

A47/A11 Thickthorn Junction

Scheme Number: TR010037

Volume 6

6.1 Environmental Statement

**Chapter 4 – Environmental Assessment
Methodology**

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

March 2021

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

The A47/A11 Thickthorn Junction
Development Consent Order 202[x]

**CHAPTER 4
ENVIRONMENTAL ASSESSMENT METHODOLOGY**

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4. Environmental assessment methodology

4.1. Environmental scoping

- 4.1.1. The purpose of the scoping process is to determine which environmental topics should be included in the environmental impact assessment (EIA) process, the level of detail to which they should be assessed and to set out the proposed methodology to be reported within the Environmental Statement (ES).
- 4.1.2. The EIA Scoping Report was produced for the Proposed Scheme and submitted to the Planning Inspectorate on 8 February 2018 (**TR010037/APP/6.5**).
- 4.1.3. The EIA Scoping Report considered the environmental topics as per Regulation 5(2) of the Infrastructure Planning (EIA) Regulations 2017.
- a) Population and human health
 - b) Biodiversity
 - c) Land, soil, water, air and climate
 - d) Material assets, cultural heritage and the landscape
 - e) The interaction between the factors referred to in sub-paragraphs (a) to (d)
- 4.1.4. The assessment for each of these factors was covered in one or more ES chapters of the EIA Scoping Report as identified below.
- 4.1.5. The structure of the report and topics used were written in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11 and The Planning Inspectorate Advice Note 7.
- 4.1.6. The EIA Scoping Report (**TR010037/APP/6.5**) and subsequent EIA Scoping Opinion (**TR010037/APP/6.6**) identified the need to scope the following topics into the EIA:
- Air quality
 - Cultural heritage
 - Landscape and visual
 - Biodiversity
 - Geology and soils
 - Material assets and waste
 - Noise and vibration
 - People and communities (now referred to as population and human health)
 - Road drainage and the water environment

- Climate
 - Combined and cumulative effects
- 4.1.7. The exact scope is detailed in the EIA Scoping Report, submitted as an application document (**TR010037/APP/6.5**).
- 4.1.8. The EIA Scoping Report was submitted to the Planning Inspectorate in order to request a Scoping Opinion (**TR010037/APP/6.6**). The EIA Scoping Report (**TR010037/APP/6.5**) was issued to consultees by the Planning Inspectorate and the responses from these consultees have formed the Scoping Opinion (**TR010037/APP/6.6**) received from the Planning Inspectorate on 21 March 2018. The Scoping Opinion (**TR010037/APP/6.6**) is the official response from the Planning Inspectorate, giving comment on the proposed approach detailed in the EIA Scoping Report (**TR010037/APP/6.5**).
- 4.1.9. There have been some changes to the description of the Proposed Scheme since the Scoping Opinion (**TR010037/APP/6.6**) was adopted involving the removal of some design aspects. The individual assessment chapters will address the topic specific matters identified in the Scoping Opinion (**TR010037/APP/6.6**).
- 4.1.10. The Design Manual for Roads and Bridges (DMRB) environmental and sustainability standard was updated and published in 2019 and 2020. Where updates to standards have changed scope compared to that stated in the EIA Scoping Report (**TR010037/APP/6.5**), consultation has been undertaken with the Planning Inspectorate and relevant environmental bodies. This is detailed in individual chapters of this ES and responses to Scoping Opinion (**TR010037/APP/6.6**) are recorded in ES Appendix 4.1 (Scoping Opinion responses) (**TR010037/APP/6.3**).

Major accidents and disasters

- 4.1.11. Regulation 5 (4) of the Infrastructure Planning (EIA) Regulations 2017 require an assessment of '*the expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters that are relevant to that development*'.
- 4.1.12. For the Proposed Scheme, a separate ES chapter assessing the potential impacts of major accidents and disasters during the construction and operation phase is not required for the following reasons:
- the Proposed Scheme is not considered to have high vulnerability to major accidents or disasters. Whilst the legislation is not explicit, the language of the revised Infrastructure Planning Regulations 2017 is aimed towards

hazardous industries or operations (those with a 'high vulnerability' to major accidents).

- the design, construction and operation of the Proposed Scheme must comply with legal requirements, codes and standards, such as:
 - Health and Safety at Work etc. Act 1974 (HSWA)
 - The Management of Health and Safety at Work Regulations (1999) o Construction (Design and Management) (CDM) 2015 Regulations
 - The Workplace (Health, Safety and Welfare) Regulations 1992
 - Design Manual for Roads and Bridges (DMRB)

4.1.13. The term major accidents and disasters refers to events both within and external to the Proposed Scheme that have the potential to cause significant harm to the environment (including but not limited to populations, biodiversity, land, soil, water, air, material assets and cultural heritage).

