A96 DUALLING
INVERNESS TO ABERDEEN

A96 Dualling Programme

Strategic Environmental Assessment
Tier 2 Environmental Report

May 2015

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

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Document history

A96 Dualling Programme

Strategic Environmental Assessment (SEA)

Tier 2 Environmental Report

Transport Scotland

This document has been issued and amended as follows:

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1.0	January 2015	Discussion Draft	Susan Rodger/ Gwenn Greenwood	Henry Collin	John Fox
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Limitations

Halcrow Group Ltd, now known as CH2M HILL, has been instructed to provide a Strategic Environmental Assessment of the A96 Dualling Programme on behalf of Transport Scotland.

The assessment is based on the information that has been made available at the time of publication and this Environmental Report is presented as a consultation document. Any subsequent additional information arising during the public consultation period may require revision or refinement of the conclusions.

It should be noted that:

- The findings within this report represent the professional opinion of experienced environmental scientists, sustainability consultants and other specialists. CH2M HILL does not provide legal advice and the advice of lawyers may also be required.

- All work carried out in preparing this report has utilised and is based upon CH2M HILL's professional knowledge and understanding of current relevant European Union, UK and Scottish standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future and may cause any conclusions to become inappropriate or incorrect. CH2M HILL does not accept responsibility for advising of the facts or implications of any such changes.

- This report has been prepared using factual information contained in maps, documents and data prepared by others. No responsibility can be accepted by CH2M HILL for the accuracy of such information. All maps, illustrations and other sources of data are credited where appropriate.

- Every endeavour has been made to identify data sources, where appropriate.

- This report represents the independent views and recommendations of the consultants conducting the analysis, and may not necessarily reflect the opinions held by Transport Scotland.

SEA ENVIRONMENTAL REPORT – COVER NOTE PART 1
To: SEA.gateway@scotland.gsi.gov.uk
PART 2
An Environmental Report is attached for:
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PART 3
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11/05/2015

A96 Dualling Inverness to Aberdeen SEA – Key Facts

Responsible Authority	Transport Scotland – MTRIPS Directorate
PPS Title	A96 Dualling Programme
What prompted the PPS	Strategic review of the Inverness to Aberdeen transport corridor following a refocus of national policy and changes to planned development on and adjacent to the corridor in recent years. A Strategic Business Case (SBC) identified that dualling of the A96 provided the best infrastructure intervention.
PPS Subject	Transport Infrastructure
Period covered by PPS	Delivery programme to target completion by 2030
Frequency of updates	Live programme – ongoing review
Area covered by PPS	The A96 transport corridor between Inverness and Aberdeen
Purpose and/ or objectives of PPS	The Programme objectives for dualling the A96 between Inverness to Aberdeen are: • To improve the operation of the A96 and inter-urban connectivity between the cities of Inverness and Aberdeen and their city regions, through: – Reduced journey times; – Improved journey time reliability; and – Reduced conflicts between local and strategic journeys. • To improve safety for motorised and non-motorised users through: – Reduced accident rates and severity; and – Reduced driver stress. • To provide opportunities to grow the regional economies on the corridor through: – Improved access to the wider strategic transport network; and – Enhanced access to jobs and services. • To facilitate active travel in the corridor • To facilitate integration with public transport facilities • To reduce the environmental effect on the communities in the corridor
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Glossary of Terms

Term	Description
A96 corridor	The “corridor” terminology is used in the Inverness to Aberdeen Corridor STAG Appraisal to encompass the area around the current A96 trunk road route and the Aberdeen to Inverness rail line; no fixed distance boundary is defined for the corridor. This terminology was also used in the Strategic Transport Projects Review (STPR, 2008) which refers to the “Aberdeen to Inverness” transport corridor (STPR Corridor 4).
SEA baseline study area	To set a boundary for SEA assessments, this term is used to refer to a 15km wide zone around the A96 (i.e. 7.5km either side of the existing road)
Indirect effect	For the purposes of this SEA, an indirect effect is one which is related to an indirect consequence of a plan option. For example, where road improvements lead to improved attractiveness of an area for development, effects related to such development, such as soil sealing or biodiversity impacts, are considered as indirect effects.
Secondary effect	For the purposes of this SEA, a secondary effect is one which is related to a direct consequence of a plan option. For example, where road improvements result in increased traffic on the route, this may lead to an increase in surface water runoff pollutants, which may have a secondary effect on local biodiversity.
Improvement Strategy Option	Term used for Tier 2 of the SEA (and the parallel Preliminary Engineering Services or PES commission) to describe study areas within which future alignments for A96 dualling could be developed. It is important to note that the SEA study areas for the improvement strategy options do not represent specific corridors or route alignments. These will be developed further as the design work is progressed.
Sifting	In this report the process of sifting refers to the preliminary appraisal of a series of A96 dualling improvement strategy options in order to sift out those which clearly do not meet the programme objectives, and are not taken forward for more detailed consideration in the later stages of SEA Tier 2 and the DMRB Stage 1 assessment.

List of Acronyms

Acronym	Definition
AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
AWPR	Aberdeen Western Peripheral Route
CA	Consultation Authority
CNP	Cairngorms National Park
CNPA	Cairngorms National Park Authority
CO_2	Carbon Dioxide
DMRB	Design Manual for Roads and Bridges
EA	Environmental Assessment
EIA	Environmental Impact Assessment
ER	Environmental Report
FCS	Forestry Commission Scotland
GCR	Geological Conservation Review
GDL	Gardens and Designed Landscapes
GIS	Geographic Information System
HGVs	Heavy Goods Vehicles
HH	Human Health
HRA	Habitats Regulations Appraisal
HS	Historic Scotland
IIP	Infrastructure Investment Plan
KSO	Key Strategic Outcome
LA	Local Authority
n/a	Not Applicable
NBN	National Biodiversity Network
NMU	Non-Motorised Users
NNR	National Nature Reserve
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NP	National Park
NPF	National Planning Framework
NSA	National Scenic Area
NTS	National Transport Strategy

Acronym	Definition
OS	Ordnance Survey
PES	Preliminary Engineering Services
PM_{10}	Particulate Matter under 10 microns in diameter
Pop	Population
PPS	Policies, Plans and Strategies
RSI	Roadside Interview
SAC	Special Area of Conservation - international biodiversity designation under the EU Habitats Directive
SBC	Strategic Business Case
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SFRA	Strategic Flood Risk Assessment
SNH	Scottish Natural Heritage
SPA	Special Protection Area- international biodiversity designation under the EU Birds Directive
SPP	Scottish Planning Policy
SR	Scoping Report
SSSI	Site of Special Scientific Interest - UK designation for important biodiversity and geodiversity sites
STAG	Scottish Transport Appraisal Guidance
STPR	Strategic Transport Projects Review
SuDS	Sustainable Drainage System
TS	Transport Scotland
WFD	Water Framework Directive

1 Introduction

1.1 Background

The Scottish Government's '*Strategic Transport Projects Review*' (STPR), published in 2008, set out a number of transport priorities for the Inverness to Aberdeen corridor, for the period to 2032. These included rail enhancements, strategic park and ride opportunities, upgrading the A96 to dual carriageway between Inverness and Nairn, a Nairn bypass, a new bridge at Inveramsay as well as targeted safety and infrastructure improvements.

The STPR was subject to Strategic Environmental Assessment (SEA), in accordance with the Environmental Assessment (Scotland) Act 2005 (the Act); the purpose of which is to consider the likely significant environmental effects of public sector plans, programmes and strategies from the earliest stages of development.

The STPR included preliminary analysis of an option for full dualling of the A96 between Inverness and Aberdeen; however, it was sifted out at an early stage as alternative interventions were considered sufficient to address the corridor objectives at that time. The 2008 STPR SEA process did not therefore consult the public on a full dualling option.

'*Scotland's Cities: Delivering for Scotland*' (the Scottish Government's Agenda for Cities), published in 2011, sets out the vital contribution that Scotland's major population centres can make in delivering the Government's Economic Strategy. The Agenda identifies the aim to connect our cities with strong, reliable and resilient transport infrastructure as a key characteristic in supporting growth.

Also published in 2011, the Scottish Government's '*Infrastructure Investment Plan*' (IIP) outlined plans for infrastructure investment over the coming decades. The IIP complements the Agenda for Cities, with a commitment to complete the dual carriageway network between Scotland's cities by 2030, including full dualling of the A96 between Inverness and Aberdeen. As the IIP was a financial plan, it was exempt from SEA under Section 4(3)(b) of the Act.

The renewed focus on developing and promoting economic growth through Scotland's cities and their regions represents a key change in policy since STPR, and will have potential implications for, and impacts on, the performance of the Inverness to Aberdeen corridor's strategic transport networks, as well as on current and future aspirations for development along the corridor.

In response to the policy developments since the STPR, Transport Scotland has undertaken an Inverness to Aberdeen strategic transport corridor study. This work has involved the analysis of a range of road and rail options for the corridor following a Scottish Transport Appraisal Guidance (STAG) appraisal to inform the development of a Strategic Business Case (SBC) for the corridor.

The STAG appraisal was informed by an SEA of the strategic transport options, the findings of which were reported in Transport Scotland's A96 Dualling Programme – Strategic Environmental Assessment – Tier 1 Environmental Report – September 2014.

The SBC identifies that full dualling between Inverness and Aberdeen is the option which best meets the future needs of those living, working and travelling along the A96 corridor. Transport Scotland is now considering how to provide dual carriageway connectivity between Inverness and Aberdeen.

Preliminary Engineering Services (PES) design and assessment work is being undertaken by Transport Scotland to consider a broad range of Improvement Strategy Options for dualling. Improvement Strategies are different high level approaches to providing a dual carriageway between Inverness and Aberdeen, for example a bypass north or south of towns along the existing A96. It is important to note that the improvement strategy options do not represent specific corridors or route alignments. These will be developed further as the design work is progressed.

This Tier 2 Environmental Report provides an overview of the strategic environmental assessment of PES improvement strategy options and presents the findings of this environmental appraisal. It also summarises all SEA work undertaken on the A96 Dualling Programme to date, including Tier 1 and 2 assessments.

1.2 A96 Route Corridor Overview

The Inverness to Aberdeen transport corridor passes through the local authority areas of Highland, Moray, Aberdeenshire and Aberdeen City (see Figure 1—1). The corridor includes a number of settlements including Inverness, Nairn, Forres, Elgin, Fochabers, Keith, Huntly, Inverurie and Aberdeen. These settlements are linked by the A96 which provides strategic trunk road connectivity between urban and rural areas.

Key characteristics of the existing A96 trunk road include:

- the western and eastern limits are currently dual carriageway standard, with the remainder generally rural single carriageway with some climbing/ overtaking lanes;
- limited overtaking opportunities, meaning that vehicle speeds are regularly constrained by HGVs which are restricted to a maximum of 40mph;
- higher than average fatal accident rates and accident clusters in some sections;
- congestion approaching and through urban areas and communities, with regular delays at pinch points such as Nairn, Elgin and Inveramsay Bridge north of Inverurie (currently being upgraded);
- the majority of existing accesses and junctions are at-grade (that is, they intersect with the trunk road at the same level);
- a surrounding environment which is predominantly rural, with extensive areas of agricultural land, a number of sensitive designated natural heritage areas and a significant number of cultural heritage features including Inventory Battlefields, Scheduled Monuments and Listed Buildings; and
- areas which are subject to flooding risks, both from surface watercourses and coastal flooding

A summary of the environmental baseline for the A96 corridor can be found in Section 3.5 of this Environmental Report.

