

M2 Junction 5 Improvements Environmental Statement Volume 2 - Appendix D.6 Habitat Regulations Assessment Stage 1 Screening June 2019

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1. Habitat Regulations Assessment Stage 1 Screening

1.1 Introduction

Terms of Reference

- 1.1.1 Atkins Limited (Atkins) has been appointed by Highways England (HE) to provide a Habitats Regulations Assessment (HRA¹) Stage 1: Screening of likely significant effects report associated with the M2 Junction 5 Improvements Scheme (hereafter referred to as 'the Scheme').
- 1.1.2 Consent for the Scheme will be sought via the Highways Act 1980 (as amended) and this assessment has been undertaken following guidance in the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 4, Part 1 Assessment of Implications (of Highways and/or Road Projects) on European Sites (Including Appropriate Assessment) (HD 44/09) (HE, 2009).
- 1.1.3 Information has been collated by Atkins in order for the Competent Authority to assess whether there would be a 'likely significant effect' as a result of the Scheme on any European Sites, as required by the Conservation of Habitats and Species Regulations 2017, known as the Habitats Regulations.
- 1.1.4 Screening forms the first stage of the HRA process and is designed to identify those elements of a project which are likely to give rise to significant adverse impacts on European Sites.
- 1.1.5 This report presents the results of the HRA Stage 1: Screening of likely significant effects for the Scheme undertaken by Atkins on behalf of HE. The Scheme is now in the Preliminary Design Stage. The Scheme boundary is shown on Figure 1 in Appendix A.

1.2 The Scheme

- 1.2.1 Below is a short description of the Scheme, further details can be found in Volume 1 Environmental Statement (ES) Chapter 2.
- 1.2.2 The objectives of the Scheme are to:
- Increase the capacity of the junction to support future growth in housing, employment and the economy;
 - Improve safety for all users of the junction to reduce accident numbers;
 - Improve reliability of journey times through the junction;
 - Deliver a high standard of highway design that is in keeping with the local environment; and
 - Minimise any adverse environmental impacts where feasible.
- 1.2.3 The Scheme is located 58 km from the centre of London, 5 km north east of Sittingbourne. The M2 is an important motorway linking Rochester to Faversham, and a key route to the Port of Dover. Junction 5 of the M2 is the main access point for people travelling northeast to Sittingbourne, the Isle of

¹ Also known as Assessment of Implications on European Sites (AIES)

Sheppey and the Port of Sheerness, and southwest to Maidstone and surrounding villages.

- 1.2.4 The proposed Junction 5 improvements involve the replacement of the existing Stockbury Roundabout with a new grade-separated junction.
- 1.2.5 Stockbury Roundabout would remain at-grade and would be enlarged to accommodate connections to the roundabout. The A249 mainline would flyover the Stockbury Roundabout, with the approaches on embankments and retaining walls, and with two single span bridges over the roundabout.
- 1.2.6 Four new slip roads will be provided, three of which include dedicated left turn lanes at the roundabout for the following turning movements:
- A249 southbound to M2 westbound;
 - A249 northbound to M2 eastbound; and
 - M2 eastbound to A249 northbound.
- 1.2.7 The existing Maidstone Road connection with Stockbury Roundabout will be stopped up and a new Maidstone Road link will be provided, connecting to Oad Street to the north of the M2.
- 1.2.8 A new link road will be provided between Stockbury Roundabout and Oad Street, with the new link road connecting into Oad Street near the existing junction of Oad Street and the A249. The existing Oad Street and A249 junction will be closed. Oad Street will remain open for local access to properties but will not have direct access onto the A249 as currently exists. The existing southbound lanes of the A249 will be retained south of the existing junction with Oad Street and this will be converted into a two-way single carriageway to provide continued access to properties and land fronting this section of road and connection to South Green Lane.
- 1.2.9 The Honeycrook Hill junction with the A249 will be stopped up.

Construction, operation and long term management

- 1.2.10 Construction of the Scheme is currently programmed to commence in early 2020 and is expected to take approximately 18 months.
- 1.2.11 Specific construction, operational and long-term management arrangements are not available in detail or confirmed at this stage of the Scheme. Balfour Beatty have been involved as an ECI Contractor advising on buildability as part of the Preliminary Design Stage. This includes an outline construction 18 month programme and advice on construction that topic chapters have taken into account as part of the accompanying ES. This programme is available in the Outline Environmental Management Plan (OEMP) (refer to Appendix A in Volume 2 of the ES), which also includes a record of environmental actions and commitments (REAC). The assessments of construction effects also assume best practice, based on industry guidance would be followed.
- 1.2.12 The outline construction 18 month programme assumes a start in early 2020 with statutory undertaker diversions. Traffic Management will be in place throughout the construction period. Site mobilisation including construction compounds and site clearance will be completed by May 2020. Environmental works including the relocation of any ecology constraints identified prior to the start of works will be implemented up to the end of September 2020.

- 1.2.13 The work at Junction 5 will be undertaken in two stages, the first phase of works will be for works on Maidstone Road and Oad Street and the second phase will be the remainder of the works.
- 1.2.14 The proposed locations of construction compounds for the contractor have been identified and are included within the temporary land take for the Scheme. These are shown on Figure 2.2 Scheme Drawings in Volume 3 of the ES.
- 1.2.15 Maintenance of junctions will remain largely with the current highways authorities (i.e. Kent County Council east of the M2 and HE to the west).

Decommissioning

- 1.2.16 In view of the up to 120 year design life for structures, it is not considered appropriate for this to form part of the environmental assessment. The focus of the Scheme will be upon seeking to minimise disruption and reuse of materials which forms part of the materials assessment. Decommissioning of the Scheme has therefore not been included.

1.3 Background to HRA

- 1.3.1 HRA is required by Regulation 63 the Conservation of Habitats and Species Regulations 2017 for all plans and projects which may have likely significant effects on a European Site and are not directly connected with or necessary to the management of the European Site. The Scheme is not directly connected with, or necessary to, the nature conservation management of any European Sites.
- 1.3.2 European Sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). HRA is also required, as a matter of UK Government policy for potential SPAs (pSPA), candidate SACs (cSAC) and listed and proposed Wetlands of International Importance (Ramsar sites and pRamsar sites) for the purposes of considering plans and projects, which may affect them². Hereafter, all of the above designated nature conservation sites are referred to as 'European Sites.'
- 1.3.3 The stages of HRA process are as follows:
- Stage 1 – Screening: To test whether a plan or project either alone or in combination with other plans and projects is likely to have a significant effect on a European Site;
 - Stage 2 – Appropriate Assessment: To determine whether, in view of a European Site's conservation objectives, the plan (either alone or in combination with other projects and plans) would have an adverse effect (or risk of this) on the integrity of the site with respect to the site structure, function and conservation objectives. If adverse impacts are anticipated, potential mitigation measures to alleviate impacts should be proposed and assessed;
 - Stage 3 – Assessment of alternative solutions: Where a plan is assessed as having an adverse impact (or risk of this) on the integrity of a European Site, there should be an examination of alternatives (e.g. alternative locations and designs of development); and

² National Planning Policy Framework. Ministry of Housing, Communities and Local Government. February 2019.

- Stage 4 – Assessment where no alternative solutions remain and where adverse impacts remain: In exceptional circumstance (e.g. where there are imperative reasons of overriding public interest), compensatory measures to be put in place to offset negative impacts.

1.3.4 This report comprises Stage 1 – Screening of likely significant effects of the project.

1.4 HRA Consultation

1.4.1 To date, no consultation with the relevant statutory environmental body (SEB), in this case Natural England, has been undertaken with regard to the HRA.

1.4.2 Paragraph 4.17 of HD 44/09 states that: *The relevant Overseeing Organisation and SEB(s) should be consulted, on the basis of the draft screening matrix to obtain their opinion as to whether any particular project may be likely to have a significant effect on any European sites. It is not a legal requirement to undertake consultation at the screening. However, the relevant SEB(s) should be asked to respond with a justified consultation representation under the objectives of the Habitats Regulations. Any representation made by the relevant SEB(s) should be recorded and any supporting correspondence logged with the screening matrix and the information saved in registered files.*

1.4.3 This report and the appended Screening Matrices will be provided to Natural England for comment.

1.5 Previous HRA

1.5.1 During the Option Selection Stage, WSP completed screening matrices for two European designated sites; North Downs Woodlands SAC and Queendown Warren SAC.

1.6 Methodology

The Project

1.6.1 All available information about the Scheme was gathered in order to assess whether the Scheme is likely to have any significant effects on a European Site.

Determination of European Sites included in the HRA

1.6.2 With regards to determining the European Sites to include in the Screening assessment ('Scoping'), the guidance in HD 44/09 states that as a general guide, subject to professional judgement about potential effect pathways, consideration should be given to any European Site if the Scheme is:

- Within 2 km of a European Site;
- Within 30 km of a SAC (including pSACs or candidate SACs) where bats are a qualifying feature; or
- Crossing, adjacent/upstream or downstream of watercourses designated as a European Site.

- 1.6.3 In addition, DMRB guidance³ states that SACs (SCIs or cSACs), SPAs, pSPAs, SSSIs and Ramsar sites located within 200 m of an Affected Road Network (ARN)⁴ should be considered in relation to air quality impacts. This approach is further confirmed in recent Natural England guidance⁵ which states that protected sites falling within 200 m of the edge of a road affected by a plan or project need to be considered.

Obtaining Information on the International Sites with the Potential to be Affected

- 1.6.4 Information on the qualifying features, the citation for each site, the Natura 2000 Standard Data Form (Information Sheet on Ramsar Wetlands for Ramsar sites), conservation objectives and Site Improvement Plans were obtained from the Natural England website and the Joint Nature Conservation Committee (JNCC) website.
- 1.6.5 Condition assessment information for the underpinning Sites of Special Scientific Interest (SSSI) was obtained from the Natural England website to provide important contextual information.

Obtaining Information on Other Projects and Plans

- 1.6.6 The Habitats Regulations requires assessment of the potential for likely significant effects of the project 'in combination' with other projects and plans.
- 1.6.7 The effects of the subject plan or project in combination with other plans or projects are the cumulative effects which will or might result from the addition of the effects of other relevant plans or projects to the effects of the subject plan or project.
- 1.6.8 The Habitats Regulations Handbook⁶ advises that any plans or projects at the following stages may be relevant to an in-combination assessment:
- Applications lodged but not yet determined;
 - Projects subject to periodic review e.g. annual licences, during the time that their renewal is under consideration;
 - Refusals subject to appeal procedures and not yet determined;
 - Projects authorised but not yet started;
 - Projects started but not yet completed;
 - Known projects that do not require external authorisation;
 - Proposals in adopted plans; and

³ Highways England (2007) Design Manual for Roads and Bridges Volume 11 Section 3 Part 1 Air Quality

⁴ Affected Road Network (ARN) - the affected road network has been defined in accordance with HA 207/07 scoping criteria as set out in the Design Manual for Roads and Bridges Section 3 Part 1 (HA207/07), former Highways Agency, May 2007. Affected roads are those that meet any of the following criteria:

- Road alignment will change by 5 metres or more; or
- Daily traffic flows will change by 1,000 annual average daily traffic or more; or
- Heavy duty vehicle flows will change by 200 annual average daily traffic or more; or
- Daily average speed will change by 10 kilometres per hour or more; or
- Peak hour speed will change by 20 kilometres per hour or more.