Heat and radiation

4.1.14. Paragraph 4 (1) (d) of the EIA Regulations 2017 requires “*an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases*”. Due to the nature of the Propose Scheme being a highways scheme and its location of the scheme within a rural setting, it is considered unlikely that heat and radiation effects associated with the proposals are likely to arise. This recommendation was accepted as part of the Scoping Opinion (**TR010037/APP/6.6**).

Transboundary effects

4.1.15. Regulation 32 of the Infrastructure Planning EIA Regulations 2017 requires the Secretary of State to consider any likely significant effects on the environment of a European Economic Association (EEA) State. Transboundary effects have been scoped out of this ES, as none of the impact pathways reach other European Economic Area (EEA) member states.

4.2. Surveys and predictive techniques and methods

4.2.1. The principal standards used to assess and report environmental effects in this ES are contained in DMRB Sustainability and Environment. The methodologies used for the assessments for individual topics in this ES are based on those set out in the EIA Scoping Report (**TR010037/APP/6.5**) and Scoping Opinion (**TR010037/APP/6.6**) and discussions with relevant consultees.

4.2.2. In undertaking the EIA, the Applicant has applied the key principles, topics, approaches and criteria set out in these documents; however, where appropriate

these have been supplemented using latest guidance and professional judgement. Individual environmental chapters provide further detail where appropriate, on surveys and methods.

Updates to standards

- 4.2.3. The Design Manual for Roads and Bridges (DMRB) environmental and sustainability standards has been updated since the completion of key documents in the EIA process, in particular the Scoping Report and Scoping Opinion. These documents shape the scope of the environmental assessments reported in this ES.
- 4.2.4. Where changes in the standards required a change in approach as detailed in the Scoping Report (**TR010037/APP/6.5**), the relevant environmental bodies have been consulted and the approach agreed.
- 4.2.5. This is reported in each of the individual topic chapters of this ES.

Key Stages of EIA Consultation

- 4.2.6. This section describes specifically the environmental consultation that has been undertaken with relevant consultation bodies during the development of the Proposed Scheme design in advance of the DCO application submission. Details of the wider consultation undertaken as part of the scheme is contained within the Consultation Report (**TR010037/APP/5.1**), including details on consultation with statutory stakeholders identified in the Planning Act 2008, as well as non-statutory stakeholders.
- 4.2.7. The Applicant has engaged with the following environmental bodies during the development of the Proposed Scheme:
- Environment Agency
 - Norfolk County Archaeologist
 - Natural England
 - Historic England
 - Norfolk County Council
 - Internal Drainage Board
 - South Norfolk Council
- 4.2.8. A summary of the topic specific consultation is outlined in the respective topic chapters.

Non-statutory consultation

- 4.2.9. An extensive stakeholder mapping exercise was undertaken to identify relevant stakeholders and their key interests. This list was used to inform the participants of a six-week non-statutory public consultation, which was held between 13 March and 21 April 2017 and included public information exhibition events held on the 25, 27 and 28 March 2017.
- 4.2.10. On conclusion of the non-statutory consultation period, a consultation report was completed that can be accessed via the following link:

<https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement/results/public-v2-a47-thickthorn-cons-report.pdf>

EIA scoping report

- 4.2.11. The EIA Scoping Report sets out the scope for this Environmental Statement (ES) and shapes the assessment in each of the environmental topic chapters. The Scoping Opinion is the official response from the Planning Inspectorate, giving comment on the proposed approach detailed in the Scoping Report.
- 4.2.12. The EIA Scoping Report was submitted to the Planning Inspectorate in February 2018 (**TR010037/APP/6.5**). The Planning Inspectorate subsequently issued the scoping report to statutory consultees, with a deadline to respond with comments. The resulting Scoping Opinion from the Planning Inspectorate with consultee responses was received by Highways England in March 2018(**TR010037/APP/6.6**).
- 4.2.13. Responses received from the Scoping Opinion and statutory consultation were taken into consideration and incorporated into the design and assessment process, where appropriate.