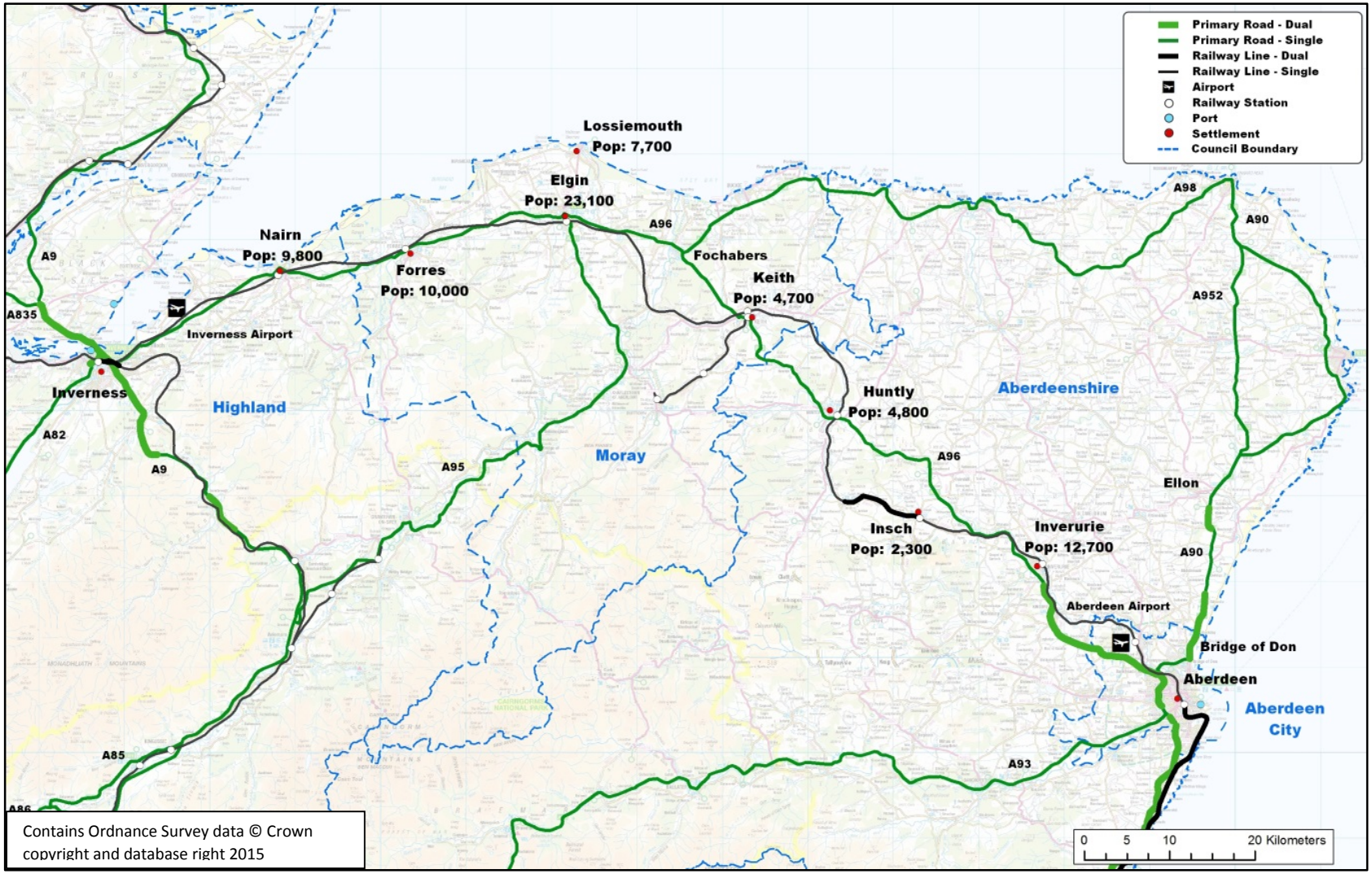


Figure 1—1 A96 Corridor Context[1]

[1] Population data from the 2011 census, filtered by locality which can be accessed at http://www.scotlandscensus.gov.uk/ods-web/area.html

1.3 Environmental Report Structure

This Environmental Report details the process and findings of the Tier 2 SEA, and is structured as follows:

Section 2

An overview of the work undertaken to date, including a summary of the two-tiered approach adopted for the SEA, and the link between the SEA and later stages of A96 dualling design.

Section 3

A review of key policies, plans and strategies (PPS) that could influence or be influenced by the A96 dualling programme and a description of the environmental baseline and key data sets used to inform the SEA.

Section 4

Presentation of the methodology and findings of the assessment of a long list of improvement strategy options, following a sifting based process, which has been termed Tier 2 preliminary assessment.

Section 5

Methodology for the second stage of Tier 2 assessment (termed detailed assessment) which followed a constraints based analysis of improvement strategy options, remaining following the sifting process described in Section 4, and which was undertaken at a more detailed level.

Section 6

Sets out the findings of the detailed assessment with a discussion on the comparative environmental effects of key groups of options along the length of the A96 corridor.

Section 7

A cumulative assessment considering the A96 dualling programme and interactions with other planned developments and committed transport schemes in the area.

Section 8

Proposals for strategic mitigation of environmental effects identified during the assessment process to help avoid and limit residual effects. A preliminary/ draft approach to monitoring of the environmental aspects of the future dualling programme is also set out.

Section 9

The next steps in the remaining SEA process are set out including the public consultation period for the Environmental Report and the preparation of an SEA Post Adoption Statement (PAS).

The report is supported by the following appendices:

Appendix A	Response to Consultation Authority Comments on Tier 2 Scoping Report
Appendix B	Policies, Plans and Strategies (PPS) Review
Appendix C	Preliminary Assessment of 16 Improvement Strategy Options
Appendix D	Preliminary Assessment Outcome Summary
Appendix E	GIS Constraints Mapping (shortlisted Improvement Strategy Options)
Appendix F	A96 Dualling Strategic Flood Risk Assessment (SFRA) (shortlisted Improvement Strategy Options)
Appendix G	A96 Dualling Landscape Review (shortlisted Improvement Strategy Options)
Appendix H	Detailed Assessment Constraints Data Capture and Analysis Matrices (shortlisted Improvement Strategy Options)
Appendix I	Detailed Assessment Matrices (Option Segments within A96 SEA Sections)
Appendix J	Detailed Assessment Matrices (Whole Options and Option B variants)

2 The SEA Process

2.1 Overview

A two-tier approach to this SEA was agreed as appropriate with the SEA Scottish Government Gateway and Consultation Authorities[2] in October 2013. This ensured that the environmental assessment process was integrated with programme/ plan development throughout. Tier 1 of the SEA informed the STAG/ Strategic Business Case work associated with the Inverness to Aberdeen strategic corridor study, as explained in Section 1.1 of this Environmental Report.

Tier 2 SEA considers a range of alternative 'Improvement Strategy Options', which have been developed under a separate Preliminary Engineering Services (PES) workstream, to consider alternative ways of providing dual carriageway connectivity between Inverness and Aberdeen.

Figure 2—1 provides an overview on the context for the approach to the SEA, highlighting the policy progression from the National Transport Strategy (NTS, 2006), through the STPR (2008), the Agenda for Cities and Infrastructure Investment Plan (2011) and linking through to the development of an A96 Dualling Programme.

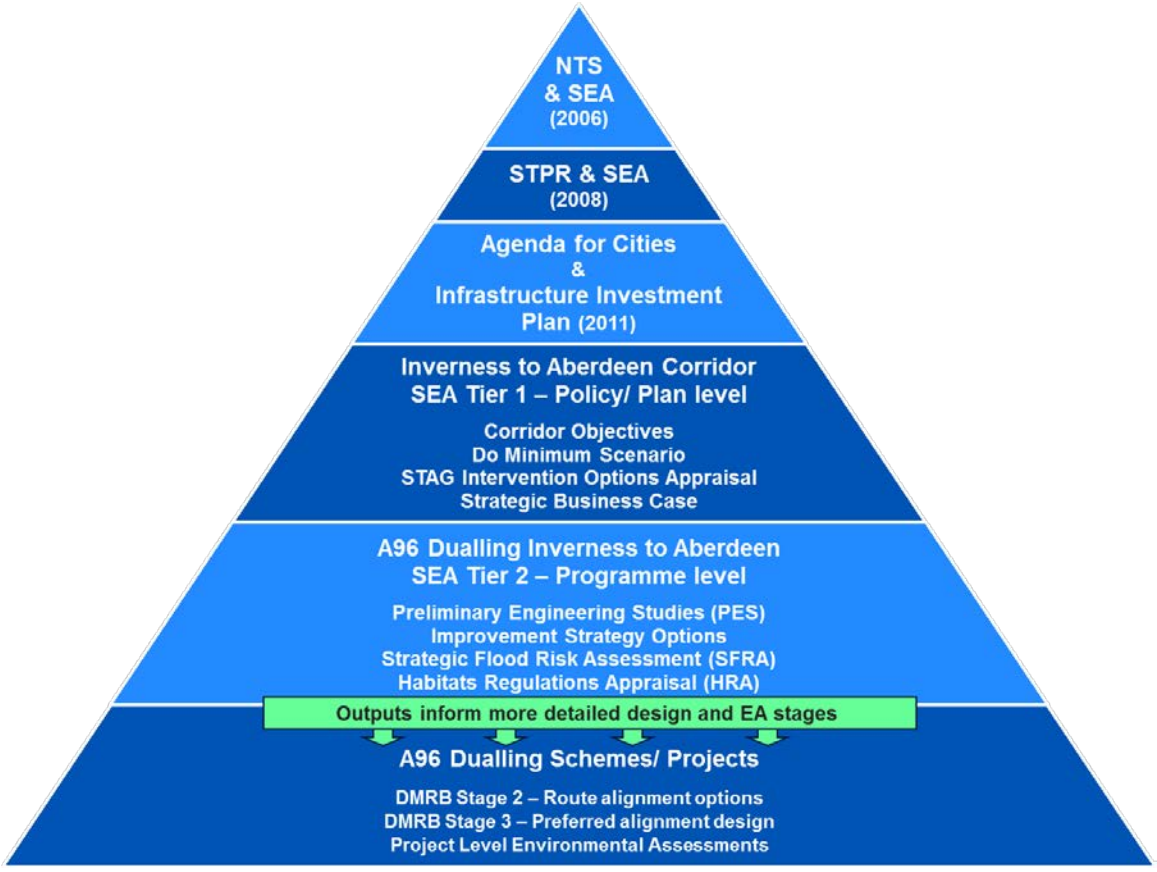


Figure 2—1 Overview of tiered approach to SEA

To ensure clarity of approach, the Tier 1 SEA work was aligned with the SBC process (effectively the 'plan' level stage) and the Tier 2 SEA informs the PES Improvement Strategy Options sifting processes (at a 'programme' level).

[2] Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA) and Historic Scotland

This allows for clear alignment of Tier 1 with the strategic and multi-modal transport issues and options considered as part of the development of the Business Case, the findings of which were presented in the A96 Dualling Programme SEA Tier 1 Environmental Report in September 2014.

