DRMRB_3_183m	183	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
61	DRMRB_3_188m	188	10.9	9.0	9.0	0.0	-1.9	11.45	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
62	DRMRB_3_198m	198	10.9	8.9	9.0	0.0	-1.9	11.45	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
63	DRMRB_5_38m	38	11.5	9.1	9.2	0.1	-2.3	11.54	10.19	10.20	0.01	-1.35	0.88	0.88	0.88	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	Base	(2031)	(2031)	(DS-DM)	(DS-BL)
64	DRMRB_5_43m	43	11.3	9.0	9.0	0.1	-2.2	11.53	10.18	10.19	0.01	-1.34	0.88	0.88	0.88	0.00	0.00
65	DRMRB_5_48m	48	11.1	8.8	8.9	0.1	-2.2	11.52	10.18	10.18	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
66	DRMRB_5_53m	53	11.0	8.8	8.8	0.1	-2.1	11.51	10.17	10.18	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
67	DRMRB_5_58m	58	10.8	8.7	8.7	0.1	-2.1	11.51	10.17	10.17	0.00	-1.33	0.88	0.88	0.88	0.00	0.00
68	DRMRB_5_68m	68	10.6	8.6	8.6	0.1	-2.0	11.50	10.16	10.16	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
69	DRMRB_5_78m	78	10.5	8.5	8.5	0.1	-2.0	11.49	10.16	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
70	DRMRB_5_88m	88	10.4	8.4	8.4	0.0	-1.9	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
71	DRMRB_5_98m	98	10.3	8.3	8.4	0.0	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
72	DRMRB_5_108m	108	10.2	8.3	8.3	0.0	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
73	DRMRB_5_118m	118	10.1	8.2	8.3	0.0	-1.8	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
74	DRMRB_5_128m	128	10.0	8.2	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
75	DRMRB_5_138m	138	10.0	8.2	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
76	DRMRB_5_163m	163	9.9	8.1	8.1	0.0	-1.8	11.45	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
77	DRMRB_5_188m	188	9.8	8.1	8.1	0.0	-1.7	11.45	10.13	10.14	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
78	DRMRB_6_0m	0	23.5	16.5	17.2	0.7	-6.3	12.14	10.54	10.58	0.04	-1.56	0.94	0.91	0.92	0.00	-0.03
79	DRMRB_6_5m	5	18.4	13.4	13.8	0.4	-4.5	11.86	10.38	10.40	0.02	-1.46	0.92	0.90	0.90	0.00	-0.02
80	DRMRB_6_10m	10	16.2	12.1	12.4	0.3	-3.8	11.75	10.31	10.33	0.02	-1.42	0.90	0.89	0.89	0.00	-0.01
81	DRMRB_6_15m	15	15.0	11.4	11.6	0.2	-3.4	11.68	10.27	10.28	0.01	-1.40	0.90	0.89	0.89	0.00	-0.01
82	DRMRB_6_20m	20	14.2	10.9	11.1	0.2	-3.1	11.64	10.24	10.26	0.01	-1.38	0.89	0.88	0.88	0.00	-0.01
83	DRMRB_6_30m	30	13.3	10.4	10.5	0.2	-2.7	11.59	10.21	10.22	0.01	-1.36	0.89	0.88	0.88	0.00	-0.01
84	DRMRB_6_40m	40	12.7	10.0	10.2	0.1	-2.5	11.55	10.19	10.20	0.01	-1.35	0.88	0.88	0.88	0.00	-0.01
85	DRMRB_6_50m	50	12.3	9.8	9.9	0.1	-2.4	11.53	10.18	10.19	0.01	-1.34	0.88	0.88	0.88	0.00	0.00
86	DRMRB_6_60m	60	12.1	9.7	9.8	0.1	-2.3	11.52	10.17	10.18	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
87	DRMRB_6_70m	70	11.9	9.5	9.6	0.1	-2.3	11.51	10.17	10.17	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
88	DRMRB_6_80m	80	11.7	9.5	9.5	0.1	-2.2	11.50	10.16	10.17	0.00	-1.33	0.88	0.88	0.88	0.00	0.00
89	DRMRB_6_90m	90	11.6	9.4	9.5	0.1	-2.2	11.49	10.16	10.16	0.00	-1.33	0.88	0.87	0.88	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	Base	(2031)	(2031)	(DS-DM)	(DS-BL)
90	DRMRB_6_100m	100	11.5	9.3	9.4	0.1	-2.1	11.49	10.16	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
91	DRMRB_6_125m	125	11.3	9.2	9.3	0.1	-2.1	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
92	DRMRB_6_150m	150	11.2	9.1	9.2	0.0	-2.0	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
93	DRMRB_6_175m	175	11.1	9.1	9.1	0.0	-2.0	11.47	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
94	DRMRB_6_200m	200	11.0	9.0	9.1	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
95	DRMRB_7_0m	0	22.4	15.6	16.3	0.7	-6.2	12.13	10.54	10.58	0.04	-1.55	0.94	0.91	0.92	0.00	-0.03
96	DRMRB_7_5m	5	17.0	12.3	12.8	0.4	-4.3	11.84	10.37	10.39	0.02	-1.45	0.91	0.90	0.90	0.00	-0.02
97	DRMRB_7_10m	10	14.9	11.0	11.3	0.3	-3.5	11.73	10.30	10.31	0.02	-1.41	0.90	0.89	0.89	0.00	-0.01
98	DRMRB_7_15m	15	13.7	10.3	10.6	0.2	-3.1	11.66	10.26	10.27	0.01	-1.39	0.90	0.89	0.89	0.00	-0.01
99	DRMRB_7_20m	20	12.9	9.9	10.1	0.2	-2.8	11.62	10.23	10.25	0.01	-1.37	0.89	0.88	0.88	0.00	-0.01
100	DRMRB_7_30m	30	12.0	9.3	9.4	0.1	-2.5	11.57	10.20	10.21	0.01	-1.36	0.89	0.88	0.88	0.00	-0.01
101	DRMRB_7_40m	40	11.4	9.0	9.1	0.1	-2.3	11.54	10.18	10.19	0.01	-1.35	0.88	0.88	0.88	0.00	0.00
102	DRMRB_7_50m	50	11.0	8.7	8.8	0.1	-2.2	11.52	10.17	10.18	0.01	-1.34	0.88	0.88	0.88	0.00	0.00
103	DRMRB_7_60m	60	10.7	8.6	8.6	0.1	-2.1	11.50	10.16	10.17	0.01	-1.33	0.88	0.88	0.88	0.00	0.00
104	DRMRB_7_70m	70	10.5	8.4	8.5	0.1	-2.0	11.49	10.16	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
105	DRMRB_7_80m	80	10.4	8.4	8.4	0.1	-2.0	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
106	DRMRB_7_90m	90	10.3	8.3	8.3	0.1	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
107	DRMRB_7_100m	100	10.2	8.2	8.3	0.0	-1.9	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
108	DRMRB_7_125m	125	10.0	8.1	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
109	DRMRB_7_150m	150	9.9	8.1	8.1	0.0	-1.8	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
110	DRMRB_7_175m	175	9.8	8.0	8.0	0.0	-1.8	11.45	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
111	DRMRB_7_200m	200	9.7	8.0	8.0	0.0	-1.7	11.44	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
	Folkestone to Etchinghill Escarpment SAC																
112	FEE_1_0m	0	70.6	41.6	44.7	3.2	-25.9	16.93	14.10	14.25	0.15	-2.68	1.36	1.24	1.25	0.02	-0.11

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)
113	FEE_1_5m	5	50.4	30.9	33.0	2.0	-17.4	16.02	13.58	13.68	0.10	-2.34	1.27	1.18	1.19	0.01	-0.07
114	FEE_1_10m	10	42.0	26.5	28.1	1.6	-13.9	15.62	13.35	13.43	0.08	-2.19	1.23	1.16	1.17	0.01	-0.06
115	FEE_1_15m	15	37.1	23.9	25.2	1.3	-11.9	15.38	13.22	13.29	0.07	-2.09	1.20	1.15	1.15	0.01	-0.05
116	FEE_1_20m	20	33.8	22.2	23.3	1.1	-10.5	15.22	13.13	13.19	0.06	-2.03	1.19	1.14	1.14	0.01	-0.04
117	FEE_1_30m	30	29.5	19.9	20.8	0.9	-8.7	15.00	13.01	13.06	0.05	-1.94	1.16	1.13	1.13	0.00	-0.03
118	FEE_1_40m	40	26.8	18.5	19.2	0.7	-7.7	14.86	12.93	12.97	0.04	-1.89	1.15	1.12	1.12	0.00	-0.03
119	FEE_1_50m	50	25.0	17.5	18.1	0.6	-6.9	14.76	12.88	12.91	0.03	-1.85	1.14	1.11	1.12	0.00	-0.02
120	FEE_1_60m	60	23.6	16.7	17.3	0.5	-6.3	14.69	12.84	12.87	0.03	-1.82	1.13	1.11	1.11	0.00	-0.02
121	FEE_1_70m	70	22.5	16.1	16.6	0.5	-5.9	14.64	12.81	12.84	0.03	-1.80	1.13	1.11	1.11	0.00	-0.02
122	FEE_1_80m	80	21.7	15.7	16.1	0.4	-5.6	14.59	12.78	12.81	0.02	-1.78	1.12	1.10	1.11	0.00	-0.02
123	FEE_1_90m	90	21.0	15.3	15.7	0.4	-5.3	14.55	12.76	12.79	0.02	-1.77	1.12	1.10	1.10	0.00	-0.02
124	FEE_1_100m	100	20.4	15.0	15.3	0.4	-5.0	14.52	12.75	12.77	0.02	-1.75	1.11	1.10	1.10	0.00	-0.01
125	FEE_1_125m	125	19.2	14.3	14.6	0.3	-4.6	14.46	12.71	12.73	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
126	FEE_1_150m	150	18.4	13.9	14.1	0.2	-4.2	14.41	12.69	12.70	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
127	FEE_1_175m	175	17.8	13.6	13.8	0.2	-4.0	14.38	12.67	12.68	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
128	FEE_1_200m	200	17.3	13.3	13.5	0.2	-3.8	14.35	12.66	12.67	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
129	FEE_2_0m	0	17.7	13.4	13.6	0.2	-4.1	14.41	12.69	12.70	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
130	FEE_2_5m	5	17.3	13.2	13.3	0.2	-4.0	14.39	12.68	12.69	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
131	FEE_2_10m	10	17.2	13.1	13.3	0.2	-3.9	14.39	12.67	12.68	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
132	FEE_2_15m	15	17.2	13.1	13.3	0.2	-3.9	14.39	12.67	12.68	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
133	FEE_2_20m	20	17.3	13.1	13.3	0.2	-4.0	14.39	12.67	12.69	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
134	FEE_2_30m	30	17.4	13.2	13.4	0.2	-4.0	14.40	12.68	12.69	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
135	FEE_2_40m	40	17.6	13.3	13.5	0.2	-4.1	14.41	12.68	12.70	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
136	FEE_2_50m	50	17.8	13.4	13.6	0.2	-4.2	14.42	12.69	12.70	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
137	FEE_2_60m	60	18.1	13.5	13.8	0.3	-4.3	14.43	12.70	12.71	0.01	-1.72	1.11	1.09	1.10	0.00	-0.01
138	FEE_2_70m	70	18.4	13.7	14.0	0.3	-4.4	14.45	12.71	12.72	0.01	-1.73	1.11	1.09	1.10	0.00	-0.01

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	Base	(2031)	(2031)	(DS-DM)	(DS-BL)
139	FEE_2_80m	80	18.7	13.9	14.2	0.3	-4.6	14.47	12.72	12.73	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
140	FEE_2_90m	90	19.1	14.1	14.4	0.3	-4.7	14.49	12.73	12.75	0.02	-1.74	1.11	1.10	1.10	0.00	-0.01
141	FEE_3_0m	0	28.2	20.5	21.1	0.7	-7.1	14.95	13.05	13.09	0.04	-1.87	1.16	1.13	1.13	0.00	-0.03
142	FEE_3_5m	5	23.0	17.1	17.6	0.4	-5.4	14.68	12.87	12.90	0.02	-1.78	1.13	1.11	1.11	0.00	-0.02
143	FEE_3_10m	10	20.8	15.8	16.1	0.3	-4.7	14.56	12.80	12.82	0.02	-1.75	1.12	1.10	1.11	0.00	-0.01
144	FEE_3_15m	15	19.6	15.0	15.2	0.3	-4.3	14.50	12.76	12.77	0.01	-1.72	1.11	1.10	1.10	0.00	-0.01
145	FEE_3_20m	20	18.7	14.5	14.7	0.2	-4.1	14.45	12.73	12.74	0.01	-1.71	1.11	1.10	1.10	0.00	-0.01
146	FEE_3_30m	30	17.8	13.8	14.0	0.2	-3.7	14.40	12.70	12.71	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
147	FEE_3_40m	40	17.2	13.5	13.6	0.2	-3.6	14.37	12.68	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
148	FEE_3_50m	50	16.8	13.2	13.4	0.2	-3.4	14.35	12.66	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
149	FEE_3_60m	60	16.6	13.1	13.2	0.1	-3.4	14.33	12.66	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
150	FEE_3_70m	70	16.4	13.0	13.1	0.1	-3.3	14.32	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	-0.01
151	FEE_3_80m	80	16.3	12.9	13.0	0.1	-3.3	14.32	12.64	12.65	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
152	FEE_3_90m	90	16.2	12.8	12.9	0.1	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
153	FEE_3_100m	100	16.1	12.8	12.9	0.1	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
154	FEE_3_125m	125	16.0	12.7	12.8	0.1	-3.2	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
155	FEE_3_150m	150	15.9	12.6	12.8	0.1	-3.2	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
156	FEE_3_175m	175	15.9	12.6	12.8	0.1	-3.2	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
157	FEE_3_200m	200	15.9	12.6	12.8	0.1	-3.2	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
158	FEE_4_0m	0	30.9	22.1	22.9	0.8	-8.0	15.09	13.14	13.18	0.04	-1.91	1.17	1.14	1.14	0.00	-0.03
159	FEE_4_5m	5	25.0	18.4	18.9	0.5	-6.1	14.79	12.94	12.97	0.03	-1.82	1.14	1.12	1.12	0.00	-0.02
160	FEE_4_10m	10	22.4	16.7	17.1	0.4	-5.2	14.64	12.85	12.87	0.02	-1.77	1.13	1.11	1.11	0.00	-0.02
161	FEE_4_15m	15	20.8	15.7	16.1	0.3	-4.7	14.56	12.80	12.82	0.02	-1.75	1.12	1.10	1.11	0.00	-0.01
162	FEE_4_20m	20	19.8	15.1	15.4	0.3	-4.4	14.51	12.76	12.78	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
163	FEE_4_30m	30	18.5	14.3	14.5	0.2	-4.0	14.44	12.72	12.73	0.01	-1.70	1.11	1.10	1.10	0.00	-0.01