⁵ NE Internal Guidance – Approach to Advising Competent Authorities on Road Traffic Emissions and HRAs V1.4 Final – June 2018.

⁶ Tyldesley, D., and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, January 2018 edition UK: DTA Publications Limited www.dtapublications.co.uk.

- Proposals in finalised draft plans formally published or submitted for final consultation, examination or adoption.

1.6.9 A search was undertaken of local authority planning webpages for relevant planning applications and consents, as well as a review of allocated and proposed sites in local plans. In addition, the relevant Local Planning Authorities (Swale Borough Council and Maidstone Borough Council) were consulted to determine whether any other developments in the vicinity of the scheme should be taken into consideration and when they believe these to be likely to come forward.

Assessing likely significant effects

1.6.10 A critical part of the HRA Screening process is determining whether or not the proposals are likely to have a significant effect on European sites and, therefore, if they will require an Appropriate Assessment. The concept of 'likely significant effect' as embodied in Article 6(3) of the Habitats Directive and regulation 61(1) of the Habitats Regulations is central to their operation. Its interpretation is well established in law and guidance and embraces the precautionary principle.

1.6.11 The European Court Waddenzee judgement⁷ provides clarification regarding the term 'likely'. It concludes that 'any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects.'

1.6.12 Clarification has also been provided through case law on the meaning of 'likely' in relation to *Bagmoor Wind Ltd v The Scottish Ministers*⁸. '*The word 'likely' in the regulation is not to be construed as an expression of probability, in a legal sense, but as a description of the existence of a risk (or possibility).*' Consequently, if the possibility of a significant effect cannot be excluded based on objective information, an Appropriate Assessment will be required.

1.6.13 The European Court Waddenzee judgement also provides further clarification regarding the term 'significant': 'where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project.'

1.6.14 The *Bagmoor Wind* case also provides guidance on the term 'objective.' It states: '*Objective, in this context, means information based on clear verifiable fact rather than subjective opinion.*' The Habitats Regulations Handbook⁹ states: "*It will not normally be sufficient for an applicant merely to assert that the plan or project will not have an adverse effect on a site, nor will it be appropriate for a competent authority to rely on reassurances based on supposition or speculation. On the other hand, there should be credible evidence to show that there is a real rather*

⁷ Case C – 127/02 Waddenzee, reference for a preliminary ruling from the Raad van State: Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij, 7th September 2004.

⁸ *Bagmoor Wind Limited v The Scottish Ministers*, Court of Sessions [2012] CSIH 93.

⁹ Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, January 2018 edition UK: DTA Publications Limited www.dtapublications.co.uk.

than a hypothetical risk of effects that could undermine the site's conservation objectives. Any serious possibility of a risk that the conservation objectives could be undermined should trigger an 'appropriate assessment'.

- 1.6.15 The test for likelihood of significant effects requires that consideration is given to potential causes and potential effects (i.e. any potential impact pathways). To do this, information on the Scheme is needed to identify the potential causes of effects and information on the European site is needed to identify any potential implications related to these effects. In the absence of a potential impact pathway, it can be concluded that no likely significant effect would arise. Relevant aspects (effects) of the Scheme has been checked against all features of the relevant European sites (i.e. screened) to determine whether a likely significant effect may arise.
- 1.6.16 The judgement as to whether a significant effect is likely needs to be based on the best readily available information. Sources of information may include evidence from projects where similar operations have affected sites with similar qualifying features and conservation objectives and the judgement of relevant specialists that an effect is likely, as well as survey data collected to date for a particular project. In line with the precautionary principle, where there is uncertainty and/or information is lacking in relation to the capacity of the effect to undermine the site's conservation objectives, it must be assumed that there will be an effect, unless further information can be made available to eliminate any areas of doubt.
- 1.6.17 The implication of the Court of Justice of the European Union (CJEU) judgement referred to as People Over Wind (Peter Sweetman v Coillte Teoranta, Case C-323/17) is that competent authorities cannot take account of any *"measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned"*, when considering at the HRA screening stage whether the plan or project is likely to have an adverse effect on a European Site. The effect of this is that the screening stage must be undertaken on a precautionary basis with no regard to any proposed integrated or additional avoidance or reduction measures. Where the likelihood of significant effects cannot be excluded on the basis of objective information, the competent authority must proceed to carry out an Appropriate Assessment to establish whether the plan or project will affect the integrity of the European site, which can include at that stage consideration of the effectiveness of the proposed avoidance or reduction measures.
- 1.6.18 Case law in 2017 referred to as the 'Wealden Judgement'¹⁰ prompted Natural England to make their internal guidance on assessing the effects of road traffic emissions on European Sites, public¹¹. The guidance provides further information on the in-combination assessment at screening stage with regard to air quality effects following the Wealden Judgement.

¹⁰ Case no: CO/3943/2016 – Between Wealden District Council and Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority and Natural England.

¹¹ NE Internal Guidance – Approach to advising Competent Authorities on Road Traffic Emissions and HRAs V1.4 Final – June 2018.

1.7 Results

Scoping the European Sites

- 1.7.1 There are no European designated sites that meet the criteria outlined in paragraph 1.6.2 above. Sites below have been identified due their being within 200m of the ARN (as detailed in paragraph 1.6.3 above).

North Downs Woodlands SAC

- 1.7.2 North Downs Woodlands SAC is located within close proximity of the ARN, at approximately 10 m at its closest point. DMRB¹² uses a distance of 200 m as an indicative zone where changes in air quality may affect sensitive ecological receptors. The previous assessment by WSP could not discount a significant effect on North Downs Woodlands SAC and this designated site has been scoped in for screening consideration in this HRA.

Queendown Warren SAC

- 1.7.3 At Option Selection Stage, WSP also completed a screening matrix for Queendown Warren SAC. However, based on the current Scheme design, this site does not meet the criteria listed in 1.6.2 above, whereas at PCF Stage 2 it was located within 2 km of one of the Scheme options. Furthermore, it is not located within 200 m of the ARN. There are no impact pathways between the Scheme and Queendown Warren SAC and it is therefore scoped out of this HRA.

Peter's Pit SAC and Medway Estuary and Marshes SPA and Ramsar

- 1.7.4 The wider traffic model has resulted in the air quality assessment identifying three European sites in the wider area where there is the potential for air quality impacts in combination with other plans and projects. These include Peter's Pit SAC and Medway Estuary and Marshes SPA and Ramsar. Recent case law in 2017 referred to as the 'Wealden Judgement'¹³ prompted Natural England to make their internal guidance on assessing the effects of road traffic emissions on European Sites, public¹⁴. The guidance provides further information on the in-combination assessment at screening stage with regard to air quality effects following the Wealden Judgement.
- 1.7.5 Peter's Pit SAC is located approximately 12.5 km west of the Scheme but approximately 30 m east of Village Road which falls into the ARN category due to the increase in Annual Average Daily Traffic (AADT) flows of more than 1000 vehicle movements as a result of the Scheme in-combination with other plans and projects. Accordingly, Peter's Pit SAC has been scoped in for screening consideration in this HRA.
- 1.7.6 Medway Estuary and Marshes SPA and Ramsar is located approximately 4.5 km north of the Scheme but approximately 50 m north of the A289 which falls into the ARN category due to the increase in AADT flows of more than 1000 as a result of the Scheme in-combination with other plans and projects. Medway Estuary and Marshes SPA and Ramsar is designated on account of its bird population. Air pollution is not listed as a threat or pressure on the Natura 2000

¹² Design Manual for Roads and Bridges Volume 11 Section 3 Air Quality, former Highways Agency, May 2007.

¹³ Case no: CO/3943/2016 – Between Wealden District Council and Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority and Natural England.

¹⁴ NE Internal Guidance – Approach to advising Competent Authorities on Road Traffic Emissions and HRAs V1.4 Final – June 2018.

Standard Data Form or the relevant Information Sheet on Ramsar Wetlands. Mudflats is the habitat closest to the A289 where increases in traffic volumes have been identified. This habitat is located approximately 70 m from the A289 at its closest point. Mudflats are not listed on the APIS website (<http://www.apis.ac.uk/search-pollutant-impacts>) as being sensitive to nitrogen oxides (NO_x emissions, which road traffic is a source of). Medway Estuary and Marshes SPA and Ramsar is therefore not considered vulnerable to air quality impacts, and potential air quality impacts on these European sites have been scoped out.

The European Sites

- 1.7.7 North Downs Woodlands SAC and Peter's Pit SAC are the only scoped in European sites in this HRA. In relation to the other European sites considered:
- Queendown Warren SAC has been scoped out given that no impact pathways exist; and
 - Air quality impacts in relation to Medway Estuary and Marshes SPA and Ramsar have been scoped out.
- 1.7.8 North Downs Woodlands SAC comprises mature beech forests and yew woods on steep slopes. The stands lie within a mosaic of scrub, other woodland types and areas of unimproved grassland on thin chalk soils. The beech and yew woodland is on thin chalk soils and where the ground flora is not shaded dog's mercury predominates. Associated with it is stinking iris and several very scarce species such as lady orchid and stinking hellebore. The chalk grassland on south-facing slopes is dominated by upright brome and sheep's-fescue but supports many other plants which are characteristic of unimproved downland, including the nationally rare ground pine. Qualifying features are:
- *Taxus baccata* woods of the British Isles (yew-dominated woodland);
 - *Asperulo-Fagetum* beech forests (beech forests on neutral to rich soils); and
 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (dry grasslands and scrublands on chalk or limestone).
- 1.7.9 Peter's Pit SAC is an old chalk quarry situated in the North Downs in north Kent, with large ponds situated amongst grassland, scrub and woodland. The ponds have widely fluctuating water levels and large great crested newt populations have been recorded breeding here. There is only one qualifying feature:
- Great crested newt.

1.8 Results of Stage 1 – Screening Scheme alone

North Downs Woodlands SAC

- 1.8.1 The information collected during the screening exercise is presented in the form of a Screening Matrix, using the template in Annex C of HD 44/09. This Screening Matrix is provided in Appendix B of this document.
- 1.8.2 Road traffic is a source of nitrogen oxides (NO_x emissions), a pollutant that can have adverse effects on plants and habitats as a result of nitrogen deposition which can cause nutrient enrichment of the soil and changes to the soil pH. This can have adverse effects on sensitive habitats. With regard to potential risks

from road traffic emissions, Natural England and HE are in agreement that protected sites falling within 200 m of the edge of a road affected by a plan or project need to be considered further. Given that North Downs Woodlands SAC is located within 200 m of the Affected Road Network, and given that all of the qualifying habitats are sensitive to air pollution according to the UK's Air Pollution Information System (APIS, <http://www.apis.ac.uk>), the Standard Data form and Site Improvement Plan for North Downs Woodlands SAC, this is considered to represent a potential impact pathway. No other impact pathways have been identified.