The Tier 2 SEA process builds on the Tier 1 SEA and focuses on a range of 16 Improvement Strategy Options developed via the PES commission. The SEA delivered a preliminary environmental assessment of these options, to inform a two-stage sifting process which resulted in a shortlist of improvement strategy options for more detailed assessment.

The methodology and findings of Tier 2 SEA are detailed in Sections 4 to 7 of this report.

2.2 DMRB

Tier 2 SEA may be viewed as broadly equivalent to the environmental input to a Design Manual for Roads and Bridges (DMRB) Stage 1 assessment. A DMRB Stage 1 Assessment usually involves a broad, strategic approach to the identification and consideration of the environmental, engineering, economic and traffic advantages, disadvantages and constraints of a broad study area within which road improvements are proposed.

SEA outputs will be used at later stages of the design and development of route options, as well as project level Environmental Impact Assessments (EIAs) which will be delivered under DMRB assessment processes. This Stage 1 assessment is the first in a multi-stage design and assessment process (presented in Figure 2—2) which will continue the process of options refinement and analysis for the A96 Dualling Programme. Figure 2—3 presents each DMRB stage in more detail.

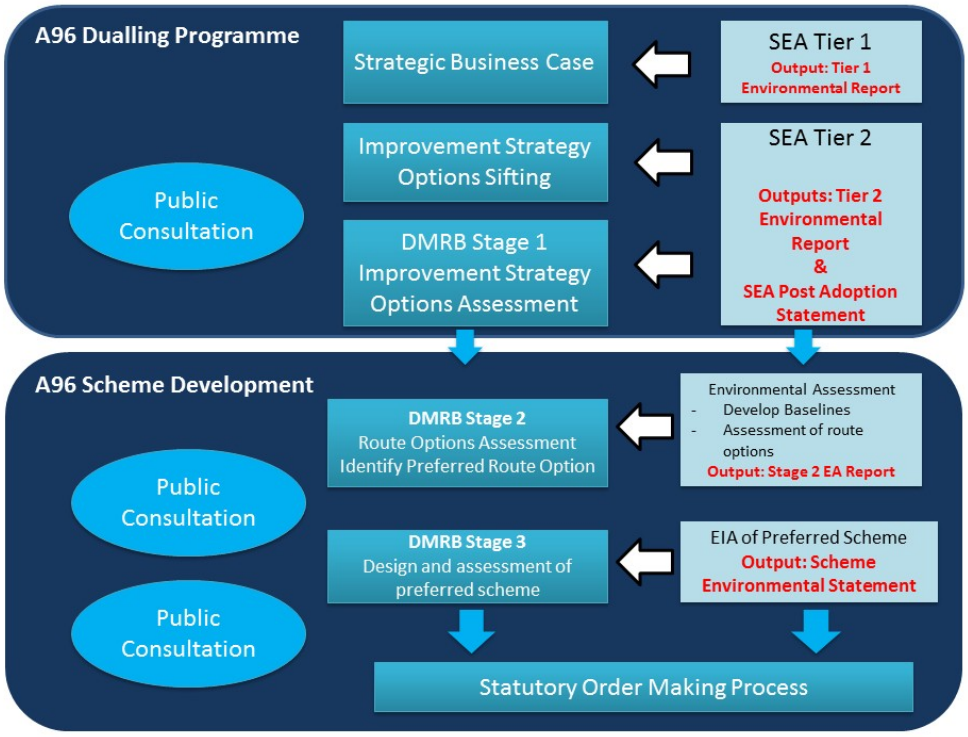


Figure 2—2 Alignment of SEA with PES and Future A96 Dualling Design Stages

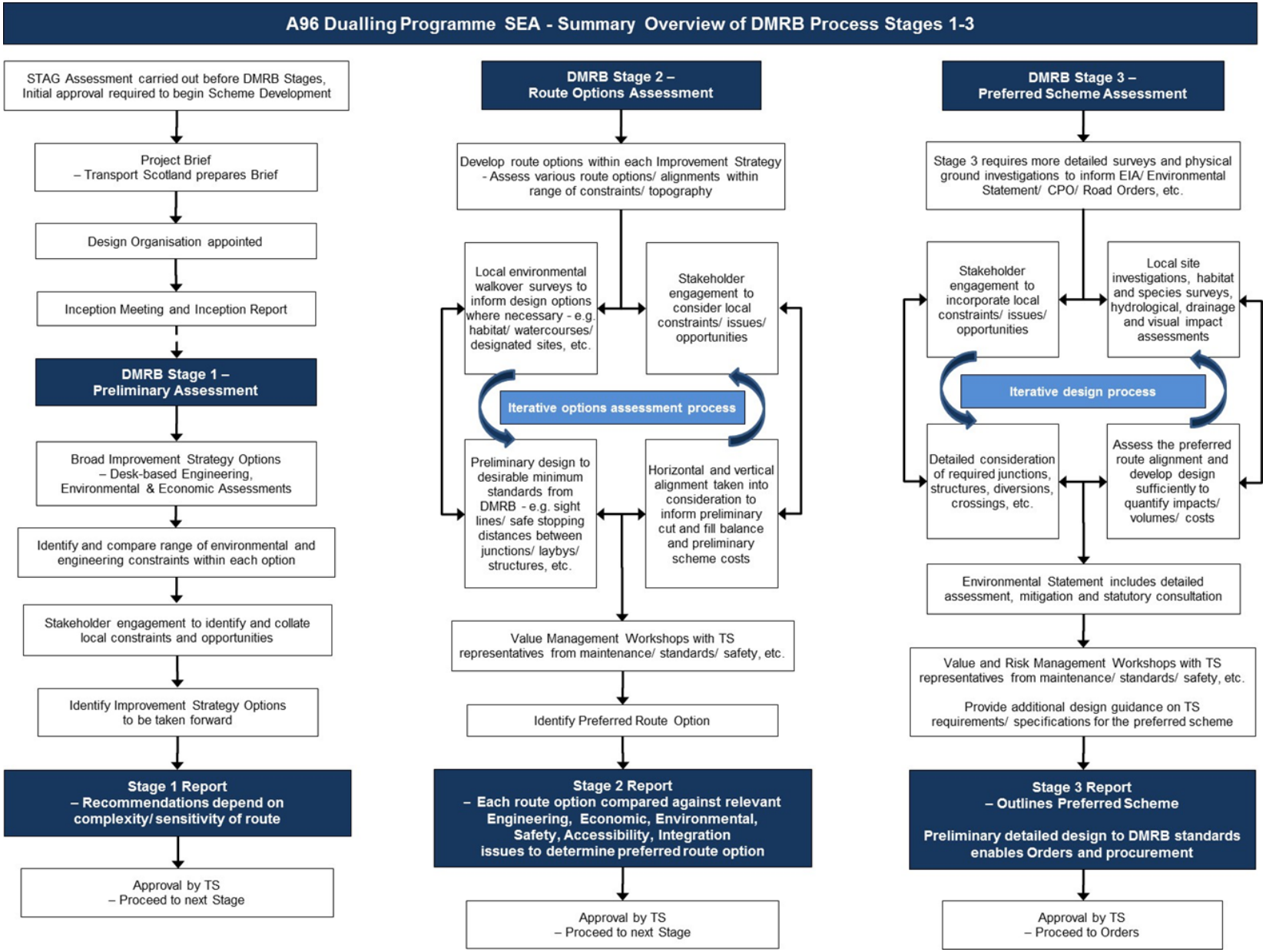


Figure 2—3 Overview of DMRB Process Stages

A scheme assessment report will be prepared at DMRB Stage 2 for each section of A96 dualling. A preferred route option will be developed by considering route options against engineering, traffic and environmental criteria. This work may be packaged into manageable sections or 'schemes' so that Transport Scotland can plan, design and promote schemes according to relevant future policy and funding priorities.

2.3 Purpose of Tier 1 SEA

The Tier 1 Strategic Environmental Assessment Scoping Report (SR) was provided to the SEA Consultation Authorities (SNH, SEPA and Historic Scotland), within the Inverness to Aberdeen corridor, in December 2013. The SR detailed the proposed two-tier approach to SEA, which was supported by the Consultation Authorities (CA).

The Tier 1 SEA Environmental Report was issued for public consultation on 25th September 2014, detailing the appraisal of six alternative 'Strategic Intervention Options' considered under the strategic transport corridor study. It set out the approach to integration of Scottish Transport Appraisal Guidance (STAG) and SEA and presented the findings of the environmental appraisal of each Strategic Intervention Option.

The Transport Scotland *Inverness to Aberdeen Corridor Study – A96 Dualling Inverness to Aberdeen Strategic Business Case (SBC)* was submitted as an accompanying document to the Tier 1 Environmental Report and summarised the wider economic assessment undertaken with SEA and STAG appraisals. It concluded with the following statements:

> *The outcome of this appraisal clearly demonstrates that the proposal to dual the A96 is the best way to meet the future needs of those living, working and travelling along the A96 Corridor in the 21st Century.*
>
> *Importantly, the appraisal has shown that the dualling is best able to meet the Transport Planning Objectives, by providing drivers with a consistent road standard that provides the best connectivity for those using the route, either end to end or to the many destinations along the corridor.*
>
> *Dualling the A96 will also complement the planned upgrades to the A9 and A90 Aberdeen Western Peripheral Route (AWPR), and will provide those people and businesses located along the corridor with the best possible access to Inverness and Aberdeen and onwards to Central Belt.*
>
> *In summary,*
>
> - *the appraisal evidence demonstrates that the options for further improving the transport links between Inverness and Aberdeen over and above existing commitments should be road based infrastructure interventions;*
> - *full dualling of the A96 between Inverness and Aberdeen is the best performing option in terms of the transport planning objectives and the STAG criteria; and*
> - *more detailed work on the Outline Business Case will help to refine the phasing and programme.*

The report of the Strategic Business Case and the Tier 1 Environmental Report can be downloaded from Transport Scotland's website at http://www.transportscotland.gov.uk/project/a96-dualling-inverness-aberdeen/environmental-challenges

Given the outcome that full dualling represents the best performing option overall, the SEA process moved to the second tier of assessment. Responses to comments received on the Tier 1 Environmental Report were included in Appendix A of the Tier 2 Scoping Report. The Tier 2 SEA process builds on the Tier 1 SEA and has been informed by a Tier 2 Scoping Report and consultation with the Consultation Authorities (CAs).

2.4 Tier 2 SEA Scope

The Tier 2 SEA considers the environmental implications associated with a range of future 'Improvement Strategy Options', which have been developed as part of preliminary engineering work to consider alternative ways of providing dual carriageway connectivity between Inverness and Aberdeen. It is important to note that the improvement strategy options do not represent specific corridors or route alignments.

The Tier 2 SEA process has been informed by comments received following consultation on the Tier 1 Environmental Report and the Tier 2 Scoping Report was provided to the SEA Consultation Authorities (SNH, SEPA and Historic Scotland) in December 2014.

This report set out the proposed approach to Tier 2 assessment which adopted a two stage process for consideration of Improvement Strategy Options:

- **Preliminary Environmental Assessment** - a high level appraisal of the improvement strategy options, integrated with a parallel sifting exercise where each option was considered with respect to the programme objectives for A96 dualling
- **Detailed Environmental Assessment** - following sifting, a more detailed assessment based on a comprehensive analysis of the constraints and potential effects of each remaining improvement strategy option.

It was proposed to scope a number of SEA topics, which had previously been scoped out of Tier 1 SEA, back into the detailed assessment stage; these are shown in Table 2—1.