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)
164	FEE_4_40m	40	17.7	13.8	14.0	0.2	-3.7	14.40	12.70	12.71	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
165	FEE_4_50m	50	17.2	13.5	13.7	0.2	-3.6	14.37	12.68	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
166	FEE_4_60m	60	16.9	13.3	13.4	0.2	-3.4	14.35	12.67	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
167	FEE_4_70m	70	16.6	13.1	13.2	0.1	-3.3	14.34	12.66	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
168	FEE_4_80m	80	16.4	13.0	13.1	0.1	-3.3	14.32	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
169	FEE_4_90m	90	16.2	12.9	13.0	0.1	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
170	FEE_4_100m	100	16.1	12.8	12.9	0.1	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
171	FEE_4_125m	125	15.8	12.6	12.7	0.1	-3.1	14.29	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
172	FEE_4_150m	150	15.6	12.5	12.6	0.1	-3.0	14.28	12.62	12.63	0.00	-1.65	1.09	1.09	1.09	0.00	0.00
173	FEE_4_175m	175	15.5	12.4	12.5	0.1	-3.0	14.27	12.62	12.62	0.00	-1.65	1.09	1.09	1.09	0.00	0.00
174	FEE_4_200m	200	15.3	12.3	12.4	0.1	-2.9	14.27	12.61	12.62	0.00	-1.65	1.09	1.09	1.09	0.00	0.00
175	FEE_5_0m	0	19.1	14.4	14.6	0.2	-4.5	14.47	12.72	12.74	0.01	-1.73	1.11	1.10	1.10	0.00	-0.01
176	FEE_5_5m	5	18.6	14.1	14.3	0.2	-4.3	14.44	12.71	12.72	0.01	-1.72	1.11	1.09	1.10	0.00	-0.01
177	FEE_5_10m	10	18.4	13.9	14.2	0.2	-4.2	14.43	12.70	12.72	0.01	-1.72	1.11	1.09	1.10	0.00	-0.01
178	FEE_5_15m	15	18.2	13.9	14.1	0.2	-4.1	14.42	12.70	12.71	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
179	FEE_5_20m	20	18.1	13.8	14.0	0.2	-4.1	14.42	12.69	12.71	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
180	FEE_5_30m	30	17.9	13.7	13.9	0.2	-4.0	14.41	12.69	12.70	0.01	-1.71	1.10	1.09	1.09	0.00	-0.01
181	FEE_5_40m	40	17.7	13.6	13.8	0.2	-3.9	14.40	12.68	12.70	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
182	FEE_5_50m	50	17.6	13.5	13.7	0.2	-3.9	14.39	12.68	12.69	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
183	FEE_5_60m	60	17.5	13.5	13.7	0.2	-3.8	14.38	12.68	12.69	0.01	-1.70	1.10	1.09	1.09	0.00	-0.01
184	FEE_5_70m	70	17.4	13.4	13.6	0.2	-3.8	14.38	12.67	12.69	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
185	FEE_5_80m	80	17.3	13.4	13.6	0.2	-3.7	14.37	12.67	12.68	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
186	FEE_5_90m	90	17.2	13.3	13.5	0.2	-3.7	14.37	12.67	12.68	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
187	FEE_5_100m	100	17.2	13.3	13.5	0.2	-3.7	14.37	12.67	12.68	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
188	FEE_5_125m	125	17.0	13.2	13.4	0.2	-3.6	14.36	12.66	12.67	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
189	FEE_5_150m	150	16.9	13.2	13.4	0.2	-3.6	14.35	12.66	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2031)	DS (2031)	Change (DS-DM)	Change (DS-BL)
190	FEE_5_175m	175	16.8	13.1	13.3	0.2	-3.5	14.35	12.66	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
191	FEE_5_200m	200	16.7	13.1	13.2	0.2	-3.4	14.34	12.65	12.66	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
192	FEE_6_62m	62	19.1	14.7	15.0	0.3	-4.1	14.41	12.70	12.71	0.01	-1.69	1.10	1.09	1.10	0.00	-0.01
193	FEE_6_67m	67	18.9	14.6	14.9	0.2	-4.1	14.40	12.69	12.71	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
194	FEE_6_72m	72	18.7	14.5	14.7	0.2	-4.0	14.39	12.69	12.70	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
195	FEE_6_77m	77	18.6	14.4	14.6	0.2	-3.9	14.38	12.68	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
196	FEE_6_82m	82	18.4	14.3	14.5	0.2	-3.9	14.37	12.68	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
197	FEE_6_92m	92	18.2	14.2	14.4	0.2	-3.8	14.36	12.67	12.68	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
198	FEE_6_102m	102	18.0	14.1	14.2	0.2	-3.8	14.35	12.66	12.67	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
199	FEE_6_112m	112	17.9	14.0	14.1	0.2	-3.7	14.34	12.66	12.67	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
200	FEE_6_122m	122	17.7	13.9	14.0	0.2	-3.7	14.33	12.65	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
201	FEE_6_132m	132	17.6	13.8	14.0	0.2	-3.6	14.33	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	-0.01
202	FEE_6_142m	142	17.5	13.8	13.9	0.2	-3.6	14.32	12.65	12.65	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
203	FEE_6_152m	152	17.4	13.7	13.9	0.1	-3.6	14.32	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
204	FEE_6_162m	162	17.4	13.7	13.8	0.1	-3.6	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
205	FEE_6_187m	187	17.3	13.6	13.7	0.1	-3.5	14.31	12.64	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
Lydden and Temple Ewell Downs SAC																	
206	LTED_1_90m	90	13.2	10.6	10.7	0.1	-2.5	16.59	14.66	14.67	0.01	-1.93	1.26	1.26	1.26	0.00	0.00
207	LTED_1_95m	95	13.1	10.5	10.6	0.1	-2.5	16.59	14.66	14.66	0.01	-1.92	1.26	1.26	1.26	0.00	0.00
208	LTED_1_100m	100	13.0	10.5	10.6	0.1	-2.4	16.58	14.66	14.66	0.01	-1.92	1.26	1.25	1.26	0.00	0.00
209	LTED_1_105m	105	13.0	10.5	10.6	0.1	-2.4	16.58	14.65	14.66	0.01	-1.92	1.26	1.25	1.26	0.00	0.00
210	LTED_1_110m	110	12.9	10.4	10.5	0.1	-2.4	16.58	14.65	14.66	0.01	-1.92	1.26	1.25	1.26	0.00	0.00
211	LTED_1_120m	120	12.8	10.4	10.5	0.1	-2.3	16.57	14.65	14.65	0.01	-1.92	1.26	1.25	1.25	0.00	0.00
212	LTED_1_130m	130	12.7	10.3	10.4	0.1	-2.3	16.56	14.65	14.65	0.00	-1.91	1.26	1.25	1.25	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	(2017)	(2031)	(2031)	(DS-DM)	(DS-BL)	Base	(2031)	(2031)	(DS-DM)	(DS-BL)
213	LTED_1_140m	140	12.6	10.3	10.4	0.1	-2.3	16.56	14.64	14.65	0.00	-1.91	1.26	1.25	1.25	0.00	0.00
214	LTED_1_150m	150	12.5	10.2	10.3	0.1	-2.2	16.56	14.64	14.65	0.00	-1.91	1.26	1.25	1.25	0.00	0.00
215	LTED_1_160m	160	12.5	10.2	10.3	0.1	-2.2	16.55	14.64	14.64	0.00	-1.91	1.26	1.25	1.25	0.00	0.00
216	LTED_1_170m	170	12.4	10.2	10.2	0.1	-2.2	16.55	14.64	14.64	0.00	-1.91	1.26	1.25	1.25	0.00	0.00
217	LTED_1_180m	180	12.4	10.1	10.2	0.1	-2.2	16.55	14.64	14.64	0.00	-1.91	1.26	1.25	1.25	0.00	0.00
218	LTED_1_190m	190	12.3	10.1	10.2	0.1	-2.1	16.54	14.64	14.64	0.00	-1.91	1.26	1.25	1.25	0.00	0.00
219	LTED_2_95m	95	12.7	10.6	10.6	0.0	-2.1	16.54	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
220	LTED_2_100m	100	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
221	LTED_2_105m	105	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
222	LTED_2_110m	110	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
223	LTED_2_115m	115	12.6	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
224	LTED_2_125m	125	12.6	10.5	10.5	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
225	LTED_2_135m	135	12.6	10.5	10.5	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
226	LTED_2_145m	145	12.6	10.5	10.5	0.0	-2.0	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
227	LTED_2_155m	155	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
228	LTED_2_165m	165	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
229	LTED_2_175m	175	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
230	LTED_2_185m	185	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
231	LTED_2_195m	195	12.5	10.4	10.5	0.0	-2.0	16.52	14.62	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00

Appendix B Air Quality Modelling Results 2037 (CSR 6,500 dwellings)

In the table below, DM is Do Minimum and DS is Do Something. DS-Base is the change due to all forecast traffic growth between 2017 and 2031, while DS-DM thus shows the contribution of the CSR. Negative numbers in the DS-DM and DS-Base columns indicate a forecast reduction (improvement). Zeros do not necessarily mean a literal absence of emissions/deposition but that the contribution is too small to show in the model reporting (deposition rates are rarely reported to more than two decimal places to avoid a spurious impression of precision). The colours in the table are decorative and have no significance.