- 1.8.3 Based on a review of the MAGIC website (<https://magic.defra.gov.uk/>) and the Natural England website, it is considered that the qualifying features yew dominated woodland and beech forests on neutral to rich soils are likely to be present within 200 m of the ARN.
- 1.8.4 Potential impacts on habitats as a result of nitrogen deposition include:
- Changes in species composition, particularly in nutrient poor ecosystems with a shift towards species associated with higher nitrogen availability;
 - Reduction in species richness;
 - Increases in plant production;
 - Decrease or loss of sensitive lichens and bryophytes; and
 - Increases in nitrate leaching.
- 1.8.5 Screening thresholds have been set using the critical load and critical level values on the Air Pollution Information System (APIS) website (<http://www.apis.ac.uk>) and Natural England guidance¹⁵¹⁶ and the results of the air quality assessment have been reviewed against these thresholds.
- 1.8.6 Based on the application of the screening thresholds, no likely significant effects from the Scheme alone, as a result of air quality impacts, are anticipated. Further detail is provided in the Screening Matrix in Appendix B.

Peters Pit SAC

- 1.8.7 The information collected during the screening exercise is presented in the form of a Screening Matrix, using the template in Annex C of HD 44/09. This Screening Matrix is provided in Appendix C of this document.
- 1.8.8 As discussed below, the Scheme alone would not result in a likely significant effect alone, in terms of air quality, as it would result in a minimal increase in vehicle movements. Consideration of in-combination effects is provided in the following section.

¹⁵ Natural England Internal Guidance - Approach to advising competent authorities on the assessment of road traffic emissions and HRAs V1.4 Final – June 2018

¹⁶ 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.

1.9 Results of Stage 1 – Screening Scheme in-combination

North Downs Woodlands SAC

- 1.9.1 The air quality assessment includes consideration of committed development in order that an in-combination assessment can be undertaken. Levels of nitrogen deposition as a result of the Scheme and all committed development have been reviewed against the screening thresholds.
- 1.9.2 Based on the application of the screening thresholds, no likely significant effects from the Scheme in-combination with other plans and projects, as a result of air quality impacts, are anticipated. Further detail is provided in the Screening Matrix in Appendix B.

Peter's Pit SAC

- 1.9.3 Peter's Pit SAC is located approximately 12.5 km west of the Scheme but approximately 30 m east of Village Road which falls into the ARN category due to the increase in AADT flows of more than 1000 vehicle movements as a result of the Scheme in-combination with other plans and projects.
- 1.9.4 The Scheme would not result in a likely significant effect alone, in terms of air quality, as it would result in an increase in AADT of just 35 vehicle movements. The potential for a likely significant effect in-combination with other plans and projects has arisen due to Peter's Village housing development and a new road bridge over the River Medway which will re-route traffic along Village Road upon its completion in 2022.
- 1.9.5 Peter's Pit SAC is located adjacent to the Peter's Village development. The Environmental Statement for Peter's Village (August 2002) demonstrated that the development would not cause changes in air quality sufficient to cause negative impacts. Furthermore, a letter from English Nature (now Natural England) dated 24 February 2005 to Tonbridge and Malling Borough Council requested that an appropriate assessment be undertaken of the effects of Peter's Village on Peter's Pit SAC, but that pollution from vehicle emissions need not be included as there was no likely significant effect.
- 1.9.6 Given that the Peter's Village development is not considered to have any adverse air quality impacts on Peter's Pit SAC, such that pollution from vehicle emissions was excluded from the appropriate assessment for the development, and considering the extremely minimal contribution that the subject Scheme would make towards vehicle movements, no likely significant effects from the Scheme in-combination with other plans and projects, as a result of air quality impacts, are anticipated. Further detail is provided in the Screening Matrix in Appendix C.

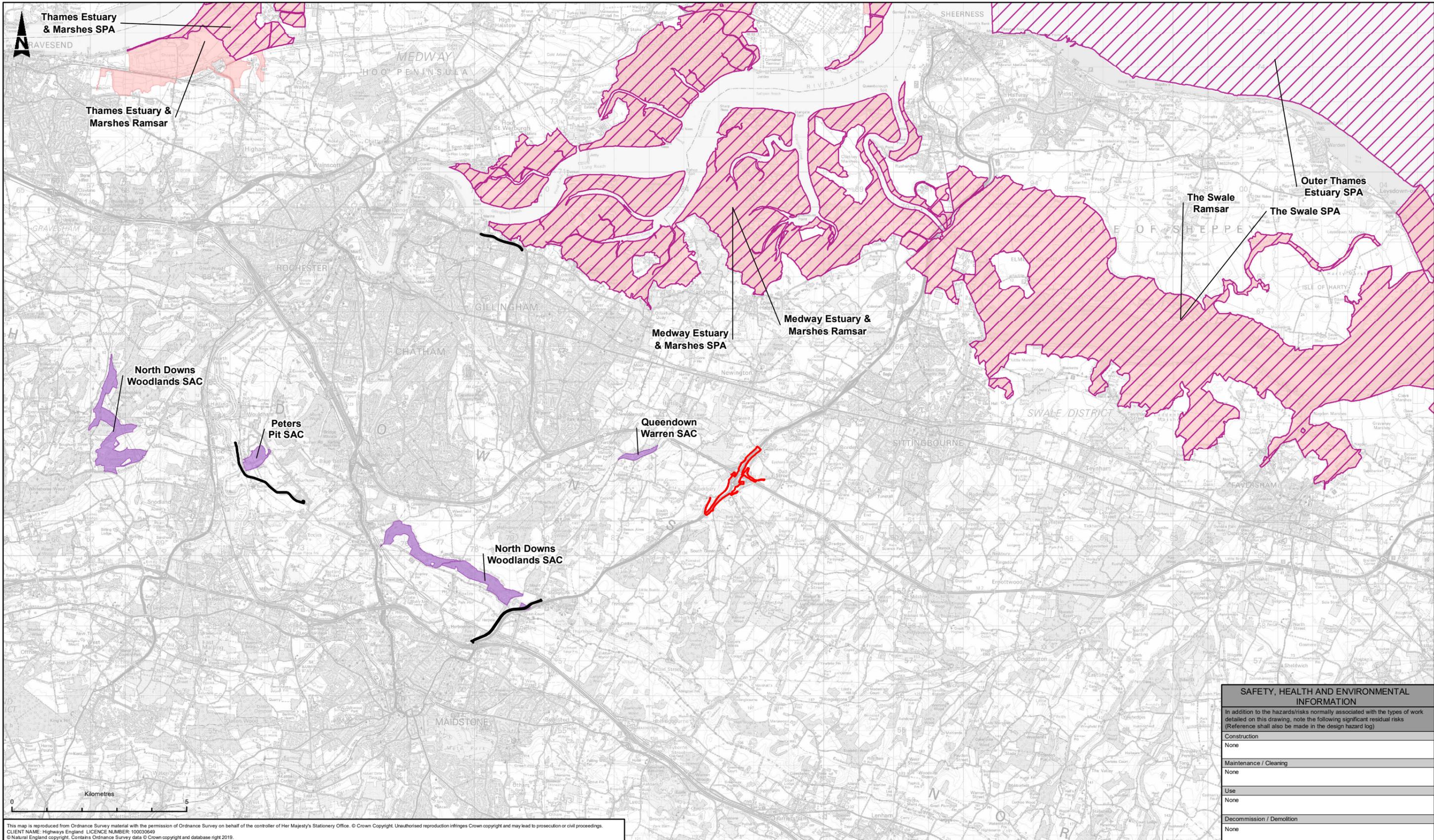
No Significant Effect Matrix

- 1.9.7 In accordance with HD 44/09, no significant effects matrices are included in Appendix D of this document.

Appendices

Appendix A. Figures

Figure 1 European Designated Sites



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made in the design hazard log)	
Construction	None
Maintenance / Clearing	None
Use	None
Decommission / Demolition	None

LEGEND							
	Scheme Boundary						
	Affected Road Network						
	Special Protection Areas (SPA)						
	Special Areas of Conservation (SAC)						
	Ramsar Sites						

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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highways england

Project Title		ROAD IMPROVEMENT PROGRAMME M2 Junction 5	
Drawing Title		FIGURE 1 EUROPEAN DESIGNATED SITES	
Drawing Number		Project Originator Volume HE551521 - ATK - EBD XX - GS - GI - 000018	
Original Size: A3	Scale: 1:100,000	Project Ref. No: ---	Sheet: 1 of 1 Rev: P01

Appendix B. North Downs Woodlands Screening Matrix

North Downs Woodlands SAC Screening Matrix		
Project Name	M2 Junction 5 Improvements Scheme	
Natura 2000 Site under Consideration	North Downs Woodlands SAC	
Date:	Author (Name/Organisation):	Verified (Name/Organisation)
February 2019	Lizzie Hall Atkins	Matthew Bowell Atkins
Description of Project		
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:		
Size and scale (road type and probable traffic volume)	<p>The objectives of the Scheme are to:</p> <ul style="list-style-type: none"> • Increase the capacity of the junction to support future growth in housing, employment and the economy; • Improve safety for all users of the junction to reduce accident numbers; • Improve reliability of journey times through the junction; • Deliver a high standard of highway design that is in keeping with the local environment; and • Minimise any adverse environmental impacts where feasible. <p>The Scheme is located 58 km from the centre of London, 5 km north east of Sittingbourne. The M2 is an important motorway linking Rochester to Faversham, and a key route to the Port of Dover. Junction 5 of the M2 is the main access point for people travelling northeast to Sittingbourne, the Isle of Sheppey and the Port of Sheerness, and southwest to Maidstone and surrounding villages.</p> <p>The proposed Junction 5 improvements involve the replacement of the existing Stockbury Roundabout with a new grade-separated junction. Stockbury Roundabout would remain at-grade and would be enlarged to accommodate connections to the roundabout. The A249 mainline would flyover the Stockbury Roundabout, with the approaches on embankments and retaining walls, and with two single span bridges over the roundabout. Four new slip roads will be provided, three of which include dedicated left turn lanes at the roundabout for the following turning movements:</p> <ul style="list-style-type: none"> • A249 southbound to M2 westbound; • A249 northbound to M2 eastbound; and • M2 eastbound to A249 northbound. <p>The existing Maidstone Road connection with Stockbury Roundabout will be stopped up and a new Maidstone Road link will be provided, connecting to Oad Street to the north of the M2.</p> <p>A new link road will be provided between Stockbury Roundabout and Oad Street, with the new link road connecting into Oad Street near the existing junction of Oad Street and the A249. The existing Oad Street and A249 junction would be closed. Oad Street will remain open for local access to properties but will not have direct access onto the A249 as currently exists. The existing southbound lanes of the A249 will be retained south of the existing junction with Oad Street and this will be converted into a two-</p>	

