6. Overview of Assessment Process

6.1. Introduction

6.1.1. This chapter outlines the general approach adopted for the Environmental Impact Assessment (EIA) of the Proposed Scheme.

6.2. Legislation and Guidance

6.2.1. This Environmental Statement (ES) has been prepared in accordance with the requirements of the Roads (Scotland) Act 1984[i] and European Commission Directive 85/337/EEC, as amended on the effects of certain public and private projects on the environment. The Directive is implemented in Scotland through the Environmental Impact Assessment (Scotland) Regulations 1999, as amended[ii] and [iii].

6.2.2. Circular 8/2007 (Annex E) Environmental Assessment of Trunk Road Projects[iv] provides guidance on EIA for trunk road projects and although the circular has been revised by Planning Circular 3/2011, the guidance in Annex E continued to apply at the time of preparation of this ES and is relevant to the Proposed Scheme.

6.2.3. The Design Manual for Roads and Bridges (DMRB) sets out UK government guidance on the development of trunk road schemes. DMRB Volumes 10[v] and 11[vi] have been used to guide the level and methods of assessment undertaken. Relevant Interim Advice Notes (IANs) have also been used where applicable.

6.3. Scope of the EIA

6.3.1. The aims of EIA are to:

- gather information about the existing environmental conditions in the study area and identify environmental constraints and opportunities which may influence, or be affected by the Proposed Scheme
- identify and assess potential environmental impacts that may arise from the construction and/or operation of the Proposed Scheme
- identify and incorporate into the Proposed Scheme design, operation and maintenance, features and measures to avoid or mitigate adverse impacts

6.3.2. DMRB Volume 11 provides guidance on EIA for trunk roads including the level of assessment at key stages of development and reporting of environmental effects.

6.3.3. Determination of the aspects included in the ES was informed by DMRB Volume 11 guidance and IAN 125/15[vii] and through the Scoping process, as described in Chapter 7.

6.3.4. The following environmental parameters are considered:

- People and Communities: Community and Private Assets
- People and Communities: Effects on All Travellers
- Geology, Soils and Groundwater
- Road Drainage and the Water Environment
- Ecology and Nature Conservation
- Landscape

- Visual
- Cultural Heritage
- Air Quality
- Noise and Vibration
- Materials
- Policies and Plans
- Cumulative Impacts

Study Area

6.3.5. The study area used varies depending on the environmental parameter being assessed and has been determined based on the requirements or recommendations of the DMRB, good practice guidelines and the use of professional judgement. Study areas are described in relevant chapters for each of the above environmental parameters, where appropriate.

6.4. The Assessment Chapters

Chapter Structure

6.4.1. The assessment of impacts in Chapters 8 to 18 has been undertaken in accordance with the following process:

- an introduction which outlines the subject area, the scope of the assessment undertaken and study area specific to the environmental parameter reported in the chapter
- approach and methods of assessment, which outlines regulations and guidance that have been taken into account during the assessments and details the methodologies adopted for the various assessments of the baseline environment and potential impacts
- a description of the baseline conditions of the study area
- a description of the predicted beneficial and adverse impacts and an assessment of their significance
- identification of mitigation measures in light of the evaluation of potential impacts
- a description of residual effects, inclusive of any mitigation measures

6.4.2. Chapter 19 (Policies and Plans) and Chapter 20 (Cumulative Impacts) have adopted a slightly modified structure appropriate to the nature of the subject matter. Chapter 21 (Schedule of Environmental Commitments) and Chapter 22 (Summary of Significant Residual Impacts) are presented in a tabular format.

General Approach

Baseline Conditions

6.4.3. The impact assessment for each environmental parameter has been undertaken in comparison with the ‘baseline’ situation. The ‘baseline’ refers to the existing site conditions and how these are predicted to change if the scheme did not proceed.

6.4.4. Baseline information has been gathered through site visits, the review of maps, data collection, consultation with statutory and non-statutory organisations and the public, and field surveys.

Potential Impacts

6.4.5. Potential impacts arising from the Proposed Scheme during construction and operation have been identified and described, and an assessment of the level of significance for each effect determined as far as practical. Impacts during construction are considered to be those resulting from the removal of sections of the existing road and the construction of the new carriageways and associated junctions. Operational impacts are those following scheme opening, resulting from the presence of the new carriageways and infrastructure.

6.4.6. Significance varies according to the environmental aspect and the context in which the assessment is made and depends to a large degree on the availability of data relating to existing environmental conditions and the value applied to these conditions. However, in general, the level of significance of impacts has been defined using a combination of the sensitivity of the environmental feature and the magnitude of impact. The significance of impacts has been defined for each environmental parameter in the relevant sections.