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
	Blean Complex SAC																
1	CWB_1_60m	60	11.2	8.9	8.9	0.0	-2.3	22.69	20.08	20.08	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
2	CWB_1_65m	65	11.1	8.8	8.8	0.0	-2.3	22.68	20.08	20.08	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
3	CWB_1_70m	70	11.1	8.8	8.8	0.0	-2.3	22.68	20.07	20.07	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
4	CWB_1_75m	75	11.0	8.8	8.8	0.0	-2.2	22.68	20.07	20.07	0.00	-2.60	1.73	1.72	1.72	0.00	0.00
5	CWB_1_80m	80	10.9	8.7	8.7	0.0	-2.2	22.67	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
6	CWB_1_90m	90	10.8	8.7	8.7	0.0	-2.2	22.67	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
7	CWB_1_100m	100	10.8	8.6	8.6	0.0	-2.1	22.66	20.06	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
8	CWB_1_110m	110	10.7	8.6	8.6	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
9	CWB_1_120m	120	10.7	8.6	8.6	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
10	CWB_1_130m	130	10.6	8.5	8.5	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
11	CWB_1_140m	140	10.6	8.5	8.5	0.0	-2.1	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
12	CWB_1_150m	150	10.5	8.5	8.5	0.0	-2.1	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
13	CWB_1_160m	160	10.5	8.5	8.5	0.0	-2.0	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
14	CWB_1_185m	185	10.5	8.4	8.4	0.0	-2.0	22.65	20.05	20.05	0.00	-2.59	1.72	1.72	1.72	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
Dover to Kingsdown Cliffs SAC																	
15	DKC_1_146m	146	33.8	31.4	32.8	1.3	-1.1	12.77	11.28	11.35	0.07	-1.43	0.97	0.96	0.97	0.01	0.00
16	DKC_1_151m	151	33.8	31.4	32.7	1.3	-1.1	12.77	11.28	11.34	0.07	-1.43	0.97	0.96	0.97	0.01	0.00
17	DKC_1_156m	156	33.7	31.4	32.6	1.2	-1.1	12.77	11.27	11.34	0.06	-1.43	0.97	0.96	0.97	0.01	0.00
18	DKC_1_161m	161	33.7	31.4	32.6	1.2	-1.1	12.76	11.27	11.34	0.06	-1.43	0.97	0.96	0.97	0.01	0.00
19	DKC_1_166m	166	33.6	31.3	32.5	1.2	-1.1	12.76	11.27	11.33	0.06	-1.43	0.97	0.96	0.97	0.01	0.00
20	DKC_1_176m	176	33.5	31.3	32.4	1.1	-1.1	12.76	11.27	11.33	0.06	-1.43	0.97	0.96	0.97	0.01	0.00
21	DKC_1_186m	186	33.4	31.2	32.3	1.0	-1.2	12.75	11.27	11.32	0.05	-1.43	0.97	0.96	0.97	0.01	0.00
22	DKC_1_196m	196	33.3	31.2	32.2	1.0	-1.2	12.75	11.27	11.32	0.05	-1.43	0.97	0.96	0.97	0.01	0.00
	Dungeness SAC																
23	DRMRB_1_0m	0	12.2	9.5	9.5	0.0	-2.7	10.50	9.24	9.24	0.00	-1.26	0.80	0.79	0.79	0.00	-0.01
24	DRMRB_1_5m	5	10.9	8.8	8.8	0.0	-2.1	10.42	9.20	9.20	0.00	-1.22	0.79	0.79	0.79	0.00	0.00
25	DRMRB_1_10m	10	10.4	8.5	8.5	0.0	-1.8	10.40	9.19	9.19	0.00	-1.21	0.79	0.78	0.78	0.00	0.00
26	DRMRB_1_15m	15	10.1	8.4	8.4	0.0	-1.7	10.38	9.18	9.18	0.00	-1.20	0.79	0.78	0.78	0.00	0.00
27	DRMRB_1_20m	20	9.9	8.3	8.3	0.0	-1.6	10.37	9.17	9.17	0.00	-1.20	0.78	0.78	0.78	0.00	0.00
28	DRMRB_1_30m	30	9.7	8.1	8.1	0.0	-1.5	10.36	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
29	DRMRB_1_40m	40	9.5	8.1	8.1	0.0	-1.5	10.35	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
30	DRMRB_1_50m	50	9.5	8.0	8.0	0.0	-1.4	10.35	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
31	DRMRB_1_60m	60	9.4	8.0	8.0	0.0	-1.4	10.34	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
32	DRMRB_1_70m	70	9.4	8.0	8.0	0.0	-1.4	10.34	9.15	9.15	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
33	DRMRB_1_80m	80	9.3	8.0	8.0	0.0	-1.4	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
34	DRMRB_1_90m	90	9.3	7.9	7.9	0.0	-1.4	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
35	DRMRB_1_100m	100	9.3	7.9	7.9	0.0	-1.3	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
36	DRMRB_1_125m	125	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
37	DRMRB_1_150m	150	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
38	DRMRB_1_175m	175	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
39	DRMRB_1_200m	200	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
Dungeness, Romney Marsh & Rye Bay SPA/Ramsar site																	
40	DRMRB_2_0m	0	11.8	9.3	9.3	0.0	-2.6	11.57	10.20	10.20	0.00	-1.37	0.89	0.88	0.88	0.00	-0.01
41	DRMRB_2_5m	5	10.8	8.7	8.7	0.0	-2.1	11.52	10.17	10.17	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
42	DRMRB_2_10m	10	10.4	8.5	8.5	0.0	-1.9	11.49	10.15	10.15	0.00	-1.34	0.88	0.87	0.87	0.00	0.00
43	DRMRB_2_15m	15	10.1	8.3	8.3	0.0	-1.8	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
44	DRMRB_2_20m	20	9.9	8.2	8.2	0.0	-1.7	11.47	10.14	10.14	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
45	DRMRB_2_30m	30	9.7	8.1	8.1	0.0	-1.6	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
46	DRMRB_2_40m	40	9.5	8.0	8.0	0.0	-1.5	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
47	DRMRB_2_50m	50	9.4	8.0	8.0	0.0	-1.5	11.44	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
48	DRMRB_2_60m	60	9.4	7.9	7.9	0.0	-1.5	11.44	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
49	DRMRB_2_70m	70	9.3	7.9	7.9	0.0	-1.4	11.44	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
50	DRMRB_2_80m	80	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
51	DRMRB_2_90m	90	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
52	DRMRB_2_100m	100	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
53	DRMRB_2_125m	125	9.2	7.8	7.8	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
54	DRMRB_2_150m	150	9.2	7.8	7.8	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
55	DRMRB_2_175m	175	9.2	7.8	7.8	0.0	-1.3	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
56	DRMRB_2_200m	200	9.1	7.8	7.8	0.0	-1.3	11.42	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
57	DRMRB_3_168m	168	11.0	9.0	9.0	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
58	DRMRB_3_173m	173	10.9	9.0	9.0	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
59	DRMRB_3_178m	178	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
60	DRMRB_3_183m	183	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
61	DRMRB_3_188m	188	10.9	8.9	9.0	0.0	-1.9	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
62	DRMRB_3_198m	198	10.9	8.9	9.0	0.0	-1.9	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
63	DRMRB_5_38m	38	11.5	9.0	9.1	0.1	-2.4	11.54	10.19	10.19	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
64	DRMRB_5_43m	43	11.3	8.9	9.0	0.1	-2.3	11.53	10.18	10.19	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
65	DRMRB_5_48m	48	11.1	8.8	8.9	0.1	-2.2	11.52	10.18	10.18	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
66	DRMRB_5_53m	53	11.0	8.7	8.8	0.1	-2.2	11.51	10.17	10.17	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
67	DRMRB_5_58m	58	10.8	8.6	8.7	0.1	-2.1	11.51	10.17	10.17	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
68	DRMRB_5_68m	68	10.6	8.5	8.6	0.1	-2.0	11.50	10.16	10.16	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
69	DRMRB_5_78m	78	10.5	8.4	8.5	0.1	-2.0	11.49	10.15	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
70	DRMRB_5_88m	88	10.4	8.4	8.4	0.0	-1.9	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
71	DRMRB_5_98m	98	10.3	8.3	8.4	0.0	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
72	DRMRB_5_108m	108	10.2	8.3	8.3	0.0	-1.9	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
73	DRMRB_5_118m	118	10.1	8.2	8.3	0.0	-1.8	11.47	10.14	10.14	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
74	DRMRB_5_128m	128	10.0	8.2	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
75	DRMRB_5_138m	138	10.0	8.2	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
76	DRMRB_5_163m	163	9.9	8.1	8.1	0.0	-1.8	11.45	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
77	DRMRB_5_188m	188	9.8	8.0	8.1	0.0	-1.7	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
78	DRMRB_6_0m	0	23.5	16.2	17.0	0.7	-6.5	12.14	10.53	10.57	0.04	-1.57	0.94	0.91	0.92	0.00	-0.03
79	DRMRB_6_5m	5	18.4	13.3	13.7	0.4	-4.7	11.86	10.37	10.39	0.02	-1.47	0.92	0.90	0.90	0.00	-0.02
80	DRMRB_6_10m	10	16.2	12.0	12.3	0.3	-3.9	11.75	10.30	10.32	0.02	-1.43	0.90	0.89	0.89	0.00	-0.01
81	DRMRB_6_15m	15	15.0	11.3	11.6	0.3	-3.4	11.68	10.26	10.28	0.01	-1.40	0.90	0.89	0.89	0.00	-0.01
82	DRMRB_6_20m	20	14.2	10.9	11.1	0.2	-3.1	11.64	10.24	10.25	0.01	-1.39	0.89	0.88	0.88	0.00	-0.01
83	DRMRB_6_30m	30	13.3	10.3	10.5	0.2	-2.8	11.59	10.21	10.22	0.01	-1.37	0.89	0.88	0.88	0.00	-0.01
84	DRMRB_6_40m	40	12.7	10.0	10.1	0.1	-2.6	11.55	10.19	10.20	0.01	-1.35	0.88	0.88	0.88	0.00	-0.01
85	DRMRB_6_50m	50	12.3	9.8	9.9	0.1	-2.5	11.53	10.18	10.19	0.01	-1.35	0.88	0.88	0.88	0.00	0.00
86	DRMRB_6_60m	60	12.1	9.6	9.7	0.1	-2.4	11.52	10.17	10.18	0.01	-1.34	0.88	0.88	0.88	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
87	DRMRB_6_70m	70	11.9	9.5	9.6	0.1	-2.3	11.51	10.17	10.17	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
88	DRMRB_6_80m	80	11.7	9.4	9.5	0.1	-2.2	11.50	10.16	10.17	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
89	DRMRB_6_90m	90	11.6	9.4	9.4	0.1	-2.2	11.49	10.16	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
90	DRMRB_6_100m	100	11.5	9.3	9.4	0.1	-2.2	11.49	10.15	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
91	DRMRB_6_125m	125	11.3	9.2	9.2	0.1	-2.1	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
92	DRMRB_6_150m	150	11.2	9.1	9.2	0.0	-2.0	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
93	DRMRB_6_175m	175	11.1	9.1	9.1	0.0	-2.0	11.47	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
94	DRMRB_6_200m	200	11.0	9.0	9.1	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
95	DRMRB_7_0m	0	22.4	15.3	16.1	0.7	-6.4	12.13	10.53	10.57	0.04	-1.56	0.94	0.91	0.92	0.00	-0.03
96	DRMRB_7_5m	5	17.0	12.2	12.6	0.4	-4.4	11.84	10.36	10.38	0.02	-1.46	0.91	0.90	0.90	0.00	-0.02
97	DRMRB_7_10m	10	14.9	10.9	11.2	0.3	-3.6	11.73	10.29	10.31	0.02	-1.42	0.90	0.89	0.89	0.00	-0.01
98	DRMRB_7_15m	15	13.7	10.2	10.5	0.2	-3.2	11.66	10.25	10.27	0.01	-1.39	0.90	0.88	0.89	0.00	-0.01
99	DRMRB_7_20m	20	12.9	9.8	10.0	0.2	-2.9	11.62	10.23	10.24	0.01	-1.38	0.89	0.88	0.88	0.00	-0.01
100	DRMRB_7_30m	30	12.0	9.2	9.4	0.2	-2.6	11.57	10.20	10.21	0.01	-1.36	0.89	0.88	0.88	0.00	-0.01
101	DRMRB_7_40m	40	11.4	8.9	9.0	0.1	-2.3	11.54	10.18	10.19	0.01	-1.35	0.88	0.88	0.88	0.00	0.00
102	DRMRB_7_50m	50	11.0	8.7	8.8	0.1	-2.2	11.52	10.17	10.18	0.01	-1.34	0.88	0.88	0.88	0.00	0.00
103	DRMRB_7_60m	60	10.7	8.5	8.6	0.1	-2.1	11.50	10.16	10.17	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
104	DRMRB_7_70m	70	10.5	8.4	8.5	0.1	-2.0	11.49	10.15	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
105	DRMRB_7_80m	80	10.4	8.3	8.4	0.1	-2.0	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
106	DRMRB_7_90m	90	10.3	8.3	8.3	0.1	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
107	DRMRB_7_100m	100	10.2	8.2	8.3	0.1	-1.9	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
108	DRMRB_7_125m	125	10.0	8.1	8.1	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
109	DRMRB_7_150m	150	9.9	8.0	8.1	0.0	-1.8	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
110	DRMRB_7_175m	175	9.8	8.0	8.0	0.0	-1.8	11.45	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
111	DRMRB_7_200m	200	9.7	8.0	8.0	0.0	-1.7	11.44	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link Folkestone to Etchinghill Escarpment SAC	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
112	FEE_1_0m	0	70.6	40.7	48.3	7.6	-22.3	16.93	14.06	14.42	0.36	-2.51	1.36	1.23	1.27	0.04	-0.09
113	FEE_1_5m	5	50.4	30.4	35.3	4.9	-15.1	16.02	13.55	13.79	0.24	-2.23	1.27	1.18	1.21	0.02	-0.06
114	FEE_1_10m	10	42.0	26.1	29.8	3.7	-12.2	15.62	13.33	13.52	0.19	-2.10	1.23	1.16	1.18	0.02	-0.05
115	FEE_1_15m	15	37.1	23.6	26.6	3.1	-10.5	15.38	13.20	13.36	0.16	-2.02	1.20	1.15	1.16	0.02	-0.04
116	FEE_1_20m	20	33.8	21.8	24.5	2.6	-9.3	15.22	13.11	13.25	0.14	-1.97	1.19	1.14	1.15	0.01	-0.04
117	FEE_1_30m	30	29.5	19.6	21.7	2.0	-7.8	15.00	13.00	13.10	0.11	-1.89	1.16	1.12	1.14	0.01	-0.03
118	FEE_1_40m	40	26.8	18.2	19.9	1.7	-6.9	14.86	12.92	13.01	0.09	-1.85	1.15	1.12	1.13	0.01	-0.02
119	FEE_1_50m	50	25.0	17.3	18.7	1.4	-6.3	14.76	12.87	12.95	0.08	-1.82	1.14	1.11	1.12	0.01	-0.02
120	FEE_1_60m	60	23.6	16.6	17.8	1.2	-5.8	14.69	12.83	12.90	0.07	-1.79	1.13	1.11	1.11	0.01	-0.02
121	FEE_1_70m	70	22.5	16.0	17.1	1.1	-5.4	14.64	12.80	12.86	0.06	-1.77	1.13	1.10	1.11	0.01	-0.02
122	FEE_1_80m	80	21.7	15.5	16.5	1.0	-5.1	14.59	12.78	12.83	0.05	-1.76	1.12	1.10	1.11	0.01	-0.01
123	FEE_1_90m	90	21.0	15.2	16.1	0.9	-4.9	14.55	12.76	12.81	0.05	-1.75	1.12	1.10	1.10	0.00	-0.01
124	FEE_1_100m	100	20.4	14.9	15.7	0.8	-4.7	14.52	12.74	12.78	0.04	-1.73	1.11	1.10	1.10	0.00	-0.01
125	FEE_1_125m	125	19.2	14.3	14.9	0.7	-4.3	14.46	12.71	12.74	0.04	-1.71	1.11	1.09	1.10	0.00	-0.01
126	FEE_1_150m	150	18.4	13.8	14.4	0.5	-4.0	14.41	12.68	12.71	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
127	FEE_1_175m	175	17.8	13.5	14.0	0.5	-3.8	14.38	12.67	12.69	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
128	FEE_1_200m	200	17.3	13.2	13.6	0.4	-3.6	14.35	12.65	12.67	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
129	FEE_2_0m	0	17.7	13.4	13.8	0.4	-4.0	14.41	12.69	12.71	0.02	-1.70	1.10	1.09	1.10	0.00	-0.01
130	FEE_2_5m	5	17.3	13.1	13.5	0.4	-3.8	14.39	12.67	12.70	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
131	FEE_2_10m	10	17.2	13.0	13.5	0.4	-3.8	14.39	12.67	12.69	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
132	FEE_2_15m	15	17.2	13.0	13.5	0.5	-3.7	14.39	12.67	12.70	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
133	FEE_2_20m	20	17.3	13.0	13.5	0.5	-3.8	14.39	12.67	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
134	FEE_2_30m	30	17.4	13.1	13.6	0.5	-3.8	14.40	12.68	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
135	FEE_2_40m	40	17.6	13.2	13.7	0.5	-3.9	14.41	12.68	12.71	0.03	-1.70	1.10	1.09	1.09	0.00	-0.01

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
136	FEE_2_50m	50	17.8	13.3	13.9	0.6	-3.9	14.42	12.69	12.72	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
137	FEE_2_60m	60	18.1	13.5	14.1	0.6	-4.0	14.43	12.69	12.73	0.03	-1.71	1.11	1.09	1.10	0.00	-0.01
138	FEE_2_70m	70	18.4	13.6	14.3	0.6	-4.1	14.45	12.70	12.74	0.04	-1.71	1.11	1.09	1.10	0.00	-0.01
139	FEE_2_80m	80	18.7	13.8	14.5	0.7	-4.3	14.47	12.71	12.75	0.04	-1.72	1.11	1.10	1.10	0.00	-0.01
140	FEE_2_90m	90	19.1	14.0	14.7	0.7	-4.4	14.49	12.72	12.76	0.04	-1.72	1.11	1.10	1.10	0.00	-0.01
141	FEE_3_0m	0	28.2	20.1	20.9	0.7	-7.4	14.95	13.03	13.07	0.04	-1.88	1.16	1.13	1.13	0.00	-0.03
142	FEE_3_5m	5	23.0	16.9	17.4	0.5	-5.6	14.68	12.86	12.89	0.03	-1.79	1.13	1.11	1.11	0.00	-0.02
143	FEE_3_10m	10	20.8	15.6	16.0	0.4	-4.8	14.56	12.79	12.81	0.02	-1.75	1.12	1.10	1.11	0.00	-0.01
144	FEE_3_15m	15	19.6	14.8	15.2	0.3	-4.4	14.50	12.75	12.77	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
145	FEE_3_20m	20	18.7	14.3	14.6	0.3	-4.1	14.45	12.72	12.74	0.02	-1.71	1.11	1.10	1.10	0.00	-0.01
146	FEE_3_30m	30	17.8	13.7	14.0	0.3	-3.8	14.40	12.69	12.71	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
147	FEE_3_40m	40	17.2	13.4	13.6	0.2	-3.6	14.37	12.67	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
148	FEE_3_50m	50	16.8	13.2	13.4	0.2	-3.4	14.35	12.66	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
149	FEE_3_60m	60	16.6	13.0	13.2	0.2	-3.3	14.33	12.65	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
150	FEE_3_70m	70	16.4	12.9	13.1	0.2	-3.3	14.32	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
151	FEE_3_80m	80	16.3	12.8	13.0	0.2	-3.2	14.32	12.64	12.65	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
152	FEE_3_90m	90	16.2	12.8	13.0	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
153	FEE_3_100m	100	16.1	12.7	12.9	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
154	FEE_3_125m	125	16.0	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
155	FEE_3_150m	150	15.9	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
156	FEE_3_175m	175	15.9	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
157	FEE_3_200m	200	15.9	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
158	FEE_4_0m	0	30.9	21.7	22.6	0.8	-8.3	15.09	13.12	13.16	0.04	-1.93	1.17	1.14	1.14	0.00	-0.03
159	FEE_4_5m	5	25.0	18.1	18.7	0.6	-6.3	14.79	12.93	12.96	0.03	-1.83	1.14	1.12	1.12	0.00	-0.02
160	FEE_4_10m	10	22.4	16.5	17.0	0.5	-5.4	14.64	12.84	12.87	0.02	-1.78	1.13	1.11	1.11	0.00	-0.02