North Downs Woodlands SAC Screening Matrix	
	<p>way single carriageway to provide continued access to properties and land fronting this section of road and connection to South Green Lane.</p> <p>The Honeycrook Hill junction with the A249 will be stopped up.</p> <p>Road types and anticipated traffic volumes:</p> <p>The A249 and M2 are both two lane dual carriageways on approach to the M2 Junction 5.</p> <p>The junction options are expected to result in projected traffic volumes of between approximately 74,000 and 75,000 vehicles per day north of the M2 Junction 5 on the A249 and between 58,000 and 60,000 vehicles per day south of the M2 Junction 5 on the A249 (Annual Average Daily Traffic) in the year 2041. Projected traffic volumes along the M2 are between 85,000 and 86,000 vehicles per day to the west of the M2 Junction 5 and between 73,000 and 74,000 vehicles per day to the east of the M2 Junction 5 (Annual Average Daily Traffic) in the year 2041.</p>
Land-take	The Scheme would not require land-take from the North Downs Woodlands SAC.
Distance from the European Site or key features of the site (from edge of the project assessment corridor)	The North Downs Woodlands SAC is approximately 7 km south west of the scheme; and approximately 10 m from the closest point of the Affected Road Network (ARN) ¹⁷ .
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	The Scheme does not require resources from the North Downs Woodlands SAC.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	<p>There is no hydrological link between the Scheme and the North Downs Woodlands SAC, and therefore no impact pathway by which any water-borne pollution generated by the Scheme could give rise to adverse effects on the European designated site.</p> <p>Road traffic is a source of nitrogen oxides (NO_x emissions), a pollutant that can have adverse effects on plants and habitats as a result of nitrogen deposition which can cause nutrient enrichment of the soil and changes to the soil pH. This can have adverse effects on sensitive habitats. With regard to potential risks from road traffic emissions, Natural England and Highways England (HE) are in agreement that protected sites falling within 200 m of the edge of a road affected by a plan or project need to be considered further¹⁸. Given that North Downs Woodlands SAC is located within 200 m of the ARN, and given that all of</p>

¹⁷ Affected Road Network (ARN) - the affected road network has been defined in accordance with HA 207/07 scoping criteria as set out in the Design Manual for Roads and Bridges Section 3 Part 1 (HA207/07), former Highways Agency, May 2007. Affected roads are those that meet any of the following criteria:

- Road alignment will change by 5 metres or more; or
- Daily traffic flows will change by 1,000 annual average daily traffic or more; or
- Heavy duty vehicle flows will change by 200 annual average daily traffic or more; or
- Daily average speed will change by 10 kilometres per hour or more; or
- Peak hour speed will change by 20 kilometres per hour or more.

¹⁸ Natural England Internal Guidance - Approach to advising competent authorities on the assessment of road traffic emissions and HRAs V1.4 Final – June 2018

North Downs Woodlands SAC Screening Matrix	
	the qualifying habitats are sensitive to air pollution according to the UK's Air Pollution Information System website (APIS, http://www.apis.ac.uk), the Natura 2000 Standard Data form and Site Improvement Plan for North Downs Woodlands SAC, this is considered to represent a potential impact pathway.
Excavation requirements (e.g. impacts of local hydrogeology)	Material will be generated as the result of new and modified highway earthworks and the excavation of drainage features. The majority of excavated material will be topsoil and sub soil to allow imported fill to be placed to extend/widen existing embankments.
Transportation requirements	<p>Deliveries will be routed via the M2/M20/A249. The exception will be aggregates, asphalt and concrete. Local roads will not be used as delivery routes. The majority of construction traffic will come from the north along the M2 or from local quarries which are located around the M20.</p> <p>The number of HGVs and other traffic travelling to site are anticipated to be 20-50 HGV deliveries each day. It is expected that approximately 6 HGV will be working around the junction each day, moving material, plant etc.</p> <p>It is not anticipated that haul roads will be required to move material from one area on site to another.</p> <p>Given the distance of the North Downs Woodlands SAC from the Scheme and that the majority of construction traffic will come from the north along the M2 and the SAC is located to the south-west, transportation requirements during the construction phase are considered unlikely to have a significant adverse effect on the features for which the SAC is designated.</p>
Duration of construction, operation, etc	Construction of the Scheme is currently programmed to commence in early 2020 and is expected to take approximately 18 months. The project would be operational for approximately 120 years in accordance with the design life for such carriageways.
Other	N/A
<p>Description of avoidance and/or mitigation measures</p> <p>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</p> <p>It should be noted that: the implication of the Court of Justice of the European Union (CJEU) judgement in relation to People over Wind (Peter Sweetman v Coillte Teoranta, Case C-323/17) is that competent authorities cannot take account of any integrated or additional avoidance or reduction measures when considering at the HRA screening stage whether the plan or project is likely to have an adverse effect on a European Site. The screening stage must be undertaken on a precautionary basis with no regard to any proposed integrated or additional avoidance or reduction measures. Where the likelihood of significant effects cannot be excluded on the basis of objective information, the competent authority must proceed to carry out an Appropriate Assessment to establish whether the plan or project will affect the integrity of the European site, which can include at that stage consideration of the effectiveness of the proposed avoidance or reduction measures. This is outlined in PINS Note 05/2018.</p>	
Nature of proposals	The risk of pollution during construction will be reduced by the adoption of good working practices, such as Guidance for Pollution Prevention (GPPs) ¹⁹ . In general terms, by following these guidelines, significant impacts to the water environment should be avoided.

¹⁹ Guidance for Pollution Prevention (GPPs). GPPs provide environmental good practice guidance for the whole UK. <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-pgps-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

North Downs Woodlands SAC Screening Matrix	
	<p>In terms of construction dust, best practice mitigation measures would minimise any construction dust effects. Such measures may include but not necessarily be limited to:</p> <ul style="list-style-type: none"> • Regular water-spraying and sweeping of unpaved and paved roads to minimise dust and remove mud and debris; • Using wheel washes, shaker bars or rotating bristles for vehicles leaving the site where appropriate to minimise the amount of mud and debris deposited on the roads; • Sheeting vehicles carrying dusty materials to prevent materials being blown from the vehicles whilst travelling; • Enforcing speed limits for vehicles on unmade surfaces to minimise dust entrainment and dispersion; • Ensuring any temporary site roads are no wider than necessary to minimise their surface area; • Damping down of surfaces prior to their being worked; and • Storing dusty materials away from site boundaries and in appropriate containment (e.g. sheeting, sacks, barrels etc.). <p>Mitigation measures incorporated into the Scheme in relation to protected or notable habitats or species include:</p> <ul style="list-style-type: none"> • Optimal timing of works to avoid key periods for particular species, such as avoidance of the bird nesting season for habitat clearance; • Displacement of dormice from within suitable habitat within the Scheme footprint, enhancement of retained dormouse habitat and creation of new woodland and scrub habitat for dormice to mitigate for any habitat loss and enhance connectivity for dormice within the wider area; • Habitat creation and enhancement of existing habitat to compensate for loss of woodland habitats and hedgerows in particular, and to enhance habitat connectivity for species such as dormice and bats; • Translocation and/or exclusion/displacement of reptiles, dormice and bats (under appropriate licences/agreements) from defined areas of the scheme to pre-prepared receptor sites (where necessary) to minimise impacts of habitat loss and species mortality; • Appropriate design and use of lighting to minimise impacts on bats and other light sensitive species; and • Implementation of general construction environmental best practice including, providing tool box talks for construction staff informing them of key ecological constraints within the area, and ensuring that open trenches are not left over night without safe means of egress for animals that may fall into them.
Location	Avoidance and mitigation measures will be located in relevant areas within the Scheme boundary.
Evidence for effectiveness	<p>The standard pollution prevention measures to be implemented are proven to be effective in minimising the risk of pollution.</p> <p>Other proposed mitigation measures are also plainly established and uncontroversial and follow relevant best practice guidelines.</p>
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	Detailed avoidance and mitigation measures will be implemented as part of appropriate Construction Method Statements and Construction Environmental Management Plans, in accordance with standard best practice and Design Manual for Roads and Bridges requirements. These documents will form the basis for contractual obligations of the main works contractor, and thus are considered robust mechanisms for delivery.
Characteristics of European Site(s)	

North Downs Woodlands SAC Screening Matrix	
A brief description of the European Site should be produced, including information on:	
Name of European Site and its EU code	North Downs Woodlands SAC (UK0030225)
Location and distance of the European Site from the proposed works	The North Downs Woodlands SAC is approximately 7 km south west of the scheme; and approximately 10 m from the closest point of the ARN.
European Site size	288.58 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>This site consists of mature beech forests and yew woods on steep slopes. The stands lie within a mosaic of scrub, other woodland types and areas of unimproved grassland on thin chalk soils.</p> <p>The beech and yew woodland is on thin chalk soils and where the ground flora is not shaded dog's mercury predominates. Associated with it is stinking iris and several very scarce species such as lady orchid and stinking hellebore.</p> <p>The chalk grassland, on warm south-facing slopes, is dominated by upright brome and sheep's-fescue but supports many other plants which are characteristic of unimproved downland, including the nationally rare ground pine.</p> <p>Annex I habitats that are a primary reason for site selection include: 9130 Asperulo-Fagetum beech forests (beech forests on neutral to rich soils)</p> <p>This site consists of mature Asperulo-Fagetum beech forests and also yew 91J0 Yew <i>Taxus baccata</i> woods on steep slopes. The stands lie within a mosaic of scrub and other woodland types and are the most easterly of the beech woodland sites selected. Parts of the woods were affected by the Great Storm of 1987.</p> <p>Approximately 53.1 ha of the European designated site comprises this habitat type.</p> <p>91J0 <i>Taxus baccata</i> woods of the British Isles (yew dominated woodland)* Priority feature</p> <p>Yew <i>Taxus baccata</i> woodland at this site is associated with 9130 Asperulo-Fagetum beech forests, scrub and small areas of unimproved grassland on thin chalk soils. Where the shade is not too dense dog's mercury <i>Mercurialis perennis</i> predominates in the ground flora. The site is the most easterly of those selected.</p> <p>Approximately 66.08 ha of the European designated site comprises this habitat type.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site include: 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (dry grasslands and scrublands on chalk or limestone) (*important orchid sites)</p> <p>Approximately 40.4 ha of the European designated site comprises this habitat type.</p>
Vulnerability of the European Site – any information available from the standard data	<p>Principal threats and pressures include:</p> <ul style="list-style-type: none"> • Air pollution and air-borne pollutants. The Site Improvement Plan identifies that all qualifying features are affected by this threat;