6.4.7. Sensitivity has generally been defined according to the relative value or importance of the feature/receptor, and the magnitude of impact has been determined by reference to any legislative or policy standards or guidelines, and the following factors:

- the degree to which the environment is affected, e.g. whether the quality is enhanced or impaired
- the scale of the change, e.g. the size of land area or number of people affected and degree of change from the existing situation
- the scale of change resulting from impacts
- whether the effect is temporary or permanent

6.4.8. Where alternative approaches to the above were considered to be more appropriate these are described in the respective environmental chapters.

6.4.9. The nature of impacts may vary and may be direct or indirect, secondary, short, medium or long-term, permanent or temporary and positive or adverse. These types of impacts have all been considered.

6.4.10. Consideration has also been given to the potential for cumulative/interactive impacts associated with the Proposed Scheme. In a broad sense, cumulative impacts refer to the accumulation of effects on the environment relative to other past, present or foreseeable actions that occur in an additive or interactive manner.

6.4.11. A separate chapter (Chapter 20) has been included to consider cumulative effects for all topics.

Mitigation

6.4.12. Mitigation measures have been developed based on guidance provided in Planning Advice Note 1/2013[viii] that considers mitigation as a hierarchy of measures ranging from prevention of environmental effects by avoidance, through to compensatory measures for effects that cannot be remedied. The mitigation hierarchy is outlined in Table 6.1 below.

Table 6.1: Hierarchy of Mitigation

Level of Mitigation	Definition
Prevent	To prevent adverse environmental effects at source for example through choice of site, engineering design, specification of construction equipment or changes to timing.
Reduce	If adverse effects cannot be prevented, steps taken to reduce them through such methods as minimisation of cause of impact at source, abatement on site and abatement at receptor.
Remedy/offset	When effects remain that cannot be prevented or reduced, they are offset by such remedial or compensatory action as provision of environmental improvements, opportunities for access and informal recreation, creation of alternative habitats and prior excavation of archaeological features.

6.4.13. The approach to the mitigation of adverse environmental impacts has been to avoid them wherever possible. This can be achieved by consideration of ways in which to prevent adverse effects through an iterative approach to the design process, rather than relying on measures to mitigate the effects (e.g. refining the mainline alignment, careful design of earthworks, or incorporation of access arrangements for vehicles or pedestrians into the design). This is known as 'embedded' mitigation.

6.4.14. Where complete prevention of potential impacts is not feasible, measures are proposed to minimise or reduce potentially significant effects through abatement measures either at source, at the site, or at the receptor (for example, by the use of noise attenuation measures or screen planting). The level at which effects are considered 'significant' depends on the environmental parameter assessed, but generally potential effects of 'Moderate' or greater significance are identified as priorities for mitigation.

6.4.15. Where potential adverse impacts cannot be prevented or reduced, consideration has been given to the specification of measures to be included in the Contract Documents that offset or, in certain circumstances, compensate for any damage.

Residual Effects

6.4.16. The residual effects sections report the significance of the effects remaining with the adoption of the mitigation measures specified in the ES. Where there is any uncertainty as to whether a specific measure can be successfully implemented, or the precise details of mitigation cannot be defined at present (for example, if the results of further investigations are required), this is clearly stated, and the range of potential impacts with and without mitigation are defined.

6.5. Scheme Design Modifications

6.5.1. The assessment of impacts and the identification of mitigation measures are based on the DMRB Stage 3 Proposed Scheme design. This design information provided in Chapter 5 may be refined during the detailed design stage and prior to and during construction. This may result in some changes to the design and the environmental mitigation measures defined in the ES to address predicted environmental effects. However, the design of the Proposed Scheme must be developed in a manner such that it has no material change to the effects of the scheme on the environment as reported in this ES. The design will still be deemed to comply with this ES provided that any refinements are subject to environmental review to ensure that the impacts would be no worse than those reported in this ES.

6.6. References

[i] Roads (Scotland) Act 1984.
[ii] Scottish Government (1999); Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 1999.
[iii] Scottish Government (2011); Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011.
[iv] Scottish Government (2007); Circular 8/2007 Environmental Impact Assessment of Trunk Road Projects.
[v] Highways England et al. (1999); Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, as amended.
[vi] Highways England et al. (2001); Design Manual for Roads and Bridges, Volume 10 Environmental Design and Management.
[vii] Highways England (2015); Interim Advice Note 125/15 Environmental Assessment.
[viii] Scottish Government (2013); Planning Advice Note 1/2013 Environmental Impact Assessment.