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
161	FEE_4_15m	15	20.8	15.6	16.0	0.4	-4.8	14.56	12.79	12.81	0.02	-1.75	1.12	1.10	1.11	0.00	-0.01
162	FEE_4_20m	20	19.8	15.0	15.3	0.3	-4.5	14.51	12.76	12.78	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
163	FEE_4_30m	30	18.5	14.2	14.5	0.3	-4.0	14.44	12.72	12.73	0.02	-1.71	1.11	1.10	1.10	0.00	-0.01
164	FEE_4_40m	40	17.7	13.7	14.0	0.2	-3.7	14.40	12.69	12.70	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
165	FEE_4_50m	50	17.2	13.4	13.6	0.2	-3.6	14.37	12.67	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
166	FEE_4_60m	60	16.9	13.2	13.4	0.2	-3.4	14.35	12.66	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
167	FEE_4_70m	70	16.6	13.0	13.2	0.2	-3.4	14.34	12.65	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
168	FEE_4_80m	80	16.4	12.9	13.1	0.2	-3.3	14.32	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
169	FEE_4_90m	90	16.2	12.8	13.0	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
170	FEE_4_100m	100	16.1	12.7	12.9	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
171	FEE_4_125m	125	15.8	12.6	12.7	0.2	-3.1	14.29	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
172	FEE_4_150m	150	15.6	12.5	12.6	0.1	-3.0	14.28	12.62	12.63	0.01	-1.65	1.09	1.09	1.09	0.00	0.00
173	FEE_4_175m	175	15.5	12.4	12.5	0.1	-3.0	14.27	12.62	12.62	0.01	-1.65	1.09	1.09	1.09	0.00	0.00
174	FEE_4_200m	200	15.3	12.3	12.4	0.1	-2.9	14.27	12.61	12.62	0.01	-1.65	1.09	1.08	1.09	0.00	0.00
175	FEE_5_0m	0	19.1	14.3	14.8	0.6	-4.2	14.47	12.72	12.75	0.03	-1.72	1.11	1.10	1.10	0.00	-0.01
176	FEE_5_5m	5	18.6	14.0	14.5	0.5	-4.1	14.44	12.71	12.73	0.03	-1.71	1.11	1.09	1.10	0.00	-0.01
177	FEE_5_10m	10	18.4	13.9	14.4	0.5	-4.0	14.43	12.70	12.73	0.03	-1.71	1.11	1.09	1.10	0.00	-0.01
178	FEE_5_15m	15	18.2	13.8	14.3	0.5	-3.9	14.42	12.69	12.72	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
179	FEE_5_20m	20	18.1	13.7	14.2	0.5	-3.9	14.42	12.69	12.72	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
180	FEE_5_30m	30	17.9	13.6	14.1	0.5	-3.8	14.41	12.68	12.71	0.03	-1.70	1.10	1.09	1.09	0.00	-0.01
181	FEE_5_40m	40	17.7	13.5	14.0	0.5	-3.7	14.40	12.68	12.70	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
182	FEE_5_50m	50	17.6	13.5	13.9	0.4	-3.7	14.39	12.68	12.70	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
183	FEE_5_60m	60	17.5	13.4	13.8	0.4	-3.7	14.38	12.67	12.70	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
184	FEE_5_70m	70	17.4	13.4	13.8	0.4	-3.6	14.38	12.67	12.69	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
185	FEE_5_80m	80	17.3	13.3	13.7	0.4	-3.6	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
186	FEE_5_90m	90	17.2	13.3	13.7	0.4	-3.6	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
187	FEE_5_100m	100	17.2	13.3	13.6	0.4	-3.6	14.37	12.67	12.68	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
188	FEE_5_125m	125	17.0	13.2	13.5	0.3	-3.5	14.36	12.66	12.68	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
189	FEE_5_150m	150	16.9	13.1	13.4	0.3	-3.5	14.35	12.66	12.68	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
190	FEE_5_175m	175	16.8	13.1	13.4	0.3	-3.4	14.35	12.66	12.67	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
191	FEE_5_200m	200	16.7	13.0	13.3	0.3	-3.4	14.34	12.65	12.67	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
192	FEE_6_62m	62	19.1	14.7	15.1	0.4	-4.0	14.41	12.69	12.72	0.02	-1.69	1.10	1.09	1.10	0.00	-0.01
193	FEE_6_67m	67	18.9	14.5	14.9	0.4	-4.0	14.40	12.69	12.71	0.02	-1.69	1.10	1.09	1.09	0.00	-0.01
194	FEE_6_72m	72	18.7	14.4	14.8	0.4	-3.9	14.39	12.68	12.70	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
195	FEE_6_77m	77	18.6	14.3	14.7	0.4	-3.9	14.38	12.68	12.70	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
196	FEE_6_82m	82	18.4	14.3	14.6	0.3	-3.8	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
197	FEE_6_92m	92	18.2	14.1	14.4	0.3	-3.8	14.36	12.66	12.68	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
198	FEE_6_102m	102	18.0	14.0	14.3	0.3	-3.7	14.35	12.66	12.68	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
199	FEE_6_112m	112	17.9	13.9	14.2	0.3	-3.7	14.34	12.65	12.67	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
200	FEE_6_122m	122	17.7	13.8	14.1	0.3	-3.6	14.33	12.65	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	0.00
201	FEE_6_132m	132	17.6	13.8	14.0	0.3	-3.6	14.33	12.65	12.66	0.02	-1.67	1.09	1.09	1.09	0.00	0.00
202	FEE_6_142m	142	17.5	13.7	14.0	0.3	-3.6	14.32	12.64	12.66	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
203	FEE_6_152m	152	17.4	13.7	13.9	0.2	-3.5	14.32	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
204	FEE_6_162m	162	17.4	13.6	13.9	0.2	-3.5	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
205	FEE_6_187m	187	17.3	13.5	13.8	0.2	-3.5	14.31	12.63	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
Lydden and Temple Ewell Downs SAC																	
206	LTED_1_90m	90	13.2	10.5	10.8	0.3	-2.4	16.59	14.66	14.67	0.02	-1.92	1.26	1.26	1.26	0.00	0.00
207	LTED_1_95m	95	13.1	10.5	10.8	0.3	-2.3	16.59	14.66	14.67	0.02	-1.92	1.26	1.26	1.26	0.00	0.00
208	LTED_1_100m	100	13.0	10.5	10.7	0.3	-2.3	16.58	14.65	14.67	0.01	-1.92	1.26	1.25	1.26	0.00	0.00
209	LTED_1_105m	105	13.0	10.4	10.7	0.3	-2.3	16.58	14.65	14.67	0.01	-1.91	1.26	1.25	1.26	0.00	0.00

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
210	LTED_1_110m	110	12.9	10.4	10.6	0.2	-2.3	16.58	14.65	14.66	0.01	-1.91	1.26	1.25	1.26	0.00	0.00
211	LTED_1_120m	120	12.8	10.3	10.6	0.2	-2.2	16.57	14.65	14.66	0.01	-1.91	1.26	1.25	1.26	0.00	0.00
212	LTED_1_130m	130	12.7	10.3	10.5	0.2	-2.2	16.56	14.64	14.66	0.01	-1.91	1.26	1.25	1.26	0.00	0.00
213	LTED_1_140m	140	12.6	10.3	10.5	0.2	-2.2	16.56	14.64	14.65	0.01	-1.91	1.26	1.25	1.25	0.00	0.00
214	LTED_1_150m	150	12.5	10.2	10.4	0.2	-2.1	16.56	14.64	14.65	0.01	-1.91	1.26	1.25	1.25	0.00	0.00
215	LTED_1_160m	160	12.5	10.2	10.4	0.2	-2.1	16.55	14.64	14.65	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
216	LTED_1_170m	170	12.4	10.2	10.3	0.2	-2.1	16.55	14.64	14.65	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
217	LTED_1_180m	180	12.4	10.1	10.3	0.2	-2.1	16.55	14.64	14.64	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
218	LTED_1_190m	190	12.3	10.1	10.3	0.1	-2.1	16.54	14.63	14.64	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
219	LTED_2_95m	95	12.7	10.6	10.6	0.0	-2.1	16.54	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
220	LTED_2_100m	100	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
221	LTED_2_105m	105	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
222	LTED_2_110m	110	12.7	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
223	LTED_2_115m	115	12.6	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
224	LTED_2_125m	125	12.6	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
225	LTED_2_135m	135	12.6	10.5	10.5	0.0	-2.0	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
226	LTED_2_145m	145	12.6	10.5	10.5	0.0	-2.0	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
227	LTED_2_155m	155	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
228	LTED_2_165m	165	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
229	LTED_2_175m	175	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.89	1.25	1.25	1.25	0.00	0.00
230	LTED_2_185m	185	12.5	10.4	10.5	0.0	-2.0	16.52	14.62	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
231	LTED_2_195m	195	12.5	10.4	10.5	0.0	-2.0	16.52	14.62	14.63	0.00	-1.89	1.25	1.25	1.25	0.00	0.00

Appendix C Air Quality Modelling Results 2037 (CSR 8,000 dwellings)

In the table below, DM is Do Minimum and DS is Do Something. DS-Base is the change due to all forecast traffic growth between 2017 and 2037, while DS-DM thus shows the contribution of the CSR. Negative numbers in the DS-DM and DS-Base columns indicate a forecast reduction (improvement). Zeros do not necessarily mean a literal absence of emissions/deposition but that the contribution is too small to show in the model reporting (deposition rates are rarely reported to more than two decimal places to avoid a spurious impression of precision). The colours in the table are decorative and have no significance.

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
	Blean Complex SAC																
1	CWB_1_60m	60	11.2	8.9	8.9	0.0	-2.3	22.69	20.08	20.08	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
2	CWB_1_65m	65	11.1	8.8	8.8	0.0	-2.3	22.68	20.08	20.08	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
3	CWB_1_70m	70	11.1	8.8	8.8	0.0	-2.3	22.68	20.07	20.07	0.00	-2.61	1.73	1.72	1.72	0.00	0.00
4	CWB_1_75m	75	11.0	8.8	8.8	0.0	-2.2	22.68	20.07	20.07	0.00	-2.60	1.73	1.72	1.72	0.00	0.00
5	CWB_1_80m	80	10.9	8.7	8.7	0.0	-2.2	22.67	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
6	CWB_1_90m	90	10.8	8.7	8.7	0.0	-2.2	22.67	20.07	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
7	CWB_1_100m	100	10.8	8.6	8.6	0.0	-2.1	22.66	20.06	20.07	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
8	CWB_1_110m	110	10.7	8.6	8.6	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
9	CWB_1_120m	120	10.7	8.6	8.6	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
10	CWB_1_130m	130	10.6	8.5	8.5	0.0	-2.1	22.66	20.06	20.06	0.00	-2.60	1.72	1.72	1.72	0.00	0.00
11	CWB_1_140m	140	10.6	8.5	8.5	0.0	-2.1	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
12	CWB_1_150m	150	10.5	8.5	8.5	0.0	-2.0	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
13	CWB_1_160m	160	10.5	8.5	8.5	0.0	-2.0	22.65	20.06	20.06	0.00	-2.59	1.72	1.72	1.72	0.00	0.00
14	CWB_1_185m	185	10.5	8.4	8.4	0.0	-2.0	22.65	20.05	20.05	0.00	-2.59	1.72	1.72	1.72	0.00	0.00