It was also proposed to undertake the more detailed assessment using broader option study areas than for the preliminary assessment, ensuring that a comprehensive spatial area was considered for each option.

Responses to comments received on the Tier 2 Scoping Report are included in Appendix A of this report and are reflected throughout the Tier 2 SEA.

The approach to, and findings of, the preliminary environmental assessment of options is presented in Section 4 of this Environmental Report.

The methodology employed for the second, more detailed stage, is described in Section 5 of this report and the findings are reported in Section 6.

Table 2—1 Scope of Tier 2 Assessment of Shortlisted Improvement Strategy Options

SEA Topic	Scoped In/ Out	Comment/ Reason on SEA Scope
Biodiversity (including fauna and flora)	**In**	– Topic remains scoped in and criteria for assessment of shortlisted options expanded (see Table 3—5)
Population and Human Health	**In**	– Topic remains scoped in and criteria for assessment of shortlisted options expanded (see Table 3—5)
Soil and Geodiversity	**In**	– Topic remains scoped in and criteria for assessment of shortlisted options expanded (see Table 3—5)
Water	**In**	– Topic remains scoped in – Criteria for assessment of options expanded to accommodate inputs from the A96 Strategic Flood Risk Assessment (SFRA) which incorporates aspects of relevance to climate change (see Table 3—5)
Air	**In**	– Following CA feedback this topic was scoped back into the assessment and local air quality issues considered – primarily with reference to potential to exacerbate 'hotspots' such as AQMAs. Where possible, traffic demand/ flow information was also used.
Climatic factors	**Out**	– Following CA feedback, this topic was reconsidered; however, at the strategic constraints-led level of assessment for this SEA it was decided that proxy topics would be more useful – Carbon rich soils (in the Soil and Geodiversity topic – see Table 3—5) represents a broad proxy for impacts on release of carbon stored in soils/ peat affected by road development – Flooding criteria (in the Water topic) are also representative of climate related constraints
Material Assets	**Out**	– At the level of assessment proposed for the constraints based approach to SEA this topic would not help inform environmental assessment of options – Important to recognise that most infrastructure features (e.g. pipelines, overhead cables, roads etc.) are not necessarily a major constraint to dualling as they can be accommodated through appropriate design
Historic Environment	**In**	– Topic remains scoped in and criteria for assessment of shortlisted options expanded (see Table 3—5)
Landscape	**In**	– Topic remains scoped in – Criteria for assessment of shortlisted options were developed following discussions with SNH on landscape character during the Tier 1 process (see Table 3—5)

3 PPS Review and Environmental Baseline

3.1 Introduction

This section sets out the Plan, Policy and Strategy (PPS) Review and baseline development process. It summarises the approach to identify key environmental constraints and develop environmental criteria which are used to form the framework for assessment of options.

3.2 PPS Review

A wide range of policies, plans and strategies were reviewed for Tier 1 SEA, considering how they may affect, or be affected by, A96 corridor interventions, including dualling.

Figure 3—1 outlines the key types of PPS reviewed; focusing on the changing national policy context since completion of the Strategic Transport Projects Review (STPR) in 2008.

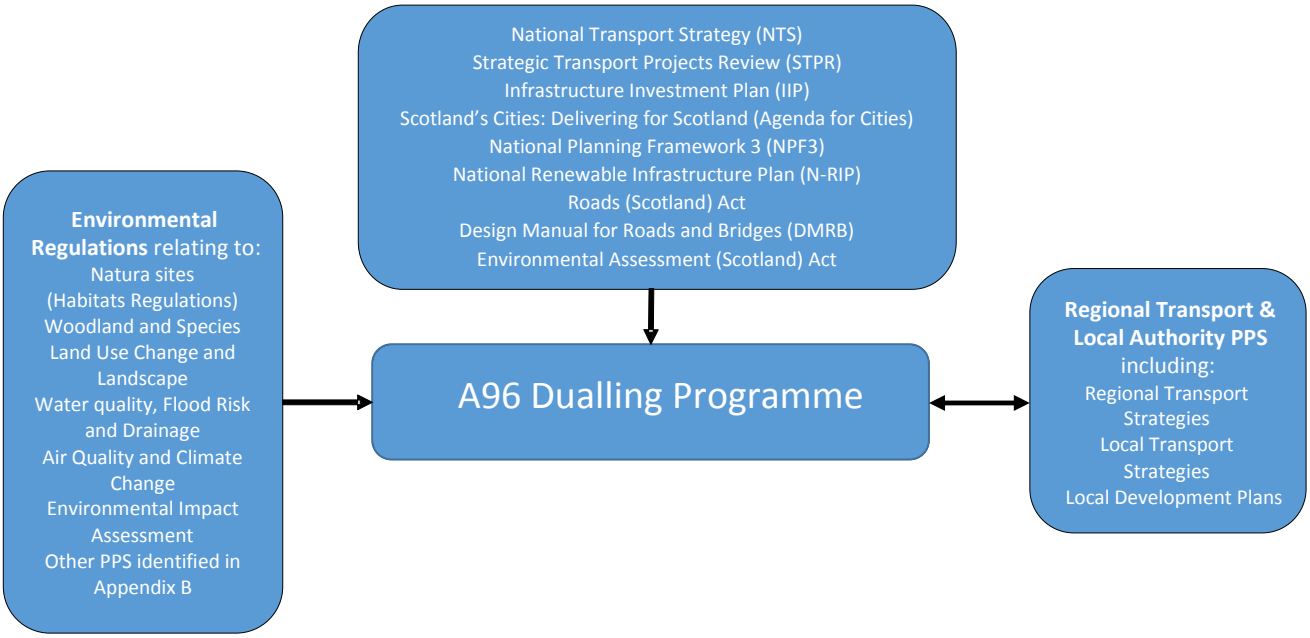


Figure 3—1 Key PPS types reviewed

3.3 National Policy Context

The Scottish Government's National Performance Framework states that the overall Scottish Government's purpose is, "*…to focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.*"

This is underlain by five strategic objectives, 16 national outcomes, and 50 national indicators; including ones that relate to reducing traffic congestion, deaths on the road network, and the country's carbon footprint.

Scotland's Economic Strategy, published March 2015, identifies four broad priority areas where actions will be focused – investment, innovation, inclusive growth, and internationalisation:

- An economy where growth is underpinned by long-term sustainable investment in people, infrastructure and assets;

- An economy where growth is based on innovation, change and openness to new ways of doing things;
- A society that promotes inclusive growth and creates opportunity through a fair and inclusive jobs market and regional cohesion to provide economic opportunities across all of Scotland; and
- A country with an international outlook and focus, open to trade, migration and new ideas.

The strategy makes a commitment to improving Scotland's transport links and highlights the importance of in investing in infrastructure to improve connectivity and help cities, towns and regions grow and compete internationally.

The National Transport Strategy (NTS), published in 2006, sets the long term vision for our transport policies. The NTS introduced three Key Strategic Outcomes (KSOs):

1. improve journey times and connections,
2. reduce emissions, and
3. improve quality, accessibility and affordability.

The NTS provided the policy framework for the 2008 Strategic Transport Projects Review (STPR) which used the KSOs as the basis for identifying 13 national objectives. The STPR examined 20 strategic corridors, including Aberdeen to Inverness, and identified evidence based options and priorities for intervention.

As mentioned in Section 1.1, the option for full dualling of the A96 between Inverness and Aberdeen was sifted out at an early stage; however, the STPR recommended a number of road and rail based interventions to take forward on the Aberdeen to Inverness corridor, many of which are currently being progressed by Scottish Government.

Recognising the KSOs and the Government's investment hierarchy, the Infrastructure Investment Plan (IIP), published in 2011, provides an overview of the contribution that infrastructure investment, including road and rail schemes, can make to the Scotland

The IIP sets out the Government's plans for infrastructure investment over the coming decades, explaining that infrastructure is seen by the Scottish Government as being a key driver of short and long-term economic growth. The IIP also commits to completing the dualling of the road network between Scotland's cities by 2030, including between Inverness and Aberdeen.

Scotland's Cities: Delivering for Scotland (Agenda for Cities), published in 2011, outlines the contribution that Scotland's major population centres can make to the aims and aspirations of Scotland Economic Strategy

It sets out that successful cities are linked by key characteristics supporting growth including being "*…connected cities, with strong digital and transport infrastructure*". Connectivity, both within and between cities is of particular relevance in this case, as is reduced journey times between the cities.

The National Planning Framework 3 (NPF3), published in 2014, provides guidance for Scotland's development to 2030, setting out strategic development priorities to support the Scottish Government's central purpose of sustainable economic growth.

Investments in infrastructure are seen as key in ensuring the competitiveness of places and are needed to "*…strengthen international links, tackle congestion, reduce journey times between our cities and support our rural communities*". The economic and connectivity benefits brought about by improvements to the Inverness to Aberdeen railway and the A96 trunk road are specifically referenced within the NPF3.

Scottish Enterprise, with support from Highlands and Islands Enterprise, developed the National Renewables Infrastructure Plan (N-RIP) which was published in 2010. The purpose of this document is to "…*support the development of a globally competitive offshore renewables industry based in Scotland*."

Aberdeen, at the eastern end of the corridor, and Ardersier, near the western end of the corridor, are identified in the report as first phase sites to meet the needs of the offshore wind industry. Aberdeen is identified as a site of Distributed Manufacturing and Operation / Maintenance activities, while Ardersier is identified as a site of Integrated Manufacturing.

These policy developments represent a change to the context for strategic road connections between Scotland's cities, requiring a change to the assumptions and objectives previously used to inform the STPR. The current national policy context therefore sets the framework for revising Inverness to Aberdeen corridor assessments, including confirmation of the Strategic Business Case for intervention and this Strategic Environmental Assessment.

3.4 PPS Implications for this SEA

A number of recurrent issues were identified through the PPS review. In terms of 'Biodiversity, Flora and Fauna', EU legislation including the Habitats Directive (92/43/EC) and the Birds Directive (79/409/EEC) place restrictions on developments which may affect Natura 2000 designated sites.

In addition, effects on national and local designations such as Sites of Special Scientific Interest (SSSI) must also be taken into consideration. As such, designated conservation areas have been mapped, using a Geographic Information System (GIS), as part of the environmental constraints baseline.

The Water Framework Directive (WFD) and the Water Environment and Water Services (Scotland) Act (WEWS) require the protection of the water environment in accordance with WFD targets. Whilst interventions on the Inverness to Aberdeen corridor may present risks *to* the water environment, they may also be affected *by* the water environment; therefore, a route-wide Strategic Flood Risk Assessment (SFRA) has been carried out, to support the consideration of flood risk areas in the assessment of improvement strategy options.

Further details of the SFRA are presented in Section 5.5 and the SFRA report is included as Appendix F.

The Scottish Soil Framework and Land Use Strategy advocate the principles of sustainable soil management in order to protect soil quality, biodiversity, carbon stores and sensitive habitats. The SEA has included productive agricultural land and high carbon soils within the environmental constraints baseline.

Additional PPS were reviewed for Tier 2 SEA in line with Consultation Authority responses to the Tier 2 Scoping Report. The additional PPS are listed in Table 3—1; grouped according to the most relevant SEA topic. The full PPS review tables are provided as Appendix B.