Preliminary environmental information report (PEIR)

- 4.2.14. The PEIR was produced in May 2019 to inform the public, landowners, prescribed bodies and other stakeholders about the ongoing EIA work and the preliminary information on the environmental impacts of the development proposals.
- 4.2.15. The PEIR was used as a basis to inform stakeholders during the six-week statutory consultation period (3 June 2019 to 11 July 2019), including public exhibitions and engagement with environmental bodies.
- 4.2.16. Further detail on the consultation and responses are detailed in the Consultation Report (**TR010037/APP/5.1**) and referenced within the individual topic chapters of this report where appropriate.

4.2.17. The PEIR is available to view on the Proposed Scheme's website

Part 1

https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement-scheme/supporting_documents/169.pdf

Part 2

https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement-scheme/supporting_documents/PEIR%20Part%202%20pages%2070%20to%20140.pdf

Part 3

https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement-scheme/supporting_documents/PEIR%20Part%203%20Appendices%20pages%20141%20to%20148.pdf-1

Statutory consultation

4.2.18. Required as part of the DCO and EIA process, a statutory public consultation was held between 3 June 2019 and 11 July 2019 and included public information exhibition events held on the 10, 13, 14 and 15 June 2019. The Consultation Report (**TR010037/APP/5.1**) provides information on the statutory consultation and the feedback received.

Targeted engagement

4.2.19. A newsletter was issued on 22 July 2020 to local landowners, affected parties and S42 bodies to provide an update to the Proposed Scheme design which can be accessed via the following link:

<http://assets.highwaysengland.co.uk/roads/road-projects/A47+thickthorn/Project+update%2C+latest+design%2C+July+2020.pdf>

4.3. General assessment assumptions and limitations

4.3.1. This ES considers the potential impacts of the Proposed Scheme as described in ES Chapter 2, The proposed scheme, (**TR010037/APP/6.1**) that could result in likely significant effects.

4.3.2. Potential impacts and their effects cannot be predicted with absolute certainty. Predictions are limited by the quality and certainty of information available and the accuracy of predictive techniques employed. The assessments presented in

the ES therefore indicate the likely magnitude of impacts and the significance of effects rather than providing precise predictions of effects.

- 4.3.3. Individual environmental chapters provide further detail where appropriate, including limitations and assumptions. The extent to which these limitations and assumptions are likely to affect the assessment outcome is also outlined in the individual environmental chapters.

4.4. Baseline and assessment scenarios

- 4.4.1. To identify the effects of the Proposed Scheme on the environment, it is important to understand the baseline conditions prior to the construction of the Proposed Scheme. However, the baseline used for the measurement of environmental effects considers the situation as would exist immediately before the implementation of the Proposed Scheme. This 'future baseline' scenario considers changes which are certain to occur before the implementation of the Proposed Scheme, and entirely independent of the Proposed Scheme.
- 4.4.2. For assessment purposes, the future baseline without the Proposed Scheme is referred to as the 'Do-Minimum' (DM) scenario. The 'Do-Something' (DS) scenario is the future baseline with the Proposed Scheme included. Therefore, the potential environmental effects are predicted by identifying the changes between the DS scenario and the DM scenario.
- 4.4.3. Seven transport assessment scenarios have been considered as part of the EIA for the Air quality, Noise and vibration, Population and human health, Road drainage and the water environment and Climate ES chapters. For clarification the following scenarios have been considered:
- Environmental baseline as defined by surveys of the existing environment and existing data (2015 for traffic data and 2018 -2020 for non-traffic related data)
 - Construction (DM) - Baseline adapted to predict future baseline in 2019 **without** the Proposed Scheme
 - Construction (DS) – baseline in 2019 **with** the Proposed Scheme
 - Operational (DM) opening year - Baseline adapted to predict future baseline in 2025 **without** the Proposed Scheme
 - Operational (DS) opening year - Baseline in 2025 **with** the Proposed Scheme
 - Operational (DM) design year - Baseline adapted to predict future baseline in 2040 **without** the Proposed Scheme
 - Operational (DS) design year - Baseline in 2040 **with** the Proposed Scheme

4.5. Significance criteria

- 4.5.1. The environmental assessment reports the likely significance of environmental effects using established significance criteria, as presented within DMRB, LA 104 Environmental assessment and monitoring. This requires an assessment of the receptor or resource’s environmental value (or sensitivity) and the magnitude of change (impacts).
- 4.5.2. The DMRB states that the approach to assigning significance of effect relies on reasoned argument, professional judgement and taking on board the advice and views of appropriate organisations. For some individual topic chapters, predicted effects may be compared with quantitative thresholds and scales in determining significance.
- 4.5.3. Assigning each effect to one of the five significance categories enables different topic issues to have consistent terminology in their conclusions, to assist the decision-making process. These five significance categories are set out in Table 4.1.