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3) Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Annual Mean N Dep (k N/ha/yr) Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Annual Mean A Dep (keq/ha/yr) BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
Dover to Kingsdown Cliffs SAC																	
15	DKC_1_146m	146	33.8	31.4	33.0	1.5	-0.9	12.77	11.28	11.36	0.08	-1.42	0.97	0.96	0.97	0.01	0.00
16	DKC_1_151m	151	33.8	31.4	32.9	1.5	-0.9	12.77	11.28	11.35	0.08	-1.42	0.97	0.96	0.97	0.01	0.00
17	DKC_1_156m	156	33.7	31.4	32.8	1.4	-0.9	12.77	11.27	11.35	0.07	-1.42	0.97	0.96	0.97	0.01	0.00
18	DKC_1_161m	161	33.7	31.4	32.7	1.4	-0.9	12.76	11.27	11.34	0.07	-1.42	0.97	0.96	0.97	0.01	0.00
19	DKC_1_166m	166	33.6	31.3	32.6	1.3	-1.0	12.76	11.27	11.34	0.07	-1.42	0.97	0.96	0.97	0.01	0.00
20	DKC_1_176m	176	33.5	31.3	32.5	1.2	-1.0	12.76	11.27	11.33	0.06	-1.42	0.97	0.96	0.97	0.01	0.00
21	DKC_1_186m	186	33.4	31.2	32.4	1.2	-1.0	12.75	11.27	11.33	0.06	-1.42	0.97	0.96	0.97	0.01	0.00
22	DKC_1_196m	196	33.3	31.2	32.3	1.1	-1.1	12.75	11.27	11.32	0.06	-1.43	0.97	0.96	0.97	0.01	0.00
	Dungeness SAC																
23	DRMRB_1_0m	0	12.2	9.5	9.5	0.0	-2.7	10.50	9.24	9.24	0.00	-1.26	0.80	0.79	0.79	0.00	-0.01
24	DRMRB_1_5m	5	10.9	8.8	8.8	0.0	-2.1	10.42	9.20	9.20	0.00	-1.22	0.79	0.79	0.79	0.00	0.00
25	DRMRB_1_10m	10	10.4	8.5	8.5	0.0	-1.8	10.40	9.19	9.19	0.00	-1.21	0.79	0.78	0.78	0.00	0.00
26	DRMRB_1_15m	15	10.1	8.4	8.4	0.0	-1.7	10.38	9.18	9.18	0.00	-1.20	0.79	0.78	0.78	0.00	0.00
27	DRMRB_1_20m	20	9.9	8.3	8.3	0.0	-1.6	10.37	9.17	9.17	0.00	-1.20	0.78	0.78	0.78	0.00	0.00
28	DRMRB_1_30m	30	9.7	8.1	8.1	0.0	-1.5	10.36	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
29	DRMRB_1_40m	40	9.5	8.1	8.1	0.0	-1.5	10.35	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
30	DRMRB_1_50m	50	9.5	8.0	8.0	0.0	-1.4	10.35	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
31	DRMRB_1_60m	60	9.4	8.0	8.0	0.0	-1.4	10.34	9.16	9.16	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
32	DRMRB_1_70m	70	9.4	8.0	8.0	0.0	-1.4	10.34	9.15	9.15	0.00	-1.19	0.78	0.78	0.78	0.00	0.00
33	DRMRB_1_80m	80	9.3	8.0	8.0	0.0	-1.4	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
34	DRMRB_1_90m	90	9.3	7.9	7.9	0.0	-1.4	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
35	DRMRB_1_100m	100	9.3	7.9	7.9	0.0	-1.3	10.34	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
36	DRMRB_1_125m	125	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
37	DRMRB_1_150m	150	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
38	DRMRB_1_175m	175	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
39	DRMRB_1_200m	200	9.2	7.9	7.9	0.0	-1.3	10.33	9.15	9.15	0.00	-1.18	0.78	0.78	0.78	0.00	0.00
Dungeness, Romney Marsh & Rye Bay SPA/Ramsar site																	
40	DRMRB_2_0m	0	11.8	9.3	9.3	0.0	-2.6	11.57	10.20	10.20	0.00	-1.37	0.89	0.88	0.88	0.00	-0.01
41	DRMRB_2_5m	5	10.8	8.7	8.7	0.0	-2.1	11.52	10.17	10.17	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
42	DRMRB_2_10m	10	10.4	8.5	8.5	0.0	-1.9	11.49	10.15	10.15	0.00	-1.34	0.88	0.87	0.87	0.00	0.00
43	DRMRB_2_15m	15	10.1	8.3	8.3	0.0	-1.8	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
44	DRMRB_2_20m	20	9.9	8.2	8.2	0.0	-1.7	11.47	10.14	10.14	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
45	DRMRB_2_30m	30	9.7	8.1	8.1	0.0	-1.6	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
46	DRMRB_2_40m	40	9.5	8.0	8.0	0.0	-1.5	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
47	DRMRB_2_50m	50	9.4	8.0	8.0	0.0	-1.5	11.44	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
48	DRMRB_2_60m	60	9.4	7.9	7.9	0.0	-1.5	11.44	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
49	DRMRB_2_70m	70	9.3	7.9	7.9	0.0	-1.4	11.44	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
50	DRMRB_2_80m	80	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
51	DRMRB_2_90m	90	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
52	DRMRB_2_100m	100	9.3	7.9	7.9	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
53	DRMRB_2_125m	125	9.2	7.8	7.8	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
54	DRMRB_2_150m	150	9.2	7.8	7.8	0.0	-1.4	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
55	DRMRB_2_175m	175	9.2	7.8	7.8	0.0	-1.3	11.43	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
56	DRMRB_2_200m	200	9.1	7.8	7.8	0.0	-1.3	11.42	10.12	10.12	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
57	DRMRB_3_168m	168	11.0	9.0	9.0	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
58	DRMRB_3_173m	173	10.9	9.0	9.0	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
59	DRMRB_3_178m	178	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
60	DRMRB_3_183m	183	10.9	9.0	9.0	0.0	-1.9	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
61	DRMRB_3_188m	188	10.9	8.9	9.0	0.0	-1.9	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
			(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
62	DRMRB_3_198m	198	10.9	8.9	9.0	0.0	-1.9	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
63	DRMRB_5_38m	38	11.5	9.0	9.1	0.1	-2.4	11.54	10.19	10.19	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
64	DRMRB_5_43m	43	11.3	8.9	9.0	0.1	-2.3	11.53	10.18	10.19	0.00	-1.35	0.88	0.88	0.88	0.00	0.00
65	DRMRB_5_48m	48	11.1	8.8	8.9	0.1	-2.2	11.52	10.18	10.18	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
66	DRMRB_5_53m	53	11.0	8.7	8.8	0.1	-2.2	11.51	10.17	10.17	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
67	DRMRB_5_58m	58	10.8	8.6	8.7	0.1	-2.1	11.51	10.17	10.17	0.00	-1.34	0.88	0.88	0.88	0.00	0.00
68	DRMRB_5_68m	68	10.6	8.5	8.6	0.1	-2.0	11.50	10.16	10.16	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
69	DRMRB_5_78m	78	10.5	8.4	8.5	0.1	-2.0	11.49	10.15	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
70	DRMRB_5_88m	88	10.4	8.4	8.4	0.1	-1.9	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
71	DRMRB_5_98m	98	10.3	8.3	8.4	0.0	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
72	DRMRB_5_108m	108	10.2	8.3	8.3	0.0	-1.9	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
73	DRMRB_5_118m	118	10.1	8.2	8.3	0.0	-1.8	11.47	10.14	10.14	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
74	DRMRB_5_128m	128	10.0	8.2	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
75	DRMRB_5_138m	138	10.0	8.2	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
76	DRMRB_5_163m	163	9.9	8.1	8.1	0.0	-1.8	11.45	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
77	DRMRB_5_188m	188	9.8	8.0	8.1	0.0	-1.7	11.45	10.13	10.13	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
78	DRMRB_6_0m	0	23.5	16.2	17.0	0.7	-6.5	12.14	10.53	10.57	0.04	-1.57	0.94	0.91	0.92	0.00	-0.03
79	DRMRB_6_5m	5	18.4	13.3	13.7	0.5	-4.6	11.86	10.37	10.40	0.03	-1.47	0.92	0.90	0.90	0.00	-0.02
80	DRMRB_6_10m	10	16.2	12.0	12.3	0.3	-3.9	11.75	10.30	10.32	0.02	-1.42	0.90	0.89	0.89	0.00	-0.01
81	DRMRB_6_15m	15	15.0	11.3	11.6	0.3	-3.4	11.68	10.26	10.28	0.02	-1.40	0.90	0.89	0.89	0.00	-0.01
82	DRMRB_6_20m	20	14.2	10.9	11.1	0.2	-3.1	11.64	10.24	10.25	0.01	-1.39	0.89	0.88	0.88	0.00	-0.01
83	DRMRB_6_30m	30	13.3	10.3	10.5	0.2	-2.8	11.59	10.21	10.22	0.01	-1.37	0.89	0.88	0.88	0.00	-0.01
84	DRMRB_6_40m	40	12.7	10.0	10.1	0.1	-2.6	11.55	10.19	10.20	0.01	-1.35	0.88	0.88	0.88	0.00	-0.01
85	DRMRB_6_50m	50	12.3	9.8	9.9	0.1	-2.5	11.53	10.18	10.19	0.01	-1.35	0.88	0.88	0.88	0.00	0.00
86	DRMRB_6_60m	60	12.1	9.6	9.7	0.1	-2.4	11.52	10.17	10.18	0.01	-1.34	0.88	0.88	0.88	0.00	0.00

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
87	DRMRB_6_70m	70	11.9	9.5	9.6	0.1	-2.3	11.51	10.17	10.17	0.01	-1.34	0.88	0.88	0.88	0.00	0.00
88	DRMRB_6_80m	80	11.7	9.4	9.5	0.1	-2.2	11.50	10.16	10.17	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
89	DRMRB_6_90m	90	11.6	9.4	9.4	0.1	-2.2	11.49	10.16	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
90	DRMRB_6_100m	100	11.5	9.3	9.4	0.1	-2.1	11.49	10.15	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
91	DRMRB_6_125m	125	11.3	9.2	9.2	0.1	-2.1	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
92	DRMRB_6_150m	150	11.2	9.1	9.2	0.0	-2.0	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
93	DRMRB_6_175m	175	11.1	9.1	9.1	0.0	-2.0	11.47	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
94	DRMRB_6_200m	200	11.0	9.0	9.1	0.0	-2.0	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
95	DRMRB_7_0m	0	22.4	15.3	16.1	0.7	-6.4	12.13	10.53	10.57	0.04	-1.56	0.94	0.91	0.92	0.00	-0.03
96	DRMRB_7_5m	5	17.0	12.2	12.6	0.4	-4.4	11.84	10.36	10.39	0.02	-1.46	0.91	0.90	0.90	0.00	-0.02
97	DRMRB_7_10m	10	14.9	10.9	11.2	0.3	-3.6	11.73	10.29	10.31	0.02	-1.42	0.90	0.89	0.89	0.00	-0.01
98	DRMRB_7_15m	15	13.7	10.2	10.5	0.3	-3.2	11.66	10.25	10.27	0.01	-1.39	0.90	0.88	0.89	0.00	-0.01
99	DRMRB_7_20m	20	12.9	9.8	10.0	0.2	-2.9	11.62	10.23	10.24	0.01	-1.38	0.89	0.88	0.88	0.00	-0.01
100	DRMRB_7_30m	30	12.0	9.2	9.4	0.2	-2.6	11.57	10.20	10.21	0.01	-1.36	0.89	0.88	0.88	0.00	-0.01
101	DRMRB_7_40m	40	11.4	8.9	9.0	0.1	-2.3	11.54	10.18	10.19	0.01	-1.35	0.88	0.88	0.88	0.00	0.00
102	DRMRB_7_50m	50	11.0	8.7	8.8	0.1	-2.2	11.52	10.17	10.18	0.01	-1.34	0.88	0.88	0.88	0.00	0.00
103	DRMRB_7_60m	60	10.7	8.5	8.6	0.1	-2.1	11.50	10.16	10.17	0.00	-1.33	0.88	0.87	0.88	0.00	0.00
104	DRMRB_7_70m	70	10.5	8.4	8.5	0.1	-2.0	11.49	10.15	10.16	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
105	DRMRB_7_80m	80	10.4	8.3	8.4	0.1	-2.0	11.48	10.15	10.15	0.00	-1.33	0.88	0.87	0.87	0.00	0.00
106	DRMRB_7_90m	90	10.3	8.3	8.3	0.1	-1.9	11.47	10.15	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
107	DRMRB_7_100m	100	10.2	8.2	8.3	0.1	-1.9	11.47	10.14	10.15	0.00	-1.32	0.88	0.87	0.87	0.00	0.00
108	DRMRB_7_125m	125	10.0	8.1	8.2	0.0	-1.8	11.46	10.14	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
109	DRMRB_7_150m	150	9.9	8.0	8.1	0.0	-1.8	11.45	10.13	10.14	0.00	-1.32	0.87	0.87	0.87	0.00	0.00
110	DRMRB_7_175m	175	9.8	8.0	8.0	0.0	-1.8	11.45	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00
111	DRMRB_7_200m	200	9.7	8.0	8.0	0.0	-1.7	11.44	10.13	10.13	0.00	-1.31	0.87	0.87	0.87	0.00	0.00

Look up ID	Road Link Folkestone to Etchinghill Escarpment SAC	From Road (m)	Annual Mean Nox Conc. (ug/m3) Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Annual Mean N Dep (k N/ha/yr) Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Annual Mean A Dep (keq/ha/yr) BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
112	FEE_1_0m	0	70.6	40.7	49.3	8.6	-21.2	16.93	14.06	14.46	0.41	-2.47	1.36	1.23	1.28	0.04	-0.09
113	FEE_1_5m	5	50.4	30.4	35.9	5.5	-14.5	16.02	13.55	13.82	0.28	-2.20	1.27	1.18	1.21	0.03	-0.06
114	FEE_1_10m	10	42.0	26.1	30.3	4.2	-11.7	15.62	13.33	13.55	0.22	-2.08	1.23	1.16	1.18	0.02	-0.05
115	FEE_1_15m	15	37.1	23.6	27.1	3.5	-10.1	15.38	13.20	13.38	0.18	-2.00	1.20	1.15	1.16	0.02	-0.04
116	FEE_1_20m	20	33.8	21.8	24.8	3.0	-9.0	15.22	13.11	13.27	0.15	-1.95	1.19	1.14	1.15	0.02	-0.03
117	FEE_1_30m	30	29.5	19.6	21.9	2.3	-7.6	15.00	13.00	13.12	0.12	-1.88	1.16	1.12	1.14	0.01	-0.03
118	FEE_1_40m	40	26.8	18.2	20.1	1.9	-6.7	14.86	12.92	13.02	0.10	-1.84	1.15	1.12	1.13	0.01	-0.02
119	FEE_1_50m	50	25.0	17.3	18.9	1.6	-6.1	14.76	12.87	12.96	0.09	-1.81	1.14	1.11	1.12	0.01	-0.02
120	FEE_1_60m	60	23.6	16.6	18.0	1.4	-5.6	14.69	12.83	12.91	0.08	-1.78	1.13	1.11	1.12	0.01	-0.02
121	FEE_1_70m	70	22.5	16.0	17.2	1.2	-5.3	14.64	12.80	12.87	0.07	-1.77	1.13	1.10	1.11	0.01	-0.02
122	FEE_1_80m	80	21.7	15.5	16.7	1.1	-5.0	14.59	12.78	12.84	0.06	-1.75	1.12	1.10	1.11	0.01	-0.01
123	FEE_1_90m	90	21.0	15.2	16.2	1.0	-4.8	14.55	12.76	12.81	0.05	-1.74	1.12	1.10	1.11	0.01	-0.01
124	FEE_1_100m	100	20.4	14.9	15.8	0.9	-4.6	14.52	12.74	12.79	0.05	-1.73	1.11	1.10	1.10	0.01	-0.01
125	FEE_1_125m	125	19.2	14.3	15.0	0.7	-4.2	14.46	12.71	12.75	0.04	-1.71	1.11	1.09	1.10	0.00	-0.01
126	FEE_1_150m	150	18.4	13.8	14.4	0.6	-3.9	14.41	12.68	12.72	0.03	-1.69	1.10	1.09	1.10	0.00	-0.01
127	FEE_1_175m	175	17.8	13.5	14.0	0.5	-3.7	14.38	12.67	12.70	0.03	-1.68	1.10	1.09	1.09	0.00	-0.01
128	FEE_1_200m	200	17.3	13.2	13.7	0.5	-3.6	14.35	12.65	12.68	0.03	-1.67	1.10	1.09	1.09	0.00	-0.01
129	FEE_2_0m	0	17.7	13.4	13.8	0.5	-3.9	14.41	12.69	12.71	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
130	FEE_2_5m	5	17.3	13.1	13.6	0.5	-3.7	14.39	12.67	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
131	FEE_2_10m	10	17.2	13.0	13.5	0.5	-3.7	14.39	12.67	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
132	FEE_2_15m	15	17.2	13.0	13.5	0.5	-3.7	14.39	12.67	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
133	FEE_2_20m	20	17.3	13.0	13.6	0.5	-3.7	14.39	12.67	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
134	FEE_2_30m	30	17.4	13.1	13.7	0.6	-3.7	14.40	12.68	12.71	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
135	FEE_2_40m	40	17.6	13.2	13.8	0.6	-3.8	14.41	12.68	12.71	0.03	-1.69	1.10	1.09	1.10	0.00	-0.01