North Downs Woodlands SAC Screening Matrix	
forms on potential effect pathways	<ul style="list-style-type: none"> • Forest and plantation management and use. The Site Improvement Plan identifies that H9130 Beech forests on neutral to rich soils is the feature affected by this threat; • Outdoor sports and leisure activities, recreational activities. The Site Improvement Plan identifies that H9130 Beech forests on neutral to rich soils and H91J0 Yew-dominated woodland are the features affected by this threat; • Invasive non-native species. The Site Improvement Plan identifies H9130 Beech forests on neutral to rich soils is the feature affected by this threat.
European Site conservation objectives – where these are readily available	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of the qualifying natural habitats; • The structure and function (including typical species) of the qualifying natural habitats; and • The supporting processes on which the qualifying natural habitats rely.
<p>Assessment Criteria Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</p>	
<p>The Scheme is located approximately 7 km from the North Downs Woodlands SAC. The only potential impact pathway that has been identified is the potential for increases in nitrogen oxides as a result of increased road traffic emissions and the resultant increase in nitrogen deposition on sensitive habitats within North Downs Woodlands SAC given its location within 200 m of the ARN. The assessment below discusses this potential impact pathway in more detail.</p>	
<p>Initial Assessment The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts. Describe any likely changes to the site arising as a result of:</p>	
Reduction of habitat area	The Scheme would not result in a reduction in habitat area from within North Downs Woodlands SAC.
Disturbance to key species	The qualifying features of North Downs Woodlands SAC are not sensitive to disturbance.
Habitat or species fragmentation	The Scheme would not result in fragmentation of the North Downs Woodlands SAC.
Reduction in species density	The Scheme would not result in a reduction in species density within the North Downs Woodlands SAC.
Changes in key indicators of conservation value (water quality, etc)	<p>It has been established that all of the qualifying features of the North Downs Woodlands SAC are sensitive to air pollution. Potential impacts on habitats as a result of nitrogen deposition could change key indicators of conservation value. Potential impacts include:</p> <ul style="list-style-type: none"> • Changes in species composition, particularly in nutrient poor ecosystems with a shift towards species associated with higher nitrogen availability; • Reduction in species richness; • Increases in plant production; • Decrease or loss of sensitive lichens and bryophytes; and

North Downs Woodlands SAC Screening Matrix

- Increases in nitrate leaching.

Setting screening thresholds

Critical loads and critical levels are a tool for assessing the risk of air pollution impacts to ecosystems. The critical load relates to the quantity of pollutant deposited from air to the ground, whereas the critical level is the gaseous concentration of a pollutant in the air.

Critical loads and critical levels are used in impact assessments to assess the risk of impacts of projects on protected sites, and a principle function of the Air Pollution Information System (APIS) is to provide access to critical loads/levels and pollutant information.

The APIS website (<http://www.apis.ac.uk>) provides critical loads for different pollutants and habitat types. Critical load values for nutrient nitrogen deposition are provided as a range, by habitat type, for use in detailed impact assessments in the UK. These are as follows for the qualifying features of North Downs Woodlands SAC. The APIS website advises that the minimum of the range should always be used for initial screening:

Taxus baccata woods of the British Isles (H91J0) Critical Load 5 – 15 kg N/ha/yr

Asperulo-Fagetum beech forests (H9130) Critical Load 10 – 20 kg N/ha/yr

Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) (H6210) Critical Load 15 – 25 kg N/ha/yr

Critical Levels for air pollutants are not habitat specific, as in critical loads, but have been set to cover broad vegetation types (e.g. forest arable, semi-natural), often with critical values set for sensitive lichens and bryophytes. They are 30 µg NOx/m³ annual mean.

The MAGIC website (<https://magic.defra.gov.uk/>) identified that habitats within North Downs Woodlands SAC within 200 m of the Affected Road Network comprise deciduous woodland and ancient woodland. This part of the SAC is also designated as Wouldham to Detling Escarpment Site of Special Scientific Interest (SSSI). The area of the SSSI within 200 m of the ARN is within unit 26 of the SSSI. The Natural England website was accessed for further details of unit 26. The main habitat present in this area is broadleaved, mixed and yew woodland and it was assessed as being in favourable condition. It was described as follows based on an assessment on 23.4.2008: minimal intervention woodland on the slope with a canopy of yew, mature beech and oak. There is a varied understorey typical of the woodland type. The ground flora includes a good range of characteristic plants including dogs mercury, stinking iris, bluebell, spurge laurel. Sycamore is present but does not appear to be causing adverse effects at present. There are adequate levels of natural tree regeneration

Based on this information, it is considered that the qualifying features Taxus baccata woods of the British Isles (H91J0) and Asperulo-Fagetum beech forests (H9130) are likely to be present within 200 m of the ARN.

Widely accepted Environmental Benchmarks for imperceptible impacts are set at 1% of the critical load or level²⁰. This is considered by Natural England's air quality specialists to be suitably precautionary, as any emissions below this level are considered to be imperceptible.

Table 21 of The Natural England document Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance provides a summary of relationships between long-term nitrogen deposition and species richness

²⁰ Natural England Internal Guidance - Approach to advising competent authorities on the assessment of road traffic emissions and HRAs V1.4 Final – June 2018

North Downs Woodlands SAC Screening Matrix

by habitat expressed as the amount of incremental nitrogen deposition (in kg N ha⁻¹ yr⁻¹) associated with a reduction in species richness of one species along the survey gradient sites²¹. By comparing the change in nitrogen deposition as a result of the Scheme with the type of habitat in Table 21, if the change in nitrogen deposition is lower than the values in Table 20 the Scheme impacts on the habitat are considered to be not significant.

Applying screening thresholds

Alone

The air quality assessment has assessed a number of receptor locations within the North Downs Woodlands SAC within 200 m of the Affected Road Network.

The change in nitrogen deposition as a result of the Scheme is calculated by comparing the deposition occurring with the Scheme, all of the committed development and the baseline (the Do Something scenario) with the deposition occurring with all of the committed development and the baseline, excluding the Scheme (the Do Minimum scenario). The maximum change in nitrogen deposition as a result of the Scheme occurs at the closest receptor location to the ARN (11 m), as expected. Taking the lowest critical load of 5 kg N/ha/yr the Scheme would result in a change in nitrogen deposition of 0.047 kg N/ha/yr. This is a change of 0.9% in relation to the lowest critical load level, so below the 1% threshold.

The change in nitrogen deposition as a result of the scheme has been compared with the amount of nitrogen deposition required to reduce species richness by 1. The relationship is dependent on the background nitrogen deposition, which has been assumed to be 20 kg N. In the absence of the relevant habitat type, sand dunes have been used, which are considered to be the most sensitive. They require an increase in nitrogen deposition of 1.3 kg N/ha/yr to reduce species richness by 1. The maximum change in nitrogen deposition as a result of the Scheme occurs at the closest receptor location to the ARN (11 m), as expected. The Scheme would result in a maximum change in nitrogen deposition of 0.047 kg N/ha/yr, well below the threshold required to reduce species richness by 1.

In-combination

The air quality assessment includes consideration of committed development in order that an in-combination assessment in relation to air quality can be undertaken. This is done by comparing the maximum change in nitrogen deposition as a result of the Scheme and all of the committed development (the Do Something scenario) to the projected baseline nitrogen deposition in the year that the Scheme would open (2022) (the Do Nothing scenario).

Taking the lowest critical load of 5 kg N/ha/yr the Scheme and other committed development would result in a change in nitrogen deposition of 0.03 kg N/ha/yr. This is a change of 0.6% in relation to the lowest critical load level, so below the 1% threshold.

The change in nitrogen deposition as a result of the scheme and other committed development has also been compared with the amount of nitrogen deposition required to reduce species richness by 1. The relationship is dependent on the background nitrogen deposition, which has been assumed to be 20 kg N. In the absence of the relevant habitat type, sand dunes have been used, which are considered to be the most sensitive. They require an increase in nitrogen deposition of 1.3 kg N/ha/yr

²¹ 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.

North Downs Woodlands SAC Screening Matrix	
	<p>to reduce species richness by 1. The Scheme and other committed development would result in a maximum change in nitrogen deposition of 0.3 kg N/ha/yr, well below the threshold required to reduce species richness by 1.</p> <p>[Note, the change in nitrogen deposition would usually be expected to be larger for the assessment of the Scheme in combination with other plans and projects, than for the assessment of the Scheme alone, as the change in traffic flows would usually be larger. However, in this case, the change in nitrogen deposition is estimated to be larger with the Scheme alone. This is because traffic flows on the A249 northbound are lower in the Do Minimum scenario (i.e. committed development plus base, excluding the Scheme) than in the Do Nothing scenario (i.e. no Scheme or committed development, so baseline only) due to the M2 J5 becoming more congested and less desirable. In any case, the change, both for the alone and in combination assessment, is less than 1% of the lower range of the critical load.]</p>
Climate change	Climate change is not listed as a threat or pressure in relation to this site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	No likely significant effects on the structure (i.e. the distribution and abundance of habitats) of North Downs Woodlands SAC are anticipated as a result of the Scheme alone or in combination with other plans or projects.
Interference with key relationships that define the function of the site	No likely significant effects on the function (i.e. the capacity of the SAC to support the qualifying features) of North Downs Woodlands SAC are anticipated as a result of the Scheme alone or in combination with other plans or projects.
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	N/A
Disturbance to key species	N/A
Habitat or species fragmentation	N/A
Loss	N/A
Fragmentation	N/A
Disruption	N/A
Disturbance	N/A
Change to key elements of the site (e.g. water quality, hydrological regime etc)	Based on the application of the screening thresholds, no likely significant effects as a result of air quality impacts are anticipated.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	

North Downs Woodlands SAC Screening Matrix	
N/A	
Outcome of screening stage	Not Likely to be Significant Effects
Are the appropriate statutory environmental bodies in agreement with this conclusion (Delete as appropriate and attach relevant correspondence).	<p>YES.</p> <p>Response received to report (Version P02) from Nicky Britton-Williams at Natural England on 25 March 2019 via email (letter attachment, reference 276542), which stated: 'With regards to the North Downs Woodlands SAC (which includes Wouldham to Detling Escarpment SSSI) and Peters Pit SAC I concur with your conclusions of no likely significant effect on site integrity. As such I advise that these impacts can be screened out from further stages of assessment under the Habitats Regulations.' The full consultation response is included in Appendix E.</p>