Table 4.1 Description of the significance of effect categories

Significance category	Typical description
Very large	Effects at this level are material in the decision-making process.
Large	Effects at this level are likely to be material in the decision-making process.
Moderate	Effects at this level can be considered to be material decision-making factors.
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Source: DMRB, LA 104 Environmental Assessment and Monitoring, Table 3.7

- 4.5.4. The environmental value will be identified for each of the individual topics that have been carried forward from the scoping exercise for further environmental assessment, along with the magnitude of change. In this way, the potential significance of environmental effects will be determined for each relevant environmental topic. Five significance categories can result from the assessment, as defined in Table 4.2.
- 4.5.5. It is important to note that significance categories are required for positive (beneficial) as well as negative (adverse) effects. The greater the magnitude of impact on a receptor, the more significant the effect. For example, the consequences of a highly valued environmental resource suffering a major detrimental impact would provide a significance score which would result in a

significant adverse effect. Significant effects are determined from neutral to very large, as defined in Table 3.7 of DMRB LA 104.

- 4.5.6. Where the table allows for more than one significance, for example Slight or Moderate, the assessment will report the worst case scenario. Where worst case scenario is not appropriate in the assessment, justification on the approach will be provided.
- 4.5.7. Effects that are identified as Moderate or above (beneficial or adverse) will be considered significant.

Table 4.2 Assessing significance of potential effects

Environmental value (sensitivity)	Magnitude of potential impact (degree of change)				
	No change	Negligible	Minor	Moderate	Major
Very high	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

- 4.5.8. As per the DMRB standard, ES Chapter 5 (Air quality), ES Chapter 11 (Noise and vibration) and ES Chapter 15 (Climate) do not explicitly follow this general approach to determine the significance of effects, due to the nature of the topics and their methodologies. The criteria used to determine the significance of effects are outlined in the individual environmental chapters.

Mitigation measures and enhancement

- 4.5.9. Mitigation measures fall in into three broad categories:

- Mitigation in the strict sense: these are measures taken to avoid or reduce negative effects. Measures may include locating the development and its working areas and access routes away from areas of high environmental

sensitivity, fencing off sensitive areas during the construction period, or timing works to avoid sensitive periods. Mitigation measures associated with construction are described in the Environmental Management Plan (EMP) **(TR010037/APP/7.4)**.

- Compensation: the use of replacement areas to make up for the loss of, or permanent damage to resources. Any replacement area should be similar to, with appropriate management and have the ability to reproduce the functions and conditions of those resources that have been lost or damaged. Compensation may also be in the form of a financial payment.
- Offsetting: the provision of a benefit that is related to the effect but is not a like-for-like replacement of the feature to be lost.

- 4.5.10. Priority has been given to the avoidance of effects at source, whether through amending the design of the Proposed Scheme or by regulating the timing or location of activities. Where it has not been possible to avoid significant negative effects, opportunities have been sought to reduce the effects, ideally to the point where they are no longer significant through mitigation measures. Where this has not been possible, opportunities for compensation have been explored, as detailed in the topic chapters of this ES.
- 4.5.11. Each individual topic chapter provides a description of enhancement measures that have been considered as part of this Proposed Scheme and have been assessed as part of the EIA (where practicable).
- 4.5.12. The assessment of residual effects will take into account the effectiveness of the mitigation measures proposed in the individual topic chapters.

Implementation and enforcement of mitigation

- 4.5.13. Mitigation would be secured by way of requirement in the Development Consent Order (DCO) including that the Proposed Scheme is undertaken in accordance with the EMP, which includes detailed provision on mitigation of construction impacts and specific mitigation obligations in key topic areas such as landscaping, drainage and contaminated land. All mitigation will be included in the separate ES chapters and collated in Table 3.1 Register of Environmental Actions and Commitments within the EMP**(TR010037/APP/7.4)**.
- 4.5.14. The DCO places a legal responsibility on the designers and construction contractors to comply with the DCO Requirements. Discharge of these requirements would be by approval from the Secretary of State, generally following consultation with relevant planning or environmental authority.

4.6. Duplication of assessments

- 4.6.1. This ES has been prepared with reference to environmental assessments that have been carried out, or are ongoing, for nearby developments. In this way, duplication of assessment or survey effort has been avoided and consistency of approach, unless scheme-specific factors determine otherwise, can be assured.
- 4.6.2. ES Chapter 15 (Cumulative effect assessment (**TR010037/APP/6.1**)) provides further information on the assessment approach.