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
136	FEE_2_50m	50	17.8	13.3	14.0	0.6	-3.9	14.42	12.69	12.72	0.04	-1.70	1.10	1.09	1.10	0.00	-0.01
137	FEE_2_60m	60	18.1	13.5	14.1	0.7	-4.0	14.43	12.69	12.73	0.04	-1.70	1.11	1.09	1.10	0.00	-0.01
138	FEE_2_70m	70	18.4	13.6	14.3	0.7	-4.1	14.45	12.70	12.74	0.04	-1.71	1.11	1.09	1.10	0.00	-0.01
139	FEE_2_80m	80	18.7	13.8	14.6	0.8	-4.2	14.47	12.71	12.75	0.04	-1.71	1.11	1.10	1.10	0.00	-0.01
140	FEE_2_90m	90	19.1	14.0	14.8	0.8	-4.3	14.49	12.72	12.77	0.05	-1.72	1.11	1.10	1.10	0.00	-0.01
141	FEE_3_0m	0	28.2	20.1	20.9	0.7	-7.4	14.95	13.03	13.07	0.04	-1.88	1.16	1.13	1.13	0.00	-0.03
142	FEE_3_5m	5	23.0	16.9	17.4	0.5	-5.6	14.68	12.86	12.89	0.03	-1.79	1.13	1.11	1.11	0.00	-0.02
143	FEE_3_10m	10	20.8	15.6	16.0	0.4	-4.8	14.56	12.79	12.81	0.02	-1.75	1.12	1.10	1.11	0.00	-0.01
144	FEE_3_15m	15	19.6	14.8	15.2	0.4	-4.4	14.50	12.75	12.77	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
145	FEE_3_20m	20	18.7	14.3	14.7	0.3	-4.1	14.45	12.72	12.74	0.02	-1.71	1.11	1.10	1.10	0.00	-0.01
146	FEE_3_30m	30	17.8	13.7	14.0	0.3	-3.7	14.40	12.69	12.71	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
147	FEE_3_40m	40	17.2	13.4	13.6	0.3	-3.5	14.37	12.67	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
148	FEE_3_50m	50	16.8	13.2	13.4	0.2	-3.4	14.35	12.66	12.67	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
149	FEE_3_60m	60	16.6	13.0	13.2	0.2	-3.3	14.33	12.65	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
150	FEE_3_70m	70	16.4	12.9	13.1	0.2	-3.3	14.32	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
151	FEE_3_80m	80	16.3	12.8	13.0	0.2	-3.2	14.32	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
152	FEE_3_90m	90	16.2	12.8	13.0	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
153	FEE_3_100m	100	16.1	12.7	12.9	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
154	FEE_3_125m	125	16.0	12.6	12.9	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
155	FEE_3_150m	150	15.9	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
156	FEE_3_175m	175	15.9	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
157	FEE_3_200m	200	15.9	12.6	12.8	0.2	-3.1	14.30	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
158	FEE_4_0m	0	30.9	21.7	22.6	0.9	-8.3	15.09	13.12	13.16	0.04	-1.93	1.17	1.14	1.14	0.00	-0.03
159	FEE_4_5m	5	25.0	18.1	18.7	0.6	-6.3	14.79	12.93	12.96	0.03	-1.83	1.14	1.12	1.12	0.00	-0.02
160	FEE_4_10m	10	22.4	16.5	17.0	0.5	-5.4	14.64	12.84	12.87	0.03	-1.78	1.13	1.11	1.11	0.00	-0.02

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
161	FEE_4_15m	15	20.8	15.6	16.0	0.4	-4.8	14.56	12.79	12.81	0.02	-1.75	1.12	1.10	1.11	0.00	-0.01
162	FEE_4_20m	20	19.8	15.0	15.3	0.4	-4.4	14.51	12.76	12.78	0.02	-1.73	1.11	1.10	1.10	0.00	-0.01
163	FEE_4_30m	30	18.5	14.2	14.5	0.3	-4.0	14.44	12.72	12.73	0.02	-1.71	1.11	1.10	1.10	0.00	-0.01
164	FEE_4_40m	40	17.7	13.7	14.0	0.3	-3.7	14.40	12.69	12.70	0.01	-1.69	1.10	1.09	1.09	0.00	-0.01
165	FEE_4_50m	50	17.2	13.4	13.7	0.2	-3.6	14.37	12.67	12.69	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
166	FEE_4_60m	60	16.9	13.2	13.4	0.2	-3.4	14.35	12.66	12.67	0.01	-1.68	1.10	1.09	1.09	0.00	-0.01
167	FEE_4_70m	70	16.6	13.0	13.2	0.2	-3.3	14.34	12.65	12.66	0.01	-1.67	1.10	1.09	1.09	0.00	-0.01
168	FEE_4_80m	80	16.4	12.9	13.1	0.2	-3.3	14.32	12.65	12.66	0.01	-1.67	1.09	1.09	1.09	0.00	0.00
169	FEE_4_90m	90	16.2	12.8	13.0	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
170	FEE_4_100m	100	16.1	12.7	12.9	0.2	-3.2	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
171	FEE_4_125m	125	15.8	12.6	12.7	0.2	-3.1	14.29	12.63	12.64	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
172	FEE_4_150m	150	15.6	12.5	12.6	0.2	-3.0	14.28	12.62	12.63	0.01	-1.65	1.09	1.09	1.09	0.00	0.00
173	FEE_4_175m	175	15.5	12.4	12.5	0.1	-2.9	14.27	12.62	12.62	0.01	-1.65	1.09	1.09	1.09	0.00	0.00
174	FEE_4_200m	200	15.3	12.3	12.4	0.1	-2.9	14.27	12.61	12.62	0.01	-1.65	1.09	1.08	1.09	0.00	0.00
175	FEE_5_0m	0	19.1	14.3	14.9	0.6	-4.2	14.47	12.72	12.75	0.03	-1.72	1.11	1.10	1.10	0.00	-0.01
176	FEE_5_5m	5	18.6	14.0	14.6	0.6	-4.0	14.44	12.71	12.74	0.03	-1.71	1.11	1.09	1.10	0.00	-0.01
177	FEE_5_10m	10	18.4	13.9	14.5	0.6	-3.9	14.43	12.70	12.73	0.03	-1.70	1.11	1.09	1.10	0.00	-0.01
178	FEE_5_15m	15	18.2	13.8	14.4	0.6	-3.9	14.42	12.69	12.72	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
179	FEE_5_20m	20	18.1	13.7	14.3	0.6	-3.8	14.42	12.69	12.72	0.03	-1.70	1.10	1.09	1.10	0.00	-0.01
180	FEE_5_30m	30	17.9	13.6	14.1	0.5	-3.7	14.41	12.68	12.71	0.03	-1.69	1.10	1.09	1.10	0.00	-0.01
181	FEE_5_40m	40	17.7	13.5	14.0	0.5	-3.7	14.40	12.68	12.71	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
182	FEE_5_50m	50	17.6	13.5	14.0	0.5	-3.7	14.39	12.68	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
183	FEE_5_60m	60	17.5	13.4	13.9	0.5	-3.6	14.38	12.67	12.70	0.03	-1.69	1.10	1.09	1.09	0.00	-0.01
184	FEE_5_70m	70	17.4	13.4	13.8	0.5	-3.6	14.38	12.67	12.70	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
185	FEE_5_80m	80	17.3	13.3	13.8	0.4	-3.6	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
186	FEE_5_90m	90	17.2	13.3	13.7	0.4	-3.5	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01

Look up ID	Road Link	From Road (m)	Annual Mean Nox Conc. (ug/m3) Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Annual Mean N Dep (k N/ha/yr) Base (2017)	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)	Annual Mean A Dep (keq/ha/yr) BL Base	DM (2037)	DS (2037)	Change (DS-DM)	Change (DS-BL)
187	FEE_5_100m	100	17.2	13.3	13.7	0.4	-3.5	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
188	FEE_5_125m	125	17.0	13.2	13.6	0.4	-3.5	14.36	12.66	12.68	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
189	FEE_5_150m	150	16.9	13.1	13.5	0.4	-3.4	14.35	12.66	12.68	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
190	FEE_5_175m	175	16.8	13.1	13.4	0.3	-3.4	14.35	12.66	12.67	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
191	FEE_5_200m	200	16.7	13.0	13.3	0.3	-3.3	14.34	12.65	12.67	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
192	FEE_6_62m	62	19.1	14.7	15.1	0.5	-4.0	14.41	12.69	12.72	0.02	-1.69	1.10	1.09	1.10	0.00	-0.01
193	FEE_6_67m	67	18.9	14.5	15.0	0.4	-3.9	14.40	12.69	12.71	0.02	-1.68	1.10	1.09	1.10	0.00	-0.01
194	FEE_6_72m	72	18.7	14.4	14.8	0.4	-3.9	14.39	12.68	12.70	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
195	FEE_6_77m	77	18.6	14.3	14.7	0.4	-3.8	14.38	12.68	12.70	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
196	FEE_6_82m	82	18.4	14.3	14.6	0.4	-3.8	14.37	12.67	12.69	0.02	-1.68	1.10	1.09	1.09	0.00	-0.01
197	FEE_6_92m	92	18.2	14.1	14.5	0.4	-3.7	14.36	12.66	12.68	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
198	FEE_6_102m	102	18.0	14.0	14.3	0.3	-3.7	14.35	12.66	12.68	0.02	-1.67	1.10	1.09	1.09	0.00	-0.01
199	FEE_6_112m	112	17.9	13.9	14.2	0.3	-3.6	14.34	12.65	12.67	0.02	-1.67	1.10	1.09	1.09	0.00	0.00
200	FEE_6_122m	122	17.7	13.8	14.1	0.3	-3.6	14.33	12.65	12.67	0.02	-1.67	1.10	1.09	1.09	0.00	0.00
201	FEE_6_132m	132	17.6	13.8	14.1	0.3	-3.6	14.33	12.65	12.66	0.02	-1.66	1.09	1.09	1.09	0.00	0.00
202	FEE_6_142m	142	17.5	13.7	14.0	0.3	-3.5	14.32	12.64	12.66	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
203	FEE_6_152m	152	17.4	13.7	13.9	0.3	-3.5	14.32	12.64	12.66	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
204	FEE_6_162m	162	17.4	13.6	13.9	0.3	-3.5	14.31	12.64	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
205	FEE_6_187m	187	17.3	13.5	13.8	0.2	-3.5	14.31	12.63	12.65	0.01	-1.66	1.09	1.09	1.09	0.00	0.00
Lydden and Temple Ewell Downs SAC																	
206	LTED_1_90m	90	13.2	10.5	10.9	0.3	-2.3	16.59	14.66	14.68	0.02	-1.92	1.26	1.26	1.26	0.00	0.00
207	LTED_1_95m	95	13.1	10.5	10.8	0.3	-2.3	16.59	14.66	14.67	0.02	-1.91	1.26	1.26	1.26	0.00	0.00
208	LTED_1_100m	100	13.0	10.5	10.8	0.3	-2.3	16.58	14.65	14.67	0.02	-1.91	1.26	1.25	1.26	0.00	0.00
209	LTED_1_105m	105	13.0	10.4	10.7	0.3	-2.3	16.58	14.65	14.67	0.01	-1.91	1.26	1.25	1.26	0.00	0.00

Look up			Annual Mean Nox Conc. (ug/m3)					Annual Mean N Dep (k N/ha/yr)					Annual Mean A Dep (keq/ha/yr)				
			Base	DM	DS	Change		Base	DM	DS	Change		BL	DM	DS	Change	
ID	Road Link	From Road (m)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	(2017)	(2037)	(2037)	(DS-DM)	(DS-BL)	Base	(2037)	(2037)	(DS-DM)	(DS-BL)
210	LTED_1_110m	110	12.9	10.4	10.7	0.3	-2.2	16.58	14.65	14.67	0.02	-1.91	1.26	1.25	1.26	0.00	0.00
211	LTED_1_120m	120	12.8	10.3	10.6	0.3	-2.2	16.57	14.65	14.66	0.01	-1.91	1.26	1.25	1.26	0.00	0.00
212	LTED_1_130m	130	12.7	10.3	10.5	0.2	-2.2	16.56	14.64	14.66	0.01	-1.91	1.26	1.25	1.26	0.00	0.00
213	LTED_1_140m	140	12.6	10.3	10.5	0.2	-2.1	16.56	14.64	14.65	0.01	-1.91	1.26	1.25	1.25	0.00	0.00
214	LTED_1_150m	150	12.5	10.2	10.4	0.2	-2.1	16.56	14.64	14.65	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
215	LTED_1_160m	160	12.5	10.2	10.4	0.2	-2.1	16.55	14.64	14.65	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
216	LTED_1_170m	170	12.4	10.2	10.3	0.2	-2.1	16.55	14.64	14.65	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
217	LTED_1_180m	180	12.4	10.1	10.3	0.2	-2.1	16.55	14.64	14.65	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
218	LTED_1_190m	190	12.3	10.1	10.3	0.2	-2.0	16.54	14.63	14.64	0.01	-1.90	1.26	1.25	1.25	0.00	0.00
219	LTED_2_95m	95	12.7	10.6	10.6	0.0	-2.1	16.54	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
220	LTED_2_100m	100	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
221	LTED_2_105m	105	12.7	10.6	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
222	LTED_2_110m	110	12.7	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
223	LTED_2_115m	115	12.6	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
224	LTED_2_125m	125	12.6	10.5	10.6	0.0	-2.1	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
225	LTED_2_135m	135	12.6	10.5	10.5	0.0	-2.0	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
226	LTED_2_145m	145	12.6	10.5	10.5	0.0	-2.0	16.53	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
227	LTED_2_155m	155	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.90	1.25	1.25	1.25	0.00	0.00
228	LTED_2_165m	165	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.89	1.25	1.25	1.25	0.00	0.00
229	LTED_2_175m	175	12.5	10.5	10.5	0.0	-2.0	16.52	14.63	14.63	0.00	-1.89	1.25	1.25	1.25	0.00	0.00
230	LTED_2_185m	185	12.5	10.4	10.5	0.0	-2.0	16.52	14.62	14.63	0.00	-1.89	1.25	1.25	1.25	0.00	0.00
231	LTED_2_195m	195	12.5	10.4	10.5	0.0	-2.0	16.52	14.62	14.63	0.00	-1.89	1.25	1.25	1.25	0.00	0.00

Appendix 2
Attributes of European Sites within 10km of Shepway District

European Site	Area (ha)	Location	Qualifying Features	Key vulnerabilities and environmental conditions to support site integrity
Dungeness, Romney Marsh and Rye Bay Ramsar Site	Undetermined	A large site partially situated within the District and within 10km of the District boundary.	Criterion 2a Supports a number of rare species of plants: • Least lettuce (*Lactuca saligna*); • Rootless duckweed (Wolffia arrhiza); • Soft hornwort (*Ceratophyllum submersum*); • Brackish water crowfoot (*Ranunculus baudotii*); • Hair-like pondweed (*Potamogeton trichoides*); • Divided sedge (*Carex divisa*); • Marsh mallow (*Althaae officinalis*); • sea-heath (*Frankenia laevis*) The variety of habitats also supports a diverse invertebrate assemblage. More than fifteen wetland Red Data Book (RDB) species have been recorded from the site, including: • Ground beetle *Omophron limbatum*, • Aquatic weevil *Bagous cylindrus*, • Two species of hoverfly, • Three species of aquatic beetles and the • Medicinal leech (*Hirudo medicinalis*)	No threats recorded. See Dungeness, Romney Marsh and Rye Bay SPA and Dungeness SAC for threats likely to affect this Ramsar site.