Appendix C. Peter's Pit Screening Matrix

Peter's Pit SAC Screening Matrix		
Project Name	M2 Junction 5 Improvements Scheme	
Natura 2000 Site under Consideration	Peter's Pit SAC	
Date:	Author (Name/Organisation):	Verified (Name/Organisation)
March 2019	Ellen Harpham Atkins	Matthew Bowell Atkins
Description of Project		
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:		
Size and scale (road type and probable traffic volume)	<p>The objectives of the Scheme are to:</p> <ul style="list-style-type: none"> • Increase the capacity of the junction to support future growth in housing, employment and the economy; • Improve safety for all users of the junction to reduce accident numbers; • Improve reliability of journey times through the junction; • Deliver a high standard of highway design that is in keeping with the local environment; and • Minimise any adverse environmental impacts where feasible. <p>The Scheme is located 58 km from the centre of London, 5 km north east of Sittingbourne. The M2 is an important motorway linking Rochester to Faversham, and a key route to the Port of Dover. Junction 5 of the M2 is the main access point for people travelling northeast to Sittingbourne, the Isle of Sheppey and the Port of Sheerness, and southwest to Maidstone and surrounding villages.</p> <p>The proposed Junction 5 improvements involve the replacement of the existing Stockbury Roundabout with a new grade-separated junction. Stockbury Roundabout would remain at-grade and would be enlarged to accommodate connections to the roundabout. The A249 mainline would flyover the Stockbury Roundabout, with the approaches on embankments and retaining walls, and with two single span bridges over the roundabout. Four new slip roads will be provided, three of which include dedicated left turn lanes at the roundabout for the following turning movements:</p> <ul style="list-style-type: none"> • A249 southbound to M2 westbound; • A249 northbound to M2 eastbound; and • M2 eastbound to A249 northbound. <p>The existing Maidstone Road connection with Stockbury Roundabout will be stopped up and a new Maidstone Road link will be provided, connecting to Oad Street to the north of the M2.</p> <p>A new link road will be provided between Stockbury Roundabout and Oad Street, with the new link road connecting into Oad Street near the existing junction of Oad Street and the A249. The existing Oad Street and A249 junction would be closed. Oad Street will remain open for local access to properties but will not have direct access onto the A249 as currently exists. The existing southbound lanes of the A249 will be retained south of the existing junction with Oad Street and this will be converted into a two-way single carriageway to provide continued access to properties and land fronting this section of road and connection to South Green Lane.</p>	

Peter's Pit SAC Screening Matrix	
	<p>The Honeycrook Hill junction with the A249 will be stopped up.</p> <p>Road types and anticipated traffic volumes:</p> <p>The A249 and M2 are both two lane dual carriageways on approach to the M2 Junction 5.</p> <p>The junction options are expected to result in projected traffic volumes of between approximately 74,000 and 75,000 vehicles per day north of the M2 Junction 5 on the A249 and between 58,000 and 60,000 vehicles per day south of the M2 Junction 5 on the A249 (Annual Average Daily Traffic) in the year 2041. Projected traffic volumes along the M2 are between 85,000 and 86,000 vehicles per day to the west of the M2 Junction 5 and between 73,000 and 74,000 vehicles per day to the east of the M2 Junction 5 (Annual Average Daily Traffic) in the year 2041.</p>
Land-take	The Scheme would not require land-take from Peter's Pit SAC.
Distance from the European Site or key features of the site (from edge of the project assessment corridor)	Peter's Pit SAC is approximately 12.5 km west of the Scheme; and approximately 30 m from the closest point of the Affected Road Network (ARN) ²² .
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	The Scheme does not require resources from Peter's Pit SAC.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	<p>There is no hydrological link between the Scheme and Peter's Pit SAC, and therefore no impact pathway by which any water-borne pollution generated by the Scheme could give rise to adverse effects on the European designated site.</p> <p>Road traffic is a source of nitrogen oxides (NO_x emissions), a pollutant that can have adverse effects on plants and habitats as a result of nitrogen deposition which can cause nutrient enrichment of the soil and changes to the soil pH. This can have adverse effects on sensitive habitats. With regard to potential risks from road traffic emissions, Natural England and Highways England (HE) are in agreement that protected sites falling within 200 m of the edge of a road affected by a plan or project need to be considered further²³.</p>
Excavation requirements (e.g. impacts of)	Material will be generated as the result of new and modified highway earthworks and the excavation of drainage features. The majority of

²² Affected Road Network (ARN) - the affected road network has been defined in accordance with HA 207/07 scoping criteria as set out in the Design Manual for Roads and Bridges Section 3 Part 1 (HA207/07), former Highways Agency, May 2007. Affected roads are those that meet any of the following criteria:

- Road alignment will change by 5 metres or more; or
- Daily traffic flows will change by 1,000 annual average daily traffic or more; or
- Heavy duty vehicle flows will change by 200 annual average daily traffic or more; or
- Daily average speed will change by 10 kilometres per hour or more; or
- Peak hour speed will change by 20 kilometres per hour or more.

²³ Natural England Internal Guidance - Approach to advising competent authorities on the assessment of road traffic emissions and HRAs V1.4 Final – June 2018

Peter's Pit SAC Screening Matrix	
local hydrogeology)	excavated material will be topsoil and sub soil to allow imported fill to be placed to extend/widen existing embankments.
Transportation requirements	<p>Deliveries will be routed via the M2/M20/A249. The exception will be aggregates, asphalt and concrete. Local roads will not be used as delivery routes. The majority of construction traffic will come from the north along the M2 or from local quarries which are located around the M20.</p> <p>The number of HGVs and other traffic travelling to site are anticipated to be 20-50 HGV deliveries each day. It is expected that approximately 6 HGV will be working around the junction each day, moving material, plant etc.</p> <p>It is not anticipated that haul roads will be required to move material from one area on site to another.</p> <p>Given the distance of the Peter's Pit SAC from the Scheme and that the majority of construction traffic will come from the north along the M2 and the SAC is located to the west, transportation requirements during the construction phase are considered unlikely to have a significant adverse effect on the features for which the SAC is designated.</p>
Duration of construction, operation, etc	Construction of the Scheme is currently programmed to commence in early 2020 and is expected to take approximately 18 months. The project would be operational for approximately 120 years in accordance with the design life for such carriageways.
Other	N/A
<p>Description of avoidance and/or mitigation measures</p> <p>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</p> <p>It should be noted that: the implication of the Court of Justice of the European Union (CJEU) judgement in relation to People over Wind (Peter Sweetman v Coillte Teoranta, Case C-323/17) is that competent authorities cannot take account of any integrated or additional avoidance or reduction measures when considering at the HRA screening stage whether the plan or project is likely to have an adverse effect on a European Site. The screening stage must be undertaken on a precautionary basis with no regard to any proposed integrated or additional avoidance or reduction measures. Where the likelihood of significant effects cannot be excluded on the basis of objective information, the competent authority must proceed to carry out an Appropriate Assessment to establish whether the plan or project will affect the integrity of the European site, which can include at that stage consideration of the effectiveness of the proposed avoidance or reduction measures. This is outlined in PINS Note 05/2018.</p>	
Nature of proposals	<p>The risk of pollution during construction will be reduced by the adoption of good working practices, such as Guidance for Pollution Prevention (GPPs)²⁴. In general terms, by following these guidelines, significant impacts to the water environment should be avoided.</p> <p>In terms of construction dust, best practice mitigation measures would minimise any construction dust effects. Such measures may include but not necessarily be limited to:</p> <ul style="list-style-type: none"> • Regular water-spraying and sweeping of unpaved and paved roads to minimise dust and remove mud and debris; • Using wheel washes, shaker bars or rotating bristles for vehicles leaving the site where appropriate to minimise the amount of mud and debris deposited on the roads;

²⁴ Guidance for Pollution Prevention (GPPs). GPPs provide environmental good practice guidance for the whole UK. <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-pgps-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

Peter's Pit SAC Screening Matrix	
	<ul style="list-style-type: none"> • Sheeting vehicles carrying dusty materials to prevent materials being blown from the vehicles whilst travelling; • Enforcing speed limits for vehicles on unmade surfaces to minimise dust entrainment and dispersion; • Ensuring any temporary site roads are no wider than necessary to minimise their surface area; • Damping down of surfaces prior to their being worked; and • Storing dusty materials away from site boundaries and in appropriate containment (e.g. sheeting, sacks, barrels etc.). <p>Mitigation measures incorporated into the Scheme in relation to protected or notable habitats or species include:</p> <ul style="list-style-type: none"> • Optimal timing of works to avoid key periods for particular species, such as avoidance of the bird nesting season for habitat clearance; • Displacement of dormice from within suitable habitat within the Scheme footprint, enhancement of retained dormouse habitat and creation of new woodland and scrub habitat for dormice to mitigate for any habitat loss and enhance connectivity for dormice within the wider area; • Habitat creation and enhancement of existing habitat to compensate for loss of woodland habitats and hedgerows in particular, and to enhance habitat connectivity for species such as dormice and bats; • Translocation and/or exclusion/displacement of reptiles, dormice and bats (under appropriate licences/agreements) from defined areas of the scheme to pre-prepared receptor sites (where necessary) to minimise impacts of habitat loss and species mortality; • Appropriate design and use of lighting to minimise impacts on bats and other light sensitive species; and • Implementation of general construction environmental best practice including, providing tool box talks for construction staff informing them of key ecological constraints within the area, and ensuring that open trenches are not left overnight without safe means of egress for animals that may fall into them.
Location	Avoidance and mitigation measures will be located in relevant areas within the Scheme boundary.
Evidence for effectiveness	The standard pollution prevention measures to be implemented are proven to be effective in minimising the risk of pollution. Other proposed mitigation measures are also plainly established and uncontroversial and follow relevant best practice guidelines.
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	Detailed avoidance and mitigation measures will be implemented as part of appropriate Construction Method Statements and Construction Environmental Management Plans, in accordance with standard best practice and Design Manual for Roads and Bridges requirements. These documents will form the basis for contractual obligations of the main works contractor, and thus are considered robust mechanisms for delivery.
Characteristics of European Site(s) A brief description of the European Site should be produced, including information on:	
Name of European Site and its EU code	Peter's Pit SAC (UK0030237)
Location and distance of the European Site	Peter's Pit SAC is approximately 12.5 km west of the scheme; and approximately 30 m from the closest point of the ARN.