Table 3—1 Additional PPS reviewed for Tier 2 SEA

Plan, Programme or Strategy
Biodiversity, Flora and Fauna
Control of Woodland Removal Policy
Highland Biodiversity Action Plan 2010-2013
Scotland's Biodiversity – It's In Your Hands
Population and Human Health
Aberdeen City Core Paths Plan
Highland Core Paths Plan
Aberdeenshire Council Walking and Cycling Action Plan
Inner Moray Firth Local Development Plan
Scottish Planning Policy
National Planning Framework (NPF) 3
Scotland's Economic Strategy
Soil
Zero Waste Plan
Water
Highland Council Flood Risk and Drainage Impact Assessment Supplementary Guidance
Flooding in Aberdeenshire – Seventh Biennial Report
SEPA Policy 19 – Groundwater Protection Policy for Scotland
Air/ Climate
Aberdeen Air Quality Action Plan
Material Assets
Aberdeen City Council Local Transport Strategy
Aberdeenshire Council Local Transport Strategy
Moray Local Transport Strategy
Highland Local Transport Strategy
Highland Mainline Improvements Project
National Renewables Infrastructure Plan (N-RIP)
Scottish Forestry Strategy 2006
Historic Environment (Cultural Heritage)
Highland Historic Environment Strategy
Managing Change in the Historic Environment: Engineering Structures
Managing Change in the Historic Environment: Historic Battlefields
Managing Change in the Historic Environment: Setting
Planning (Listed Buildings & Conservation Areas) (Scotland) Act 1997

Table 3—2 summarises how the PPS review informed the selection of key environmental constraints.

Table 3—2 PPS Review Summary of Key Constraints

SEA Topic	Key Aspects for Tier 2 SEA consideration
Biodiversity, Flora & Fauna	– Identify and map Natura sites, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Ancient Woodland Inventory sites as key constraints – Native Woodland Survey of Scotland (NWSS) data also added since Scoping
Water	– Identify and map fluvial and coastal flood risk areas (1:200 year return period) – Identify and map surface watercourses and waterbodies – Updated SEPA flood risk maps, including surface water flooding also added since Scoping
Soil	– Identify and map designated geological/ geodiversity sites, including SSSI and Geological Conservation Review (GCR) sites – Identify and map productive agricultural land and high carbon soils
Population and Human Health	– Identify and map the communities within the baseline study area, including OS 'Communities' dataset – Identify and map non-motorised user routes, including Core Paths, regional trails and National Cycle Network routes
Landscape	– Identify and map nationally designated landscape areas, including National Parks and National Scenic Areas as well as local landscape designations such as AGLVs – SNH Broad Landscape Character Area (LCA) types also added since Scoping
Historic Environment	– Identify and map historic environment constraint features, including: Scheduled Monuments, Battlefields, Listed Buildings, Conservation Areas, Gardens and Designed Landscapes
Material Assets	– This topic has been 'scoped out' from the assessment for both Tier 1 and Tier 2 SEA; however, GIS includes OS base mapping tiles at a range of resolutions including the current A96 route, the surrounding road network and the Aberdeen to Inverness rail line
Air	– Identify and map Air Quality Management Areas – Identify key changes to traffic flow as a result of available modelling

3.5 Baseline Constraints

3.5.1 Tier 1 SEA – 15km wide study area

Baseline development for Tier 1 SEA focused on collation of key environmental designations and constraints within a broad 15km-wide study area between Inverness and Aberdeen (i.e. extending 7.5km either side of the existing A96 trunk road, to also include the rail line between the cities).

The 15km-wide study area was defined for Tier 1 SEA to ensure that baseline data was available to underpin the appraisal of Strategic Intervention Options, including road and rail options. Table 3—3 summarises the headline features identified within the Tier 1 SEA study area.

Table 3—3 15km-wide SEA Baseline Study Area Summary

Population

Main population centres at Aberdeen and Inverness, with smaller population centres at various points along the route including Nairn, Forres, Elgin, Keith, Huntly and Inverurie.

2011 Census (http://www.scotlandscensus.gov.uk/en/ accessed 26/11/13) indicates study area populations larger than 5000 as:

Aberdeen: 195,021
Inverness: 48,201
Elgin: 23,128
Inverurie: 12,654
Westhill (Aberdeenshire): 10,984
Forres: 9,951
Nairn: 9,773
Lossiemouth:7,705
Dyce: 5,712
Westhill (Highland): 5,265

Noise

Traffic using the A96 is one of the main contributors to noise pollution within the study area.

The 2008 STPR noted that maximum noise levels emitted from traffic on roads within the study area are between 70 and 80 dB(A) at source. These are not anticipated to have changed significantly since this time.

STPR estimated 28,400 properties as 'noise sensitive receptors' within the study area.

Human Health

The percentage of residents in Aberdeen and Inverness in very good, good, or fair health was recorded in the 2011 Census as 96.01% and 95.71% respectively.

These figures are above the national average of 94.39%.

Material Assets

This topic has been 'scoped out' from both the Tier 1 and Tier 2 SEA assessment; however, the main transport infrastructure within the study area includes:

- the A96 Trunk Road (between Aberdeen and Inverness),
- other A-class roads;
- the rail network between Inverness and Aberdeen,
- Inverness Airport and Aberdeen Airport.

Biodiversity

International designations include:

- 4 Ramsar sites, 6 SPAs and 7 SACs

National designations include:

- 32 biological SSSIs

Scottish Ancient Woodland Inventory and Native Woodland Survey of Scotland sites are found throughout the study area, with significant concentrations (primarily of plantation woodland) around Forres and the River Spey.

There are also a number of local conservation areas throughout the study area.

Soils and Geodiversity

There are 62 geological and 14 mixed (i.e. biological and geological) SSSIs scattered throughout the area.

A wide range of soils, from Class 2 and 3 lands capable of producing a wide or moderate range of crops, to poorer quality Class 6 and 7 land of little use for cultivation.

Some high carbon soils are found within the study area, with concentrations around Keith and the River Spey.

Landscape

There are no National Parks and no National Scenic Areas within the study area.

There are twelve distinct SNH Landscape Character Types (Landscape Character Assessment Level 3) within the SEA study area.

There are seven locally designated Area of Great Landscape Value (AGLVs) located within the study area.

Cultural Heritage/ Historic Environment

Numerous cultural heritage designated sites, including:

- 288 Scheduled Monuments
- 3096 Listed Buildings
- 22 Historic Gardens and Designed Landscapes
- 27 Conservation Areas
- 4 Inventory Battlefields
- A large number of local archaeology sites

Water

Main rivers include the Nairn, Spey, Findhorn, Lossie, Isla, Urie and the Don, which cross the study area at various locations.

The Moray Firth estuary is located to the far north west of the study area.

SEPA information (http://gis.sepa.org.uk/rbmp/ accessed 27/11/13) notes that:

Moray Firth water quality is classified as "High";

River Nairn within the study area is classified as "Good";

River Spey "Moderate";

Findhorn "Moderate";

Lossie "Bad/Poor";

Don "Good/Moderate".

There are numerous areas identified as prone to flooding on SEPA's 200 year coastal, surface water, and fluvial flood extent maps, particularly around areas such as Forres, Elgin and Inverurie.

Air

This topic was scoped out from the Tier 1 SEA assessment; however, it has been scoped back in to the Tier 2 SEA assessment. Information from Scottish Air Quality (http://www.scottishairquality.co.uk/laqm.php accessed 26/11/13) indicates one Air Quality Management Area (AQMA) located along Anderson Drive in Aberdeen which has been declared for Nitrogen Dioxide (NO_2) and particulate matter <10µm (PM_{10})

No AQMAs have been declared in Aberdeenshire, Moray or Highland Council regions; however, the Aberdeenshire Council Air Quality Progress Report 2013 (http://www.aberdeenshire.gov.uk/environmental/AirQualityProgressReport2013Final.pdf accessed 26/11/13) notes NO_2 levels of 34.9µg/m^3 at one monitoring point in Inverurie.

Should this value increase to 40µg/m^3, an AQMA would be declared.

Climatic Factors

This topic has been 'scoped out' from Tier 1 and Tier 2 SEA assessment; however, local flood events and flood history have been investigated further at Tier 2 SEA via a Strategic Flood Risk Assessment (SFRA).

Flood risk has been addressed in under the 'Water' topic.

Carbon dioxide emissions are scoped out of the SEA but potential effects on carbon stores are considered through identification of high carbon soils.

3.5.2 Tier 2 SEA – Additional Baseline Data and Study Areas

Tier 2 SEA considers a wide range of alternative Improvement Strategy Options and, at the outset, a number of these followed existing road networks that were outwith the Tier 1 15km-wide baseline study area. Therefore, at the Scoping stage, Tier 2 SEA initially developed a constraints baseline for each Improvement Strategy Option within 1km-wide study area extents.

These 1km-wide extents were used for the Preliminary Environmental Assessment and sifting exercises (see Appendices C and D).

The Improvement Strategy Options which progressed through sifting were all within the original 15km-wide baseline study area. The decision was then taken to widen the baseline study area extents for these remaining Options to 2km-wide. This enabled the more detailed identification and consideration of constraints over wider study areas, with a view towards maintaining future flexibility for dualling alignment options development and assessment.

Table 3—4 lists the principal data sources used to define the more detailed constraints baseline, including a range of local constraints datasets which were added in response CA advice. The following guidelines were adopted to ensure that additional datasets incorporated into the SEA:

- genuinely helped to support an assessment which can distinguish between options on the basis of relative degree of constraint;
- were repeatable across each Local Authority area (some data types are specific to one LA and therefore did not lend themselves to a consistent approach across all options); and
- could be presented, extracted and analysed using GIS (generally this works better with area based constraints as opposed to point source constraints, which may not be a key factor in differentiating between options).

3.6 SEA Criteria

The comprehensive PPS review and extensive constraints baseline fed into the development of a set of SEA criteria to underpin a framework for the consistent assessment of the improvement strategy options at the Tier 2 stage.

This set of criteria has been updated throughout the Tier 2 assessment process as new data sets have become available and Table 3—5 below presents the final criteria used for the detailed assessment.