European Site	Area (ha)	Location	Qualifying Features	Key vulnerabilities and environmental conditions to support site integrity
			Criterion 3c Supports, in winter, an internationally important population of Bewick's swan. In the five winter period 1992/93-1996/97 an average peak count of 179 birds was recorded, representing 1.1% of the North-West European wintering population. The site is also notable for nationally important wintering populations of other waterfowl populations (see summary in Section 2.1 on the SPA interests). The site also supports a nationally important population of whimbrel (Numenius phaeopus) during spring and autumn passage periods. An average peak count of 275 birds was recorded during the five year period 1987-1991, representing about 5.5% of the British passage population	
Dungeness, Romney Marsh and Rye Bay SPA	1474.04	A fragmented site partially situated in the south of the District and within 10km of the District boundary.	A176(B) *Larus melanocephalus*: Mediterranean gull A193(B) *Sterna hirundo*: Common tern A195(B) *Sterna albifrons*: Little tern A037(NB) *Cygnus columbianus bewickii*: Bewick swan A056(NB) *Anas clypeata*: Northern shoveler	Threats identified in Site Improvement Plan include physical loss/damage, recreational disturbance and water quality and quantity. • Disturbance to qualifying bird species, particularly during the winter from illicit vehicles is a threat. • Management of non-native species, such as Crassula and

European Site	Area (ha)	Location	Qualifying Features	Key vulnerabilities and environmental conditions to support site integrity
				Valerian to prevent loss of nesting and foraging habitat. • Lack of scrub control on the natural pit wetlands on the shingle ridges (located on the RSPB reserve) would result in loss of fen species due to overshadowing of the wetlands • Disturbance during the bird breeding season from public accessing the territories of sensitive breeding bird species could impact on breeding success. Recreational activities include dog walking, sand yachting, kite boarding, wind surfing. • Rising sea levels and coastal defences in the area may lead to loss of habitat for qualifying bird species.
Wye and Crundale Downs SAC	112.24	A small fragmented site 1.2km north-west of the District.	H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	Threats identified in Site Improvement Plan include air pollution. • Scrub encroachment on the steep slopes of the Devil's Kneading Trough and other areas of the NNR is only partially controlled by grazing, which is leading to a reduction in the extent of grassland feature.

European Site	Area (ha)	Location	Qualifying Features	Key vulnerabilities and environmental conditions to support site integrity
Lydden and Temple Ewell Downs SAC	61.7	A small site situated 2km to the north-east of the District.	H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	Threats identified in Site Improvement Plan include air pollution and recreational disturbance. • Public use of the site, primarily dog walking, has increased in the last 10 - 15 years causing trampling to the grassland and potential nutrient increases in the soil, leading to changes in the species composition.
Folkestone to Etchinghill Escarpment SAC	181.94	A linear site situated in the north of the District.	H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	Threats identified in Site Improvement Plan include air pollution. • Extensive scrub development on Creteway Down is reducing the extent of the qualifying grassland feature.
Dungeness SAC	3223.56	The site is situated to the south of the District.	S1166 *Triturus cristatus*: Great crested newt H1210 Annual vegetation of drift lines H1220 Perennial vegetation of stony banks	Threats identified in Site Improvement Plan include physical loss/damage, recreational disturbance, air pollution, and water quality and quantity. Vehicles: illicit • Great crested newt breeding ponds require regular scrub management on the margins to control the negative effects of

European Site	Area (ha)	Location	Qualifying Features	Key vulnerabilities and environmental conditions to support site integrity
				overshadowing • There is public access throughout the SAC, which allows direct access and disturbance to the vegetated shingle. • Air pollution threatens lichen associated with perennial vegetation of stony banks. Nitrogen exceeds critical load of the site. • Changing water levels has the potential to impact great crested newt breeding habitat.
Blean Complex SAC	520.62	A medium sized site situated 10km from the District boundary.	H9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli*	Threats identified in Site Improvement Plan include air pollution. • Although, sensitive qualifying features are recorded to be in favourable condition, nitrogen levels are exceeding the critical load.
Dover to Kingsdown Cliffs SAC	183.85	A linear site situated 9.5km away from the District boundary.	H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	Threats identified in Site Improvement Plan include air pollution. • Air pollution is a risk of increases in tall grasses, a decline in species diversity, increased mineralization, N leaching; surface acidification. • Small areas of the site in private ownership are insufficiently

European Site	Area (ha)	Location	Qualifying Features	Key vulnerabilities and environmental conditions to support site integrity
				managed. Scrub management needs to be undertaken to retain chalk grassland habitat.
Parkgate Down SAC	6.94	A small site situated in the North of the District.	H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)	Threats identified in Site Improvement Plan include air pollution. • Although, sensitive qualifying features are recorded to be in favourable condition, nitrogen levels are exceeding the critical load.

Appendix 3
HRA Screening of the Shepway District PPLP 2017

To help navigate through the matrix, conclusions are also colour coded green where significant effects are likely, orange where likely significant effects are uncertain, and red, where likely significant effects will occur.

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
UA1	East Station Goods Yard	Increased recreational pressures on N2K sites, increased water requirements (e.g. abstraction), increased release of pollutants associated with traffic,	Nutrient enrichment of grasslands from N deposition and impacts associated with recreational activities including direct disturbance, trampling, and illegal collection pf plants. Given the distance of the site allocations within the urban area from the majority of European sites in this assessment, potential for LSE's is restricted to Folkestone to Etchinghill Escarpment only. A review of the relevant information, as provided in chapter 4 (screening assessment) concluded that LSE's are unlikely in respect of air pollution.	Folkestone to Etchinghill Escarpment SAC	Recreation - Completion of a visitor study of the SAC; provision of alternative open space for new developments; promotion of opportunities for strategic open space access in line with the new Green Infrastructure plan; project level HRA as appropriate; and future monitoring of the SAC to ensure provision of mitigation is provided prior to significant effects occurring Air pollution - inclusion of policies CC1 and CC2 and specific recommendations made in Air quality Assessment in relation to monitoring to inform local measures.	no
UA2	Rotunda and Marine Parade Car Parks, Lower Sandgate Road	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
UA3	The Royal Victoria Hospital, Radnor Park Avenue	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA4	3 to 5 Shorncliffe Road, Folkestone	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA5	Ingles Manor, Castle Hill Avenue	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA6	Shepway Close, Folkestone	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA7	Former Gas Works, Ship Street	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA8	High View School, Moat Farm Road	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
UA9	Brockman Family Centre, Cheriton	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA10	The Cherry Pickers Public House, Cheriton	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA11	Affinity Water, Shearway Road, Cheriton	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA12	Encombe House, Sandgate	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA13	Smith's Medical Campus, Hythe	As policy UA1	As policy UA1	As policy UA	As policy UA1	no
UA14	Land at Station Road, Hythe	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA15	Land at the Saltwood	As policy UA1	As policy UA1	As policy	As policy UA1	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	Care Centre			UA1		
UA16	St Saviours Hospital, Seabrook Road, Hythe	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA17	Foxwood School, Seabrook Road, Hythe	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA18	Princes Parade, Hythe	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
UA19	Hythe Swimming Pool, Hythe	As policy UA1	As policy UA1	As policy UA1	As policy UA1	no
RM1	Land off Cherry Gardens, Littlestone	Increased recreational pressures on N2K sites including disturbance of qualifying birds, loss of offsite habitat, increased water requirements (e.g. abstraction), and increased release of pollutants associated with traffic.	Loss of offsite foraging habitat upon which SPA/Ramsar birds are dependent, increased recreational disturbance on SPA birds and direct disturbance to sensitive habitats within SAC.	Dungeness SAC/SPA/Ramsar	Provision of alternative open space and strategic Green Infrastructure, regular visitor monitoring of SPA linked to condition assessment to ensure mitigatory measures are in place and effective before adverse effects are realised. Site specific bird survey at project level, phasing of	Uncertain - proceed to AA

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
					development and commitment to provide alternative foraging habitat if significant numbers of birds identified.	
RM2	Land off Victoria Road West, Littlestone	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM3	Land to rear of the Old School House, Church Lane, New Romney	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM4	Land West of Ashford Road, New Romney	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM5	Land adjoining The Marsh Academy, Station Road, New Romney	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM6	Kitewell	As policy RM1	As policy RM1	As policy	As policy RM1	Uncertain - proceed to

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	Lane, rear of the ambulance station, Lydd			RM1		AA
RM7	Land south of Kitewell Lane	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM8	Station Yard, Station Road, Lydd	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM9	Former Sands Motel, Land adjoining pumping station, Dymchurch Road, St Mary's Bay	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM10	Land to rear of Varne Boat Club, Coast Drive, Greatstone	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM11	Carpark, Coast Drive, Greatstone	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
RM12	The Old Slaughterhouse, 'Rosemary Corner', Brookland	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM13	Lands north and south of Rye Road, Brookland	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA
RM14	Land adjacent to Moore Close, Brenzett	As policy RM1	As policy RM1	As policy RM1	As policy RM1	Uncertain - proceed to AA

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
ND1	Former Officers Mess, Areorome Road, Hawkinge	Increased recreational pressures on N2K sites, increased water requirements (e.g. abstraction), increased release of pollutants associated with traffic,	Nutrient enrichment of grasslands from N deposition and recreational activities. Direct disturbance from recreation. Nevertheless, a review of the relevant information, as provided in chapter 4 (screening assessment) concluded that LSE's are unlikely in respect of air pollution.	Folkestone to Etchinghill Escarpment SAC	Recreation - Completion of a visitor study of the SAC; provision of alternative open space for new developments; promotion of opportunities for strategic open space access in line with the new Green Infrastructure plan; project level HRA as appropriate; and future monitoring of the SAC to ensure provision of mitigation is provided prior to significant effects occurring Air pollution - inclusion of policies CC1 and CC2	no
ND2	Mill Lane to rear of Mill Farm, Hawkinge	As policy ND1	As policy ND1	As policy ND1	As policy ND1	no
ND3	Land adjacent to Kent Battle of Britain Museum, Aerodrome Road, Hawkinge	As policy ND1	As policy ND1	As policy ND1	As policy ND1	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
ND4	Land south of Canterbury Road, Lyminge	As policy ND1	As policy ND1	As policy ND1	As policy ND1	no
ND5	Sellindge	As policy ND1	This site is located over 5km from European sites and the requirement for open space set out in the PPLP is likely to minimise potential effects associated with recreational pressure	As policy ND1	Minimum standard for open space provision set out in PPLP.	no
ND6	Former Lympe Airfield	As policy ND1	As policy ND5	As policy ND1	As policy ND5	Given the distance of this site from European sites, the requirement for open space set out in the PPLP is considered sufficient to mitigate any potential effects associated with recreational pressure.
ND7	Camping and Caravan Site, Stelling Minnis	As policy ND1	As policy ND5	As policy ND1	As policy ND5	No
ND8	Land adjoining 385	As policy ND1	As policy ND5	As policy ND1	As policy ND5	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	Canterbury Road, Densole					
ND9	Etchinghill Nursery, Etchinghill	As policy ND1	As policy ND1	As policy ND1	As policy ND1	no
ND10	Land adjacent to Golf Course, Etchinghill	As policy ND1	As policy ND1	As policy ND1	As policy ND1	no
HB1	Quality Places through design	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB2	Cohesive Design	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB3	Internal and external space standards	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB4	Self-build and custom housebuilding development	None – this policy itself will not result in development	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
HB5	Replacement dwellings in the Countryside	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB6	Local Housing Needs in Rural Areas	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB7	Dwellings to support a rural based enterprise	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB8	Alterations and Extensions to Existing Buildings	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB9	Annexe accommodation	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB10	Development of Residential Gardens	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB11	Loss of residential	None – this policy itself will	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	care homes and institutions	not result in development				
HB12	Development of New or Extended Residential Institutions (C2 use)	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB13	Houses in multiple occupation (HMO)	None – this policy itself will not result in development	n/a	n/a	n/a	no
HB14	Accommodation of Gypsies and Travellers	None – this policy itself will not result in development	This policy specifies that Gypsy and Traveller development would only be permitted where there is no adverse effect on SSSIs and therefore represents a mitigatory policy	n/a	n/a	no
E1	Allocated Employment Sites	This policy includes allocation of employment use, including in close proximity to European Sites.	As described in the HRA Report, the majority of sites in close proximity to the Dungeness Complex are already working employment sites. Providing the mitigatory policies and measures are implemented no	Dungeness SPA/Ramsar	Site specific bird survey at project level, phasing of development and commitment to provide alternative foraging habitat if significant numbers of birds identified.	Uncertain - proceed to AA