Peter's Pit SAC Screening Matrix	
from the proposed works	
European Site size	28.3 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>This site is an old chalk quarry with adjoining soil-stripped fields on the North Downs, with scattered ponds situated amongst grassland, scrub and woodland. The ponds have fluctuating water levels and support large breeding populations of great crested newts <i>Triturus cristatus</i>.</p> <p>Annex II species that are a primary reason for site selection:</p> <p>1166 Great crested newt <i>Triturus cristatus</i></p> <p>Large breeding populations of great crested newts have been recorded breeding in the ponds within the site.</p>
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	<p>The Site Improvement Plan for Peter's Pit SAC identifies no current issues affecting the qualifying feature (great crested newts) that has been identified on this site.</p> <p>Within the European Site Conservation Objectives Supplementary Advice on Conserving and Restoring site features²⁵ relating to Peter's Pit SAC the following attributes are identified as supporting processes on which the qualifying feature and/or its supporting habitat relies:</p> <ul style="list-style-type: none"> • Water quality. The target is to maintain the quality of pondwaters within the site as indicated by the presence of an abundant and diverse invertebrate community. [Since there are no water pathways between the European Site and the Scheme this has not been considered further]; and • Air Quality. The target is to maintain or restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk). The explanatory notes state that the supporting habitats are considered sensitive to changes in air quality. Exceedance of critical values for air pollutants may modify the chemical status of substrates, accelerating or damaging plant growth, altering vegetation structure and composition and reducing the habitat quality and population viability of this feature. <p>The HRA of the Medway Local Plan Development Strategy²⁶ identified potential for significant in-combination air quality effects on Peter's Pit SAC as a result of the Local Plan. However, it concluded at the appropriate assessment stage that, whilst increased nitrogen deposition may affect the species composition of habitats within the SAC, this is unlikely to have a significant effect on the suitability of the water bodies within the SAC for breeding great crested newts. It states that the extent, distribution, structure and function of the habitats of great crested newts; the supporting process on which the habitats rely; and the populations and distribution of great crested newt would be maintained. As such, it was considered that the plan would not hinder Peter's Pit SAC from achieving its conservation objectives and the predicted increase in nitrogen deposition was not likely to constitute an adverse effect on integrity.</p> <p>In Natural England's response to the Medway Local Plan Development Strategy (letter dated 22 June 2018), Natural England recommend that Peter's Pit should be screened out because inland water bodies are generally phosphorous limited, rather than nitrogen limited, so Natural England did not consider this site to be sensitive to nitrogen.</p>

²⁵ Natural England (May 2015) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Peter's Pit Special Area of Conservation (SAC) (UK0030237)

²⁶ Medway Council (March 2018) Medway Local Plan Development Strategy Interim Consideration of the Implications of Development Strategy Scenarios on European Sites

Peter's Pit SAC Screening Matrix	
	However, as a precaution, it has been assumed for the purposes of this assessment that the habitats which support the qualifying feature of Peter's Pit SAC are sensitive to air pollution.
European Site conservation objectives – where these are readily available	<p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of qualifying species; • The structure and function of the habitats of qualifying species; • The supporting processes on which the habitats of qualifying species rely; • The populations of qualifying species; and • The distribution of qualifying species within the site.
<p>Assessment Criteria Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</p>	
<p>The Scheme is located approximately 12.5 km from Peter's Pit SAC. The only potential impact pathway that has been identified is the potential for in combination increases in nitrogen oxides as a result of increased road traffic emissions and the resultant increase in nitrogen deposition on sensitive habitats which support great crested newts within Peter's Pit SAC given its location within 200 m of the ARN. The assessment below discusses this potential impact pathway in more detail.</p>	
<p>Initial Assessment The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts. Describe any likely changes to the site arising as a result of:</p>	
Reduction of habitat area	The Scheme would not result in a reduction in habitat area from within Peter's Pit SAC.
Disturbance to key species	The qualifying feature (great crested newts) of Peter's Pit SAC are considered sensitive to disturbance. However, the Scheme would not result in disturbance to the qualify feature of Peter's Pit SAC.
Habitat or species fragmentation	The Scheme would not result in fragmentation of Peter's Pit SAC.
Reduction in species density	The Scheme would not result in a reduction in species density within Peter's Pit SAC.
Changes in key indicators of conservation value (water quality, etc)	<p>Although there is conflicting information as to whether Peter's Pit SAC is sensitive to air quality impacts, as a precaution, it has been assumed for the purposes of this assessment that the habitats which support the qualifying feature of Peter's Pit SAC are sensitive to air pollution.</p> <p>Potential impacts on habitats supporting the qualifying feature as a result of nitrogen deposition, could change key indicators of conservation value. Potential impacts include:</p> <ul style="list-style-type: none"> • Changes in species composition, particularly in nutrient poor ecosystems with a shift towards species associated with higher nitrogen availability; • Reduction in species richness to support great crested newts; • Increases in plant production which may increase shading of water bodies which support great crested newts, in turn negatively affecting

Peter's Pit SAC Screening Matrix

the abundance of marginal vegetation, water temperature and rate of hatching and development of great crested newt eggs and larvae; and

- Increases in nitrate leaching.

The MAGIC website (<https://magic.defra.gov.uk/>) identified that habitats within Peter's Pit SAC within 200 m of the Affected Road Network comprise deciduous woodland. The SAC is also designated as Peter's Pit Site of Special Scientific Interest (SSSI). The area of the SSSI within 200 m of the ARN is within unit 005. The Natural England website was accessed for further details of unit 005. The main habitat present in the area is broadleaved, mixed and yew woodland (lowland) and it was assessed as being in favourable condition. It was described as follows based on an assessment on 15/10/2010: The site is in good condition and current management appears to be appropriate to maintain suitable conditions for the great crested newt population. A high diversity of habitats is present including features of value to great crested newts throughout their life cycle. Great crested newt monitoring data is available for each year from 1985 to 2007. This indicates that newt numbers fluctuate considerably, largely in relation to water availability in the breeding ponds. However, there is no indication of a trend of declining numbers and counts indicate that numbers are within target in most years. Water levels in the ponds in the former pit are dependent upon groundwater supply and rainfall. Only one of the ponds in this part holds water at present. This pond has tall, emergent growth of bulrush but has no submerged plants so is not currently ideal breeding habitat for newts. However, water quality appears good and there is good terrestrial habitat nearby. The small, recently established ponds in the former arable fields all hold water of varying depths. Water quality appears good in all of the ponds and all have a range of emergent and submerged aquatic plants. These include spike rush, water plantain, water milfoil, broad-leaved pondweed, water mint and purple loosestrife. The northernmost pond has a lot of tall emergent bulrush and reedmace and might benefit from management to reduce their dominance. But all of these ponds are in suitable condition for breeding great crested newts. The surrounding terrestrial habitat is in suitable condition for newts and there is good linkage with the adjacent pit. Notable plants encountered include the locally uncommon brookweed and broad-leaved helleborine.

Based on this information, it is considered that the qualifying feature (great crested newts) and the habitats supporting the qualifying feature are likely to be present within 200 m of the ARN.

Consideration of the risk from the road traffic emissions associated with the Scheme can be expressed in terms of either the predicted average annual daily traffic flow (AADT) or the predicted emissions themselves. Each of these has guideline thresholds to check whether the predicted change is likely to be significant. This is 1000 AADT for traffic numbers or 1% of critical load or level for emissions, which are considered to be roughly equivalent. This is considered by Natural England's air quality specialists to be suitably precautionary, as any emissions below this level are considered to be imperceptible²⁷.

Peter's Pit SAC is located approximately 12.5 km west of the Scheme but approximately 30 m east of Village Road which falls into the ARN category due to the increase AADT flows of more than 1000 as a result of the Scheme in-combination with other plans and projects.

The air quality assessment involves comparing the AADT flows currently (base AADT), to the predicted AADT flows in 2022 both with the Scheme, and without the Scheme, but including all other committed development. Comparing the predicted AADT flows in 2022 with and without the

²⁷ Natural England Internal Guidance - Approach to advising competent authorities on the assessment of road traffic emissions and HRAs V1.4 Final – June 2018.

Peter's Pit SAC Screening Matrix	
	<p>Scheme provides an AADT figure for the Scheme alone. The base AADT is zero, and the predicted AADT with and without the Scheme is 2076 AADT and 2041 AADT respectively. These figures indicate that the Scheme would not result in a likely significant effect alone, in terms of air quality, as it would result in an increase in AADT of just 35 vehicle movements (2076 – 2041) (3.5% of the 1000 AADT threshold). The potential for a likely significant effect in-combination with other plans and projects has arisen due to Peter's Village housing development and a new road bridge over the River Medway which will re-route traffic along Village Road upon completion of the housing development in 2022.</p> <p>The value of 35 vehicle movements as a result of the Scheme is equivalent to 1.7% of the total increase in vehicle movements as a result of Peter's Village and the new road bridge over the River Medway. Given this very minimal contribution, the effect of the Scheme is considered as having no appreciable effect or a de minimis effect.</p> <p>Peter's Pit SAC is located adjacent to the Peter's Village development. The Environmental Statement for Peter's Village (August 2002) demonstrated that the development would not cause changes in air quality sufficient to cause negative impacts. Furthermore, a letter from English Nature (now Natural England) dated 24 February 2005 to Tonbridge and Malling Borough Council requested that an appropriate assessment be undertaken, but that pollution from vehicle emissions need not be included as there was no likely significant effect.</p> <p>Given that the Peter's Village development is not considered to have any adverse air quality impacts on Peter's Pit SAC, such that pollution from vehicle emissions was excluded from the appropriate assessment for the development, and considering the extremely minimal contribution that the subject Scheme would make towards vehicle movements, no likely significant effects on Peter's Pit SAC as a result of air quality impacts are anticipated in combination.</p>
Climate change	Climate change is not listed as a threat or pressure in relation to this site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	No likely significant effects on the structure (i.e. the distribution and abundance of habitats) of Peter's Pit SAC are anticipated as a result of the Scheme alone or in combination with other plans or projects.
Interference with key relationships that define the function of the site	No likely significant effects on the function (i.e. the capacity of the SAC to support the qualifying features) of Peter's Pit SAC are anticipated as a result of the Scheme alone or in combination with other plans or projects.
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	N/A
Disturbance to key species	N/A
Habitat or species fragmentation	N/A
Loss	N/A

Peter's Pit SAC Screening Matrix	
Fragmentation	N/A
Disruption	N/A
Disturbance	N/A
Change to key elements of the site (e.g. water quality, hydrological regime etc)	No likely significant effects as a result of air quality impacts are anticipated.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
N/A	
Outcome of screening stage	Not Likely to be Significant Effects
Are the appropriate statutory environmental bodies in agreement with this conclusion (Delete as appropriate and attach relevant correspondence).	<p>YES.</p> <p>Response received to report (Version P02) from Nicky Britton-Williams at Natural England on 25 March 2019 via email (letter attachment, reference 276542), which stated: 'With regards to the North Downs Woodlands SAC (which includes Wouldham to Detling Escarpment SSSI) and Peters Pit SAC I concur with your conclusions of no likely significant effect on site integrity. As such I advise that these impacts can be screened out from further stages of assessment under the Habitats Regulations.' The full consultation response is included in Appendix E.</p>

Appendix D. Finding of no significant effects report matrix (Screening)

North Downs Woodlands SAC Finding of no significant effect report Matrix (Screening)		
Project Name	M2 Junction 5 Improvements Scheme	
Natura 2000 Site under Consideration	North Downs Woodlands SAC	
Date:	Author (Name/Organisation):	Verified (Name/Organisation)
March 2019	Lizzie Hall Atkins	Matthew Bowell Atkins
Name and location of European Site	The North Downs Woodlands SAC is approximately 7 km south west of the scheme; and approximately 10 m from the closest point of the Affected Road Network (ARN) ²⁸ .	
Description of the project	The Scheme involves improvements to Junction 5 of the M2. Refer to Section 1.2 in the main report for a detailed description of the Scheme.	
Is the project directly connected with or necessary to the management of the site (provide details)?	No	
Are there other projects or plans that together with the project being assessed could affect the site (provide details)?	Yes. The air quality assessment includes consideration of committed development in order that an in-combination assessment can be undertaken.	
Assessment of Significance of Effects		
Describe how the project (alone or in combination) is likely to affect the European Site	The only potential impact pathway that has been identified is the potential for increases in nitrogen oxides as a result of increased road traffic emissions and the resultant increase in nitrogen deposition on sensitive habitats within North Downs Woodlands SAC given its location within 200 m of the ARN.	
Explain why these effects are not considered significant	Based on the application of the screening thresholds (nitrogen deposition rates of 1% of the critical load), no likely significant effects from the Scheme alone or in combination, as a result of air quality impacts, are anticipated.	
List of agencies consulted: provide contact name and telephone or e-mail address	Natural England. Contact Name: Nicky Britton-Williams (Nicky.Britton-Williams@naturalengland.org.uk)	

²⁸ Affected Road Network (ARN) - the affected road network has been defined in accordance with HA 207/07 scoping criteria as set out in the Design Manual for Roads and Bridges Section 3 Part 1 (HA207/07), former Highways Agency, May 2007. Affected roads are those that meet any of the following criteria:

- Road alignment will change by 5 metres or more; or
- Daily traffic flows will change by 1,000 annual average daily traffic or more; or
- Heavy duty vehicle flows will change by 200 annual average daily traffic or more; or
- Daily average speed will change by 10 kilometres per hour or more; or
- Peak hour speed will change by 20 kilometres per hour or more.

North Downs Woodlands SAC Finding of no significant effect report Matrix (Screening)			
Response to consultation	Response received to report (Version P02) from Nicky Britton-Williams at Natural England on 25 March 2019 via email (letter attachment, reference 276542), which stated: 'With regards to the North Downs Woodlands SAC (which includes Wouldham to Detling Escarpment SSSI) and Peters Pit SAC I concur with your conclusions of no likely significant effect on site integrity. As such I advise that these impacts can be screened out from further stages of assessment under the Habitats Regulations.' The full consultation response is included in Appendix E.		
Data Collected to Carry out the Assessment			
Who carried out the assessment?	Sources of data	Level of assessment completed	Where can the full results of the assessment be accessed and viewed
Lizzie Hall (ecologist) Atkins Victoria Sykes (air quality)	Air quality and traffic data APIS website (www.apis.ac.uk)	Screening in accordance with DMRB (HD 44/09 and HA 207/07)	M2 Junction 5 Improvements Environmental Statement Sections 1.7, 1.8 and 1.9 of the main HRA report.

Peter's Pit SAC Finding of no significant effect report Matrix (Screening)		
Project Name	M2 Junction 5 Improvements Scheme	
Natura 2000 Site under Consideration	Peter's Pit SAC	
Date:	Author (Name/Organisation):	Verified (Name/Organisation)
March 2019	Lizzie Hall Atkins	Matthew Bowell Atkins
Name and location of European Site	Peter's Pit SAC is located approximately 12.5 km west of the Scheme; and approximately 30 m from the closest point of the Affected Road Network (ARN) ²⁹ .	
Description of the project	The Scheme involves improvements to Junction 5 of the M2. Refer to Section 1.2 in the main report for a detailed description of the Scheme.	
Is the project directly connected with or necessary to the management of the site (provide details)?	No	
Are there other projects or plans that together with the project being assessed could affect the site (provide details)?	Yes. to Peter's Village housing development and a new road bridge over the River Medway.	
Assessment of Significance of Effects		
Describe how the project (alone or in combination) is likely to affect the European Site	The only potential impact pathway that has been identified is the potential for in combination increases in nitrogen oxides as a result of increased road traffic emissions and the resultant increase in nitrogen deposition on sensitive habitats which support great crested newts within Peter's Pit SAC given its location within 200 m of the ARN.	
Explain why these effects are not considered significant	<p>The Scheme would not result in a likely significant effect alone, in terms of air quality, as it would result in an increase in AADT of just 35 vehicle movements.</p> <p>The potential for a likely significant effect in-combination with other plans and projects has arisen due to Peter's Village housing development and a new road bridge over the River Medway which will re-route traffic along Village Road upon its completion in 2022.</p> <p>The Environmental Statement for Peter's Village (August 2002) demonstrated that the development would not cause changes in air quality sufficient to cause negative impacts. Furthermore, a letter from English Nature (now Natural England) dated 24 February 2005 to Tonbridge and Malling Borough Council requested that an appropriate assessment be undertaken, but that pollution from vehicle emissions need not be included as there was no likely significant effect.</p>	

²⁹ Affected Road Network (ARN) - the affected road network has been defined in accordance with HA 207/07 scoping criteria as set out in the Design Manual for Roads and Bridges Section 3 Part 1 (HA207/07), former Highways Agency, May 2007. Affected roads are those that meet any of the following criteria:

- Road alignment will change by 5 metres or more; or
- Daily traffic flows will change by 1,000 annual average daily traffic or more; or
- Heavy duty vehicle flows will change by 200 annual average daily traffic or more; or
- Daily average speed will change by 10 kilometres per hour or more; or
- Peak hour speed will change by 20 kilometres per hour or more.

Peter's Pit SAC Finding of no significant effect report Matrix (Screening)			
	Given that the Peter's Village development is not considered to have any adverse air quality impacts on Peter's Pit SAC, such that pollution from vehicle emissions was excluded from the appropriate assessment for the development, and considering the extremely minimal contribution that the subject Scheme would make towards vehicle movements, no likely significant effects on Peter's Pit SAC as a result of air quality impacts are anticipated either alone or in combination.		
List of agencies consulted: provide contact name and telephone or e-mail address	Natural England. Contact Name: Nicky Britton-Williams (Nicky.Britton-Williams@naturalengland.org.uk)		
Response to consultation	Response received to report (Version P02) from Nicky Britton-Williams at Natural England on 25 March 2019 via email (letter attachment, reference 276542), which stated: 'With regards to the North Downs Woodlands SAC (which includes Wouldham to Detling Escarpment SSSI) and Peters Pit SAC I concur with your conclusions of no likely significant effect on site integrity. As such I advise that these impacts can be screened out from further stages of assessment under the Habitats Regulations.' The full consultation response is included in Appendix E.		
Data Collected to Carry out the Assessment			
Who carried out the assessment?	Sources of data	Level of assessment completed	Where can the full results of the assessment be accessed and viewed
Lizzie Hall (ecologist) Atkins Victoria Sykes (air quality)	Air quality and traffic data Review of historic planning documents	Screening in accordance with DMRB (HD 44/09 and HA 207/07)	M2 Junction 5 Improvements Environmental Statement Sections 1.7, 1.8 and 1.9 of the main HRA report.

Appendix E. Consultation response

Date: 25 March 2019
Our ref: 276542
Your ref: M2 Junction 5 Improvements



Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

BY EMAIL ONLY

Dear Ms Camelia Lichtl,

Discretionary Advice Service (Charged Advice): CT Ref: 12441
Development proposal and location: M2 Junction 5 Improvements

This advice is being provided as part of Natural England's Discretionary Advice Service.

Highways England has asked Natural England to provide advice upon:

- Advice on the draft Biodiversity Chapter of the Environmental Statement.
- Advice on the draft Landscape Chapter of the Environmental Statement (in relation to the Kent Downs AONB).
- Advice on the draft Habitats Regulations Assessment.

This advice is provided in accordance with the Quotation and Agreement dated 19 March 2019.

The following advice is based upon the information provided within Chapter 7 (Biodiversity) of the Environmental Statement and relevant annexes including the Habitats Regulations Screening Assessment.

Statutory sites

I am satisfied that the relevant statutory designated sites have been considered within the Environmental Statement and the Habitats Regulations Screening Assessment, including:

- North Downs Woodlands Special Area of Conservation (SAC)
- Wouldham to Detling Escarpment Site of Special Scientific Interest (SSSI) (within the North Downs Woodland SAC)
- Queendown Warren SAC and SSSI
- Peter's Pit SAC

I concur that the only potential pathway for impact to statutory designated sites is via air quality impacts from vehicle emissions during the operation of the Scheme. Therefore, my comments with regard to statutory sites will solely focus on air quality impacts.

Construction

I agree with your conclusion that, due to there not being any European designated sites within 2km of the scheme and on the basis of the construction traffic models described in the report, there will not be any impacts to European designated sites as a result of the construction phase of the proposed scheme.

Operation

With regards to Queendown Warren SSSI it is not clear if air quality impacts; nitrogen deposition, have been assessed. Assessment of NO_x concluded that critical levels for vegetation are unlikely to be exceeded with or without the scheme. I understand that further details of this air quality assessment are detailed in the Air Quality chapter which has not been made available at this time.

[APIS](#) details the nitrogen critical loads for habitats of the SSSI, including;

- Broad-leaved, mixed and yew woodland (*Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland) – 15 kg/N/ha/yr
- Calcareous grassland (*Bromus erectus* lowland calcareous grassland) – 15 kg/N/ha/yr
- Vascular plant assemblage - Vascular Plant Assemblage – no critical load available

According to APIS, at present, the critical load is exceeded for both broad-leaved, mixed and yew woodland (average 26.7kg N/ha/yr) and calcareous grassland (average 15.4kg N/ha/yr). I advise that critical loads for Queendown Warren SSSI should be assessed with and without the scheme.

With regards to the North Downs Woodlands SAC (which includes Wouldham to Detling Escarpment SSSI) and Peters Pit SAC I concur with your conclusions of no likely significant effect on site integrity. As such I advise that these impacts can be screened out from further stages of assessment under the Habitats Regulations.

Irreplaceable Habitat

Section 175(c) of the revised NPPF states that “*development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensatory strategy exists.*”

As such, it is pleasing to see that the current scheme design avoids direct impacts via habitat loss to Chestnut Wood and Church Wood Ancient woodlands. Guidance published jointly by Natural England and the Forestry Commission states that a minimum buffer zone of 15 metres is required to prevent root damage to ancient woodlands. The guidance advises that where air quality impacts may be an issue a larger buffer zone may be needed. It is not clear how wide the buffering vegetation between the Scheme and Chestnut Wood will be during construction and operation. The buffering vegetation between the Scheme and Church Wood is described as limited. I advise that opportunities could be explored to supplement existing buffering vegetation to ensure the integrity of these areas of ancient woodland. The guidance states that a buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter. With a buffer zone of 40m this would account for a diameter of 2.6m therefore is highly likely to be sufficient. I advise the justification for the appropriateness of these buffer strips for irreplaceable habitats be included within the Environmental Statement.

Protected species

Please be advised that I have not assessed the Biodiversity Chapter for the potential impacts of the scheme in relation to protected species. I have noted the indicative mitigation measures which will be refined through relevant European Protected Species Licences.

For clarification of any points in this letter, please contact Nicky Britton-Williams on 02080266023.

The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information

which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely
Nicky Britton-Williams
Sussex and Kent Team

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Annex 1

European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's ['How to get a licence'](#) publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's [guidance](#) on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

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