Table 3—4 SEA Tier 2 Constraint Data

Data Type	Source
Base Mapping	
1:250,000 OS Maps	Ordnance Survey via Transport Scotland
1:50,000 OS Maps	Ordnance Survey via Transport Scotland
1:25,000 OS Maps	Ordnance Survey via Transport Scotland
Biodiversity, Flora and Fauna	
Ramsar Sites	Scottish Natural Heritage
Special Protection Area Sites	Scottish Natural Heritage
Special Areas of Conservation Sites	Scottish Natural Heritage
Sites of Special Scientific Interest	Scottish Natural Heritage
National Nature Reserves	Scottish Natural Heritage
Scottish Ancient Woodland Inventory	Scottish Natural Heritage
Native Woodland Survey of Scotland	Forestry Commission Scotland
District Wildlife Areas	Aberdeen City Council via Transport Scotland
Local Nature Reserves	Aberdeenshire Council via Transport Scotland
Lowland Raised Peat Bogs	Aberdeenshire Council via Transport Scotland
Study of Environmentally Sensitive Areas	North East Scotland Biological Records Centre (NESBReC) via Transport Scotland
Local Nature Conservation Sites	North East Scotland Biological Records Centre (NESBReC) via Transport Scotland
Sites of Interest to Natural Science	The Moray Council via Transport Scotland
Moray Wildlife Sites	The Moray Council via Transport Scotland
Soils and Geodiversity	
Geological Conservation Review Sites	Scottish Natural Heritage
Sites of Special Scientific Interest	Scottish Natural Heritage
Land Capability for Agriculture	James Hutton Institute
Carbon Rich Soils Mapping	James Hutton Institute/ Scottish Natural Heritage
Water and Flooding	
Surface Water Courses	SEPA
1:200 year fluvial, surface water and coastal flood risk extents	SEPA
Data inputs to be defined from the SFRA	CH2M HILL derived
Air	
Air Quality Management Areas	Local Authorities
Traffic Flow Data	Transport Scotland / PES Commission
Air quality concentrations	Air Quality Scotland website
Population and Human Health	
National Cycle Network Routes	Sustrans via Transport Scotland
Highland Council – Core Paths/ Long Distance Paths	Highland Council via Transport Scotland
Moray Council – Core Paths	Moray Council via Transport Scotland
Aberdeenshire Council – Core Paths	Aberdeenshire Council via Transport Scotland
Historic Environment	
Listed Buildings	Historic Scotland
Inventory Battlefields	Historic Scotland
Scheduled Monuments	Historic Scotland
Conservation Areas	Relevant Local Authorities (previously HS data was used)
Gardens & Designed Landscapes	Historic Scotland
Local archaeological sites	Relevant Local Authorities
Landscape and Visual	
National Scenic Areas	Scottish Natural Heritage
Landscape Character Areas	Scottish Natural Heritage
National Parks	Scottish Natural Heritage
Areas of Great Landscape Value	The Moray Council
Landscape inputs from A96 Landscape Review	CH2M HILL derived

Table 3—5 Tier 2 SEA Criteria and Approach Framework

SEA Topic	Environmental Constraint/ Criteria	Approach to Improvement Strategy Option Constraint Analysis and Impact Assessment
Biodiversity (including fauna and flora)	– Ramsar Sites – Special Protection Areas (SPAs) – Special Areas of Conservation (SACs) – Sites of Special Scientific Interest (SSSI) – biological and mixed – National Nature Reserves (NNR) and Local Nature Reserves (LNR) – Ancient Woodland Inventory sites – Native Woodland Survey of Scotland sites – Locally designated nature conservation sites (e.g. SINS – Sites of Interest to Natural Science)	– Constraints led analysis of the % of each segment[3] and option study area subject to designations (classified according to each type and including information on local sites) – Commentary on the extent to which the option is constrained by the biodiversity interests and the potential for significant effects from development of a route in the option area – Commentary of the extent to which the option is constrained by Woodland (ancient woodland and native woodland) and the potential for significant effects from the development of a dualled route in the option area – Analysis of the potential for significant effects from dualling within the option taking account of the collective biodiversity constraints
Soils and Geodiversity	– Geological SSSI – Geological Conservation Review (GCR) sites – Agricultural land classes 1 to 3.1 (Prime agricultural land) – Carbon rich soils	– Constraints led analysis of the % of study area subject to designations (classified according to each type) – Constraints led analysis of the % of study area covered by better quality agricultural land and by soils classified as carbon rich soils[4] – Commentary on extent to which the option is constrained by the sensitivity of the geology and soils and the potential for significant effects from development of a route in the option area

[3] Due to the scale of the A96 dualling programme, the SEA has divided the study area into a series of eight route sections. Within each section the options present were further split into 'segments' for the purposes of analysing constraints and effects in the detailed matrices in Appendix I and J

[4] Soil categories 2, 4, 5 and 6 have been interpreted from the carbon rich soils mapping as soils containing peat

SEA Topic	Environmental Constraint/ Criteria	Approach to Improvement Strategy Option Constraint Analysis and Impact Assessment
Water	– SFRA – 1:200 yr fluvial flood extent (surface area) – SFRA – 1:200 yr coastal flood extent (surface area) – SFRA – 1200 yr pluvial flooding (surface area) – SFRA – Major watercourse crossings (Watercourses shown on 1:50k OS mapping) – SFRA – Possibility of groundwater contributing to flooding (surface area) – SFRA – Existing flood defence infrastructure – SFRA – No. of properties within 1:200 yr flood extents – Other water resource issues (e.g. presence of distilleries)	– Constraints led analysis of the % of study area subject to flooding (classified according to each type) – Other key constraints/data sourced from the SFRA including criteria on the number of properties at risk of flooding and the effects on flooding from watercourse crossings – The SFRA supports informed commentary on flooding issues for comparative options assessment, for example by noting where areas at risk of flooding from one source (e.g. fluvial) could be compounded by other sources (e.g. pluvial or groundwater) and by informing understanding of how new infrastructure could exacerbate flooding risk to properties already at risk of flooding (e.g. through impact of new river crossings and/ or loss of functional floodplain on flood risk) – Because the SFRA covers a 15km-wide study area around the A96 the analysis of potential impacts on flooding from each option will draw on data and findings from a much wider area than the immediate 2km-wide study areas for each individual option
Air	– Air Quality Management Areas – Traffic flow/ demand data (as a proxy for local air quality where available)	– Consideration of areas already sensitive to local air pollution through AQMA designation – Commentary on the potential for differences in air quality exposure to populated areas e.g. from alternative bypasses around the key towns and drawing on traffic flow monitoring and prediction information provided by the PES team
Population and Human Health	– Towns and principal centres of population – 'Population' to act as a proxy for receptors subject to potential effects on amenity – Traffic flow/ demand data (as a proxy for road traffic noise where available) – Core paths/ NMUs	– Use of population extent (key centres/ population areas) and density in study areas to provide an indication of relative sensitivity to amenity effects from new road and for increased risk of loss of or demolitions of property – Extent/ density of core paths, national and regional trails considered as a qualitative measure in constraints analysis particularly where concentrations of routes act to constrain option areas – Reference to traffic information (current A96 flows and modelled future flows on a dualled route) to inform comment on the potential for differences in traffic related amenity effects to populated areas

SEA Topic	Environmental Constraint/ Criteria	Approach to Improvement Strategy Option Constraint Analysis and Impact Assessment
Historic Environment	– Scheduled Monuments (SM) – Inventory Battlefields – A Listed Buildings – B&C Listed Buildings – Gardens & Designed Landscapes (GDL) – Conservation Areas – Non-Designated Local Authority Historic Environment Record Sites	– Constraints led analysis of the study area subject to historic environment designations (SMs, GDLs, CAs and Inventory Battlefields) – Number/ density of other key designated (point) sites within study area (Listed buildings, point SMs, memorials etc.) – Identification of any particularly dense grouping of non-designated sites and areas to form 'key hotspots' for cultural heritage to inform options constraint analysis – Commentary on extent to which the option is constrained by historic environment interests and the potential for significant effects (both direct and indirect) from development of a route in the option area
Landscape	– Landscape character types summary – Local landscape designations – Analysis of landscape character and sensitivity via a specific landscape review	– There are no nationally designated landscape areas within the option study areas; however, local landscape designations have been identified – Option specific commentary on landscape character and sensitivity (constraint) and potential for significant effects on landscapes and visual receptors, drawing on the landscape review work which takes account of interpretation of key landscape character features from mapped data and site visits

4 Preliminary Environmental Assessment

4.1 Introduction

This section presents the methodology and findings of the Tier 2 SEA preliminary environmental assessment of Improvement Strategy Options developed via the PES work.

4.2 Methodology

The initial development of improvement strategy options generated a list of broad options within which notional dualling alignments could be developed. These options were geographically diverse (as shown in Figure 4—1) and many were located some distance from the existing A96 trunk road.

For environmental assessment purposes, a 1km-wide study area was adopted around each option; these study areas do not represent definitive alignments.

A set of six specific transport objectives, building on those developed for the SBC/ STAG appraisal, were used as the basis for testing and sifting the improvement strategy options:

1. To improve the operation of the A96 and inter-urban connectivity between the cities of Inverness and Aberdeen and their city regions through:
    - Reduced journey times;
    - Improved journey time reliability; and
    - Reduced conflicts between local and strategic journeys.
2. To improve safety for motorised and non-motorised users through:
    - Reduced accident rates and severity; and
    - Reduced driver stress.
3. To provide opportunities to grow the regional economies on the corridor through:
    - Improved access to the wider strategic transport network; and
    - Enhanced access to jobs and services.
4. To facilitate active travel in the corridor;
5. To facilitate integration with Public Transport Facilities; and
6. To reduce the environmental effect on the communities in the corridor.

From an SEA perspective, transport objective #6 "To reduce the environmental effect on the communities in the corridor" does not provide sufficient sensitivity across the range of environmental topics which SEA must address.

The SEA therefore employed a constraints-led approach to assessing the improvement strategy options, in parallel with the objectives-led sifting approach, to ensure that a comprehensive analysis of environmental effects was undertaken and integrated with the PES option sifting process.

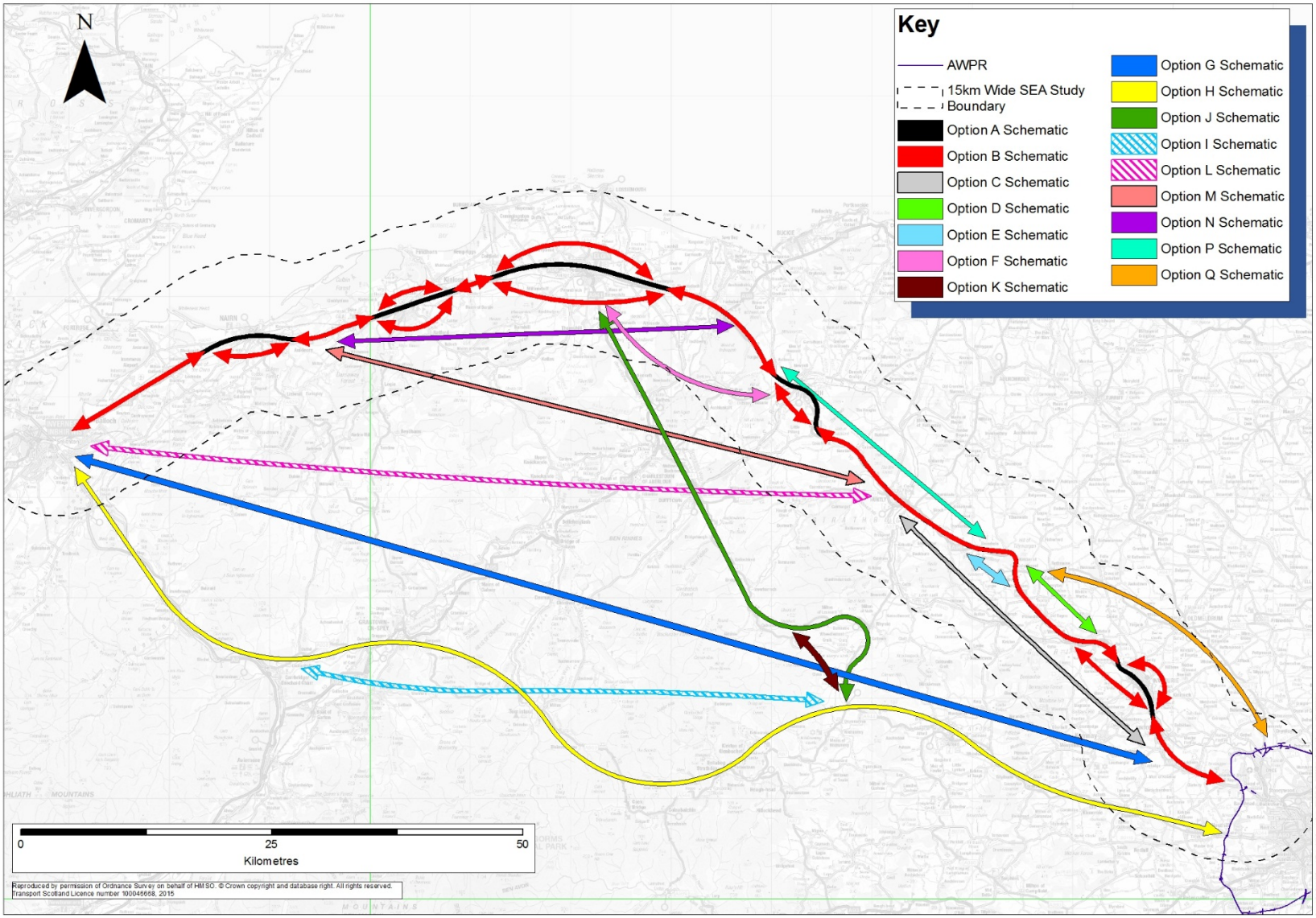


Figure 4—1 Improvement Strategy Options A to Q

The preliminary assessment of the 16 Improvement Strategy Options involved a two-part sifting process integrating SEA and PES findings to reach a shortlist of options for further, detailed assessment. A flowchart illustrating the sifting process is shown below in Figure 4—2.

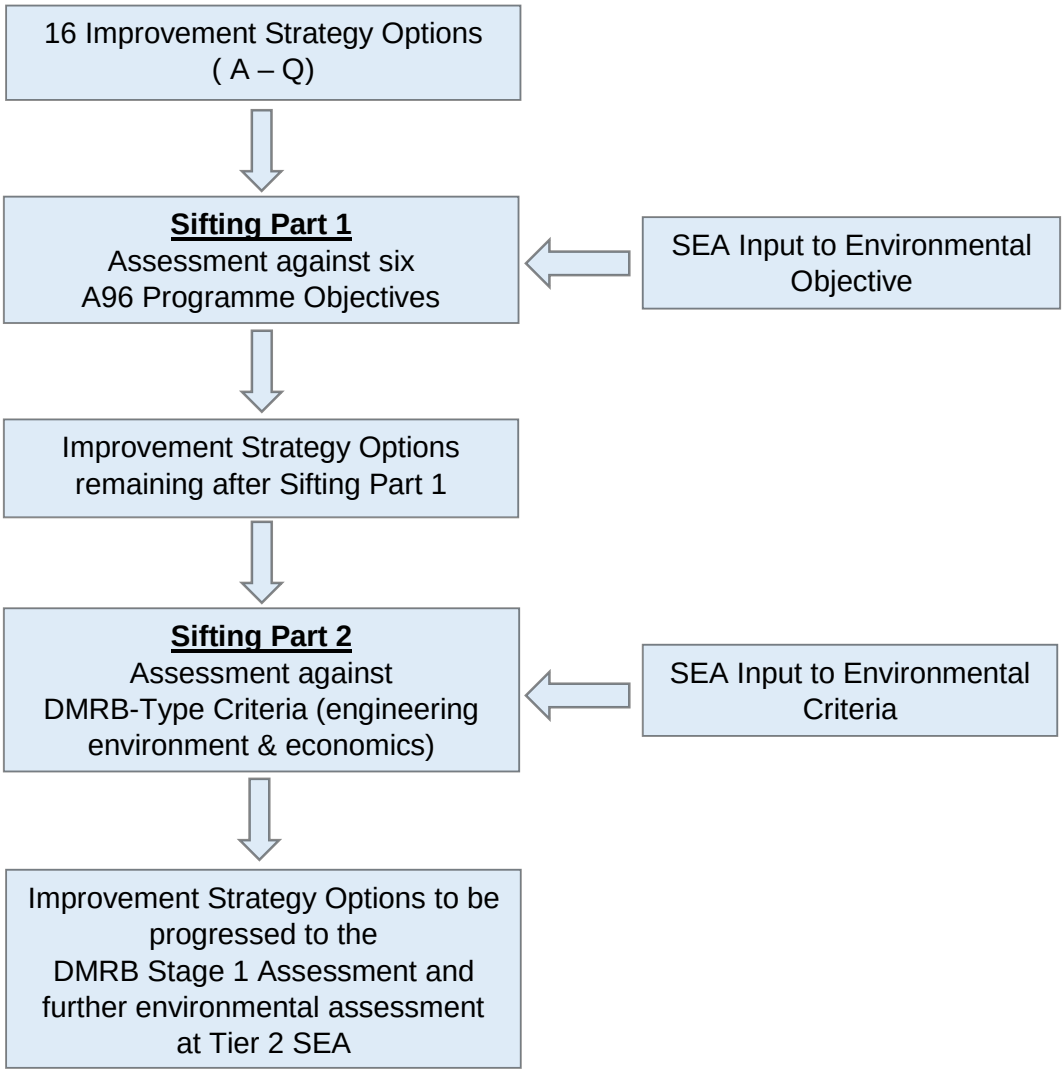


Figure 4—2 Improvement Strategy Sifting Process

It should be noted that whilst Figure 4—1 shows several options extending to Inverness, DMRB Stage 2 design work (including environmental assessment) on the Inverness to Nairn (including Nairn Bypass) section of the A96 has now determined a preferred option for dualling. The preferred option for this scheme was announced by the Scottish Government on 3 October 2014.

PES and SEA assessments of shortlisted options have therefore focused on alternatives for A96 dualling from east of Auldearn to Aberdeen.

4.3 Findings

4.3.1 Sifting Part 1

The first stage of the PES sifting process focused on the appraisal of 16 improvement strategy options through determining their performance against the set of dualling programme objectives. The Part 1 Sifting tables illustrate a positive or negative response to each programme objective, along with a brief justification.

The SEA input was focused on supporting the appraisal of objective #6 in particular: "To reduce the environmental effect on the communities in the corridor".

In order to inform the SEA assessment, a number of assumptions were applied to the improvement strategy options:

- each option was described in terms of whether it generally followed existing roads, or was a new, direct point-to-point (end-to-end) option;
- a 1km-wide study boundary was applied to each improvement strategy option to enable extracts on a range of constraints from Geographic Information System (GIS) overlays;
- Option B (representing dualling of the existing A96 trunk road between bypass options to the north or south of large settlements) was split into options B North (representing bypasses to the north of settlements), and B South (representing bypasses to the south of settlements).

Baseline constraints data were collated within GIS and the improvement strategy option boundaries overlaid. Through GIS extracts, the name, type and area of each constraint (e.g. Natura sites, SSSIs, GDLs, Battlefields, etc.) within an option boundary were identified and documented in a data capture spreadsheet.

The constraints data were then categorised against SEA topic headings and an overview of environmental constraints was compiled for each option; this information was captured in option matrices (see Appendices C and D). The constraints were also assessed, using GIS mapping and SEA team experience to inform a judgement on the potential for significant effects, or possible benefits of each option.

Using GIS allowed consideration of improvement strategy options in relation to individual constraint types, or in relation to spatial clusters of constraints. A constraint was considered to be a key issue where it would be difficult to avoid; for example where constraints crossed the entirety/ majority of the breadth of an option boundary or where there were clusters of constraints.

The approach also allowed flexibility in the spatial extent of the study areas being considered, making it possible to comment on 'edge effects' such as where important designations might be located outwith but very close to option boundaries.

The key issues, risks and benefits of each option were summarised and a recommendation on whether each improvement strategy option should be taken forward for, or removed from, further consideration was made.

The combination of the objectives-based approach and the SEA constraints-based assessment provided a robust, integrated approach to the selection of options for the next stage of assessment.

Consideration was given to the potential for each option to introduce environmental effects on key communities taking account of the proximity of the options and with reference to baseline environmental information collated for the SEA. An initial review of landscape character types was also carried out at this stage to inform this assessment.

The appraisal summary tables in Appendix D are colour coded to indicate whether an option should (green), or should not (pink) be taken forward for further consideration. Table 4—1 sets out a shorthand (✗/✓) summary of the SEA findings.

Table 4—1 SEA Review Summary Recommendations

PES Pt1 Option	A	B(n)	B(s)	C	D	E	F	G	H	I	J	K	L	M	N (orig-inal)	N (revi-sed)	P	Q
SEA Review Finding	✗	✓	✓	✓	✓	✓? (Tun-nel)	✓? (Distill-eries)	✗	✗	✗	✗	✗	✗	✗	✗? (Na-tura)	✓	✓? (Tun-nel)	✓

It should be noted that while Option A was not taken forward to Sifting Part 2, during the assessment of Option A, the PES team identified the existing single carriageway bypass of Inverurie as a section of the A96 that could potentially be upgraded to full dual carriageway standard without compromising the safety of motorised and non-motorised users.

As such, the existing Inverurie bypass was incorporated into Option B and taken forward for further assessment.

Options E, F and P were noted with a question mark as, although they perform relatively well in terms of environmental constraints, there are other issues related to tunnelling (for Options E and P) and water quality in an area with multiple distilleries (Option F).

The preliminary SEA assessment of Options E and P concluded that, due to the environmental impact associated with tunnelling, these options "…*should only be taken forward for further consideration where the PES engineering studies determine that the alternative options in this area are particularly constrained*".

Option N (original) is noted with a question mark as it would potentially be more favourable with some refinement to avoid the Natura sites at its western extent. Following further consideration of this option, the recommendation to revise it to avoid the Natura sites at the western extent was accepted and implemented. Following this change, SEA recommended that the revised Option N could be carried forward for further consideration.

Table 4—2 summarises the findings of the objectives based appraisal at Part 1 sifting and the improvement strategy options remaining from the sifting process are illustrated in Figure 4—3.

Table 4—2 Summary of Part 1 Sifting Appraisal

Option	PES assessment against Scheme Objectives						
	1: To improve the operation of the A96 and inter-urban connectivity between the cities of Inverness to Aberdeen and their city regions	2: To improve safety for motorised and non-motorised users	3: To provide opportunities to grow the regional economies on the corridor	4: To facilitate Active Travel in the Corridor	5: To facilitate integration with Public Transport Facilities	6: To reduce the environmental effect on the communities in the corridor	Proceed to Part 2 Sifting?
A	No	No	Yes	No	Yes	No	✗
B	Yes	Yes	Yes	Yes	Yes	Yes	✓
C	Yes	Yes	Yes	Yes	Yes	Yes	✓
D	Yes	Yes	Yes	Yes	Yes	No (Neutral)[5]	✓
E	Yes	Yes	Yes	Yes	Yes	Yes	✓
F	Yes	Yes	Yes	No	No	Yes	✗
G	Yes	Yes	No	No	No	No	✗
H	Yes	Yes	No	No	No	No	✗
I	Yes	Yes	No	No	No	No	✗
J	Yes	Yes	No	No	No	No	✗
K	Yes	Yes	No	No	No	No	✗
L	Yes	Yes	No	No	No	No	✗
M	Yes	Yes	No	No	No	No	✗
N	Yes	Yes	Yes	Yes	Yes	Yes	✓
P	Yes	Yes	Yes	Yes	Yes	Yes	✓
Q	Yes	Yes	No	No	No	Yes	✗

[5] Subsequent analysis of Option D during Part 2 sifting, and discussion at a sifting workshop, agreed that as the SEA Part 1 sift had assessed the option as a 'Neutral' impact, the resultant assessment across the scheme objectives enabled progression to the next stage of assessment.

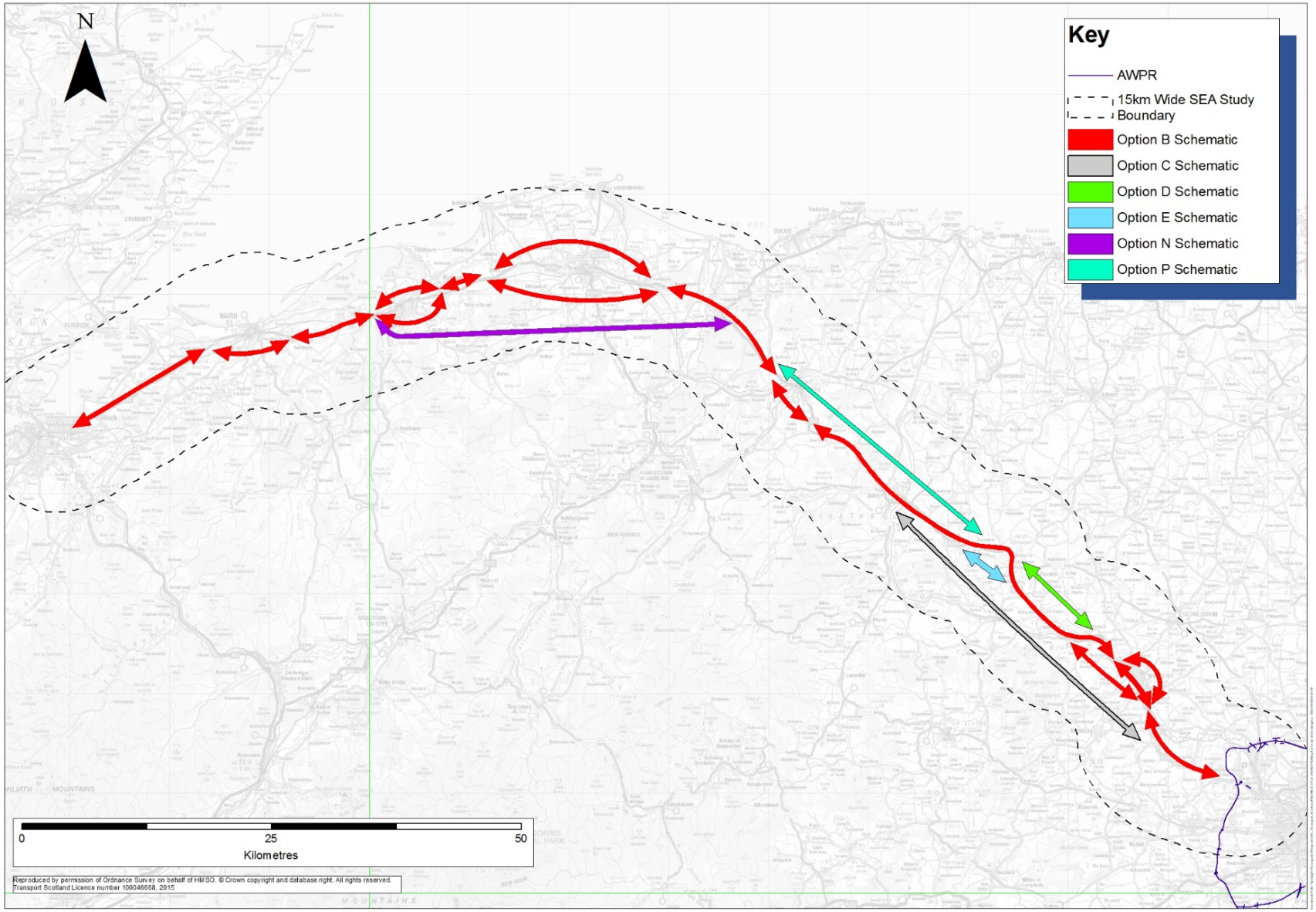


Figure 4—3 PES Improvement Strategy Options following Sifting Part 1

4.3.2 Sifting Part 2

Sifting Part 2 comprised an assessment of the six remaining improvement strategy options after Part 1 (Options B, C, D, E, N and P) to identify any which were significantly less advantageous than others and could be removed from further consideration.

In Sifting Part 2, the improvement strategies were assessed against DMRB criteria (engineering, environmental and cost) and a general assessment of deliverability. SEA informed Sifting Part 2 through specific input on environmental constraints.

Sifting Workshop

A workshop was held in May 2014 to review the outcome of the Part 1 and Part 2 Sifting assessments. Participants included Transport Scotland, SEA, PES and SBC/ STAG teams. The objective was to review and challenge the sifting exercises and confirm agreement on those options that were clearly not feasible and/ or desirable to progress further to the DMRB Stage 1 Assessment.

Discussions highlighted that operational issues related to tunnel options E and P could impact upon transportation of whisky and renewables and the fact that other options in the same location were less constrained and therefore more favourable.

Table 4—3 presents a summary of the combined SEA output with the findings of the engineering and cost elements of the PES Part 2 assessments. The final column of the table indicates whether or not an improvement strategy option could proceed to the next stage of consideration.

Table 4—3 Summary of PES Part 2 Sifting Appraisal

Option	Engineering and Cost	SEA Environmental	Proceed to DMRB Stage 1?
Option B	✓	✓	✓
Option C	✓	✓	✓
Option D	✓	✓	✓
Option E	×	✓	×
Option N (revised)	✓	✓	✓
Option P	×	✓	×

It was recommended that Options E and P were not taken forward for further assessment due to more significant engineering, cost/ deliverability and environmental disadvantages associated with tunnelling.

The options remaining after the PES Part 2 sifting process are shown in Figure 4—4.

Figure 4—4 shows that only Improvement Strategy Option B provides a complete link from Inverness to Aberdeen and that it includes a number of north/ south bypass variants around the towns of Forres, Elgin and Inverurie. Options C, D and N represent more localised variants to Option B (N/S).

The approach to, and findings of, the more detailed environmental assessment of these remaining options is presented in Chapters 5 to 7 of this report.

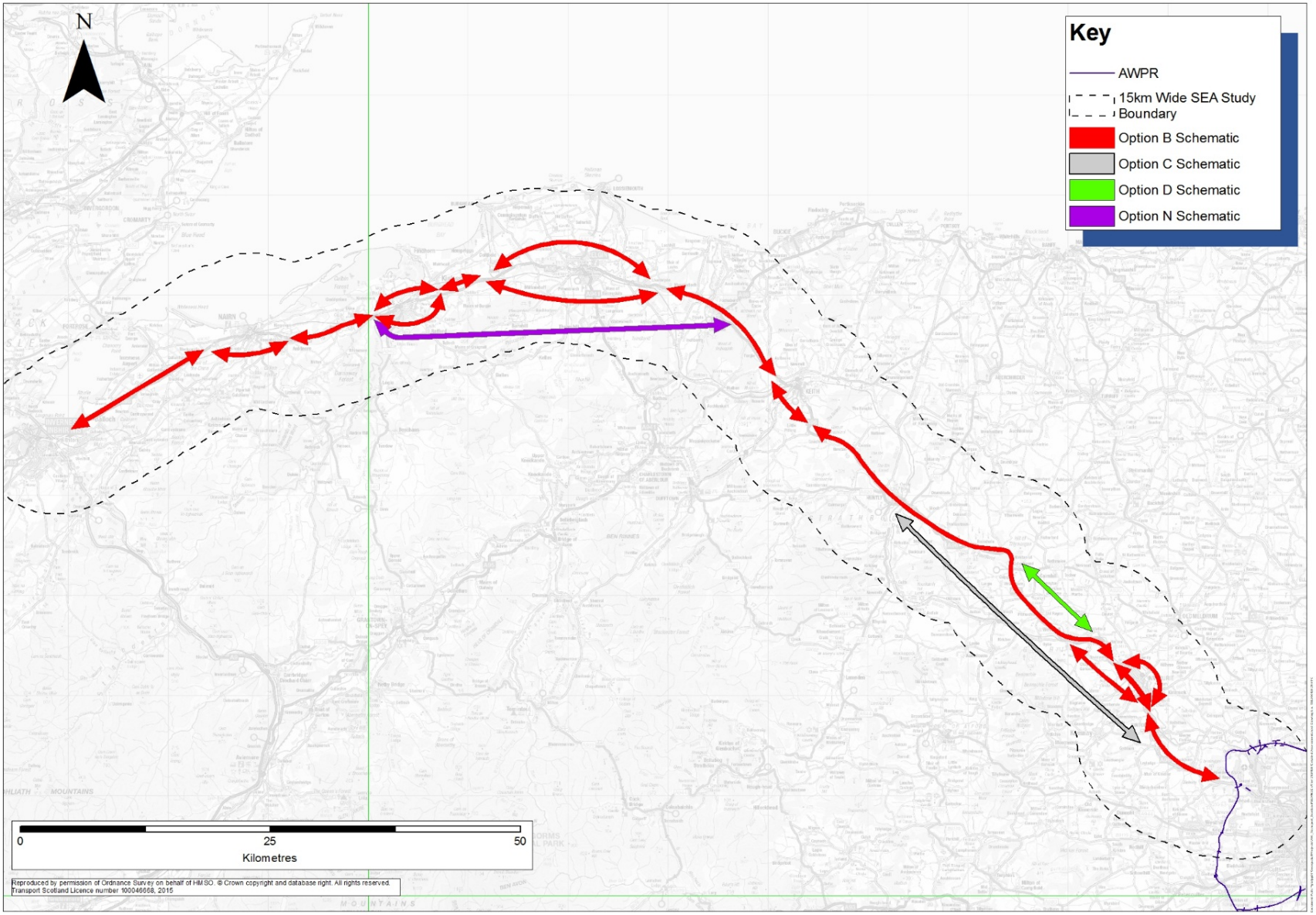


Figure 4—4 PES Improvement Strategy Options remaining after Sifting Part 2

5 Detailed Assessment Methodology

5.1 Introduction

In common with the approach adopted for the preliminary environmental assessment of 16 improvement strategy options detailed in Section 4, the Tier 2 detailed assessment of the remaining 4 improvement strategy options adopts a constraints-led approach.

The level of detail of the assessment has been enhanced through inclusion of additional environmental criteria (summarised in Section 3.6) and by breaking improvement strategy options down into A96 SEA sections.

Following Tier 2 Scoping it was also decided to analyse broader options study areas than those used for preliminary assessment. Therefore the constraints analysis focussed on 2km-wide SEA study areas.

5.2 Constraints Analysis

At this more detailed level of assessment, the key constraints data has been assessed as follows:

- division of the A96 study area into 10 A96 SEA sections to enable analysis of each improvement strategy option at a more detailed level than was used for the preliminary assessments;
- overlaying each improvement strategy option (extended to a 2km-wide study extents) onto a plan of A96 SEA sections;
- sub dividing each improvement strategy option to enable comparison of constraints between options within the same A96 SEA section, and between options as a whole;
- undertaking GIS data extraction and interpretation for each option sub-division within each A96 SEA section;
- reviewing information from supporting studies including the Strategic Flood Risk Assessment (SFRA), Habitats Regulation Appraisal (HRA) Screening and a Landscape Review undertaken specifically for the