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
			significant effect is predicted. However, Mountfield Road – Phase 3 and 4 may result in loss of offsite foraging habitat upon which SPA/Ramsar birds are dependent			
E2	Redevelopment of existing employment sites	None – this is a development management policy and will itself not result in development	n/a	n/a	n/a	no
E3	Tourism	None – this policy itself will not result in development	This policy specifies that tourism development would only be permitted where there is no adverse effect on biodiversity	n/a	n/a	no
E4	Hotel and Guest houses	None – this policy itself will not result in development	n/a	n/a	n/a	no
E5	Touring and Static Caravan, chalet and camping sites	None – this policy itself will not result in development	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
E6	Farm diversification	None – this policy itself will not result in development	This policy specifies that farm diversification will only be permitted where there is no adverse effect on nature conservation designations and is therefore mitigatory	n/a	n/a	no
E7	Reuse of rural buildings	None – this policy itself will not result in development	n/a	n/a	n/a	no
E8	Provision of fibre to the premises	None – this policy itself will not result in development	n/a	n/a	n/a	no
RL1	Retail Hierarchy	None – this promotes commercial development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no
RL2	Folkestone Major Town centre	None – this promotes commercial development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
RL3	Hythe Town Centre	None – this promotes commercial development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no
RL4	New Romney Town Centre	None – this promotes commercial development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no
RL5	Cheriton District Centre	None – this promotes commercial development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no
RL6	Sandgate Local Centre	None – this promotes commercial development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no
RL7	Other District and Local	None – this promotes commercial development within Town centres and would not be expected to	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	Centres	result in adverse effects on European sites.				
RL8	Development outside town, district and local centres	None – this promotes retail and leisure development and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no
RL9	Design, location and illumination of advertisements	None – this policy will not itself result in development.	n/a	n/a	n/a	no
RL10	Shop fronts, blind and security shutters	None – this policy will not itself result in development.	n/a	n/a	n/a	no
RL11	Silverspring Site Park Farm	None – this promotes business, retail and hotel development within Town centres and would not be expected to result in adverse effects on European sites.	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
RL12	Former Harbour Railway Line	None - this policy allocates an area for use as a linear park, and promotes active travel by providing a cycle and pedestrian route to the harbour area, together with visitor car parking.	This policy would likely to contribute to providing alternative outdoor greenspace and may therefore help to reduce visitor pressure upon nearby European sites.	n/a	n/a	no
C1	Creating a Sense of Place	None – this policy itself will not result in development	n/a	n/a	n/a	no
C2	Safeguarding Community Facilities	None – this policy itself will not result in development	n/a	n/a	n/a	no
C3	Provision of Open Space	This policy promotes the provision of open space and therefore is likely to contribute towards avoiding and mitigating visitor pressures on European sites. However, if people are directed towards existing offsite open space, there may be potential for increased recreational pressure on European sites.	Potential for increased recreational pressure on European sites.	Dungeness SPA/SAC/Ramsar and Folkestone to Etchinghill Escarpment SAC	The potential for adverse effects resulting from provision of open space will be prevented by the inclusion of policy NE1 which states that the council will manage access to SACs/SPAs through provision of facilities and land elsewhere.	No - providing open space usage is not directed towards European sites, this policy is likely to help to mitigate recreational pressures on European sites.
C4	Children's space	None – this policy itself will	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	provision	not result in development				
T1	Street hierarchy and site layout	None – this policy itself will not result in development	n/a	n/a	n/a	no
T2	Parking standards	None – this policy itself will not result in development	n/a	n/a	n/a	no
T3	Residential garages	None – this policy itself will not result in development	n/a	n/a	n/a	no
T4	Parking for heavy goods vehicles	None – this policy itself will not result in development	n/a	n/a	n/a	no
T5	Cycle Parking	None – this policy itself will not result in development	n/a	n/a	n/a	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
NE1	Enhancing and managing access to the natural environment	None – this policy will contribute towards safeguarding and enhancing ecology in the District	This policy actively promotes managing access to European sites and requiring or enhancing land to divert recreation away from those designations by the provision of enhanced facilities elsewhere. The plan specifically recognises the threat of recreational pressure on the Dungeness complex, and also recognises, through conclusions within the SA that Folkestone to Etchinghill Escarpment SAC will also require specific attention. The Council together with Rother District Council is commissioning a second stage in a study that will provide evidence on recreational pressure and an appropriate strategy to mitigate it and this is likely to represent a key piece of mitigation in ensuring other policies do not significantly affect European sites.	no	n/a - this policy will help to mitigate effects identified elsewhere	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
NE2	Biodiversity	None – this policy will contribute towards safeguarding and enhancing ecology in the District	This policy is likely to act in a mitigatory capacity by helping to ensure that adverse effects on biodiversity will be avoided or mitigated	na	na	no
NE3	Protecting the District's landscapes and countryside	None – this policy actively promotes the protection of the Kent Downs AONB and Dungeness SLA.	This policy is likely to contribute towards providing protection for the Folkestone to Etchinghill escarpment SAC and the Dungeness complex.	no	na	no
NE4	Equestrian Development	None – this policy itself will not result in development	none	no	na	no
NE5	Light pollution and external illumination	None – this policy actively promotes sensitive lighting and avoidance of lighting impacts	This policy is likely to ensure that adverse impacts to European sites (e.g. birds at Dungeness) as a result of artificial lighting are avoided through compliance with best practice and minimum standard requirements.	no	na	no
NE6	Land Stability	None – this policy itself will not result in development	none	no	na	no
NE7	Contaminated Land	None – this policy itself will not result in development	none	no	na	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
NE8	Integrated Coastal Zone Management	None – this policy itself will not result in development and promotes provision of resources for improving coastal management and facilitating environmental wellbeing,	This policy may help to mitigate impacts associated with recreational coastal access at Dungeness through provision of resources for management.	no	na	no
NE9	Development around the Coast	None – this policy itself will not result in development and specifies that development in coastal areas will not be permitted where impacts to nature conservation assets are predicted	This policy is likely to contribute towards preventing significant effects on European sites as a result of coastal development.	no	na	no
CC1	Reducing carbon emissions	None - this policy itself will not result in development	This policy is likely to contribute towards reducing carbon emissions and therefore may help to mitigate impacts on European sites through improvements in air quality, particularly Folkestone to Etchinghill Escarpment SAC.	no	na	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
CC2	Sustainable Design and Construction	None - this policy itself will not result in development	This policy is likely to have a positive effect on improving the District's contribution to climate change through efficient use of water and energy. Promotion of more sustainable and cleaner transport options including investment in public transport is likely to contribute towards reducing traffic emissions and may help to mitigate impacts of air quality on habitats, particularly at Folkestone to Etchinghill Escarpment SAC	no	na	no
CC3	Sustainable Drainage Systems	None - this policy itself will not result in development	This policy is likely to have a positive effect on improving the District's contribution to climate change through efficient use of water and improvements in water quality and is likely to contribute towards minimising potential adverse effects on Dungeness complex as a result of pollution and changes in water quality.	no	na	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
CC4	Wind Turbine Development	This policy promotes development of wind turbines and has the potential to result in increases in bird strike.	This policy is likely to have a positive effect on improving the District's contribution to climate change through promoting efficient and sustainable use of energy but has potential to result in significant effects on bird populations as a result of bird collision.	Dungeness SPA and Ramsar	The policy wording currently lacks sufficient safeguards to ensure location of wind farms will avoid significant effects on European sites, particularly Dungeness SPA/Ramsar. **It is recommended that policy wording is updated to include wording such as 'wind turbine applications will only be permitted where there is sufficient certainty that impacts on SPA/Ramsar bird populations will be avoided**'. In addition, any such proposal would need to consider the requirement for project level HRA.	No - providing the wording in the PPLP is updated to provide additional safeguards.

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
CC5	Small scale Wind Turbines and Existing Development	This policy promotes development of wind turbines and has the potential to result in increases in bird strike.	This policy is likely to have a positive effect on improving the District's contribution to climate change through promoting efficient and sustainable use of energy.	Dungeness SPA and Ramsar	The policy states that wind turbines will only be acceptable where there is no adverse ecology impact arising from the development. Potential impacts on SPA/Ramsar birds is therefore expected to be avoided and/or mitigated through project level assessment and where necessary, HRA.	no
CC6	Solar Farms	None - this policy itself will not result in development and specifies that solar farms will not be permitted where adverse ecology impacts are predicted	none	no	na	no
HW1	Promoting healthier food environments	None – this policy itself will not result in development	none	no	na	no
HW2	Improving the health and well-being of the local population	None – this policy itself will not result in development	none	no	na	no

Policy Ref.	Policy Name	Likely activities to result as implementation of the policy	Likely effect if implemented	European site(s) potentially affected	Potential mitigation and avoidance measures	Likely significant effect on European site (taking mitigation into account)?
	and reducing health inequalities					
HW3	Development that supports healthy, fulfilling and active lifestyles	None – this policy itself will not result in development	none	no	na	no
HW4	Promoting active travel	None – this policy itself will not result in development	none	no	na	no
HE1	Heritage Assets	None – this policy itself will not result in development	none	no	na	no
HE2	Archaeology	None – this policy itself will not result in development	none	no	na	no
HE3	Local List of Heritage Assets	None – this policy itself will not result in development	none	no	na	no
HE4	Folkestone's Historic Gardens	None – this policy itself will not result in development	none	no	na	no

Appendix 4

Review of other plans and projects for potential in-combination effects

Dover District Local Development Framework Core Strategy[18]	
	Dover District Council
	Habitat Regulations Assessment of the Dover LDF Core Strategy[19]
	Plan adopted February 2010 Development provided for includes up to 14,000 new houses and 6,500 more jobs by 2026.

Conclusions on potential effects of relevance to European sites within scope of HRA of Shepway District PPLP.

Recreational pressure: *Policy CP4: Distribution of Housing Allocations; Policy CP10: Connaught Barracks; CP11: Whitfield, Dover* has the potential to cause likely significant effects adverse effects for Dover to Kingsdown Cliffs SAC, Lydden to Temple Ewell Downs SAC and Folkestone to Etchinghill Escarpment SAC. To mitigate for these effects *Policy DM20 (Biodiversity and Geology) or Policy DM31 Open Space and Outdoor Recreation Policies* should incorporate standards for provision of new semi-natural green space for new developments that ensure that Natural England criteria are met for new development across the district:

- Provision of at least 2ha of accessible natural green space per 1,000 population
- No person should live more than 300m from their nearest area of natural green space.
- There should be at least one accessible 20ha site within 2km from home.

Urbanisation: adverse effects on Lydden to Temple Ewell Downs SAC are likely to be exacerbated by recreational pressure and air pollution. To control urbanisation, the HRA recommends the inclusion on a policy that enables developer contributions to be obtained to enable the Council to contribute to the management of urban impacts

Air pollution: there is potential for likely significant effects on Lydden to Temple Ewell Downs SAC and Folkestone to Etchinghill Escarpment SAC unless *Policy DM15: Location of Development and Travel Demand* is strengthened with wording relating to alleviating pressure on the A2 in the vicinity of the SACs. Equally, an appropriate assessment and a transportation assessment would be required for any development that will increase traffic within 200m of the SACs and where a new development will have a significant impact upon the trunk road network.

Canterbury District Local Plan Publication Draft[20]	
	Canterbury City Council
	Habitat Regulations Assessment of Draft Local Plan[21]
	Submitted November 2014. Development provided for includes 15,600 new houses and 118,000 sqm for employment between 2011 and 2031.

Conclusions on potential effects of relevance to European sites within scope of HRA of Shepway District Local Plans

The report concludes that there will be no likely significant effects, in regards to the Draft Local Plan. If changes are made to the Plan and screened policy wording, a further screening assessment is required with appropriate mitigation and amendments made where necessary.

[18] http://www.dover.gov.uk/Planning/Planning-Policy/Local-Plan/Core-Strategy/Adopted-Core-Strategy.pdf

[19] http://www.dover.gov.uk/Planning/Planning-Policy/Local-Plan/Core-Strategy/HabitatRegulationsAssessment.pdf

[20] http://canterbury-consult.limehouse.co.uk/portal/cdlp_2014/cdlp_publication_2014?pointId=2861720

[21] http://canterbury-consult.limehouse.co.uk/portal/sa-hra-cdlp-2014/sa-hra_cdlp_2014?pointId=1401810001752

Ashford Draft Local Plan 2030 – Regulation 19[22]	
	Ashford District Council
	Ashford Borough Council Habitat Regulations Assessment and Appropriate Assessment[23]
	Public Consultation on the Draft Local Plan 2030 – Regulation 19 was undertaken between the 15th June and 10th August 2016. Development provided for include 12,200 dwellings between 2016 and 2030 and 66ha of employment land between 2014 and 2030.
Conclusions on potential effects of relevance to European sites within scope of HRA of Shepway District Local Plans The screening assessment examined the potential for adverse effects from the Local Plan on the Wye and Crundale SAC and the Dungeness complex comprising the Dungeness SAC, the Dungeness Romney Marsh and Rye Bay SPA and the Dungeness, Romney Marsh and Rye Bay Ramsar site. The report concludes that there will be no likely significant effects on the assessed European sites either alone or in-combination and further appropriate assessment is not required.	

Rother District Local Plan Core Strategy[24]	
	Rother District Council
	Core Strategy Appropriate Assessment Screening Report[25] Habitats Regulation Assessment Initial Screening Report for Rother District Council 'Development and Site Allocations Plan' and Neighbourhood Plans forming part of the Development Plan for Rother
	Adopted September 2014. Development provided for include 5700 dwellings and 100,000 sqm of business floor space between 2011 and 2028.
Conclusions on potential effects of relevance to European sites within scope of HRA of Shepway PPLP The Appropriate Assessment Screening Report identified offsite impacts, water quality and quantity, recreational pressure and air pollution to have likely significant effects on Dungeness SAC, Dungeness, Romney Marsh and Rye Bay SPA, and Ramsar of same name. Further assessment of Dungeness European and international designations resulted in the incorporation of appropriate changes to the Plan. These changes to policy and supporting text were deemed sufficient to safeguarding Dungeness European and international sites. The screening report for the development and site allocations plan and neighbourhood plans was not considered to have a likely significant effect on the above European sites. However, further assessment would be required if policies emerge that deviate significantly from the Core Strategy.	

[22] https://haveyoursay.ashford.gov.uk/gf2.ti/-/521890/21275973.1/PDF/-/Draft_Local_Plan_Print_Version_100116v2_AmendedContents.pdf

[23] http://www.ashford.gov.uk/local-plan-2030-evidence-base

[24] http://www.rother.gov.uk/CHttpHandler.ashx?id=22426&p=0

[25] http://www.rother.gov.uk/article/8829/Habitat-Regulations-Assessment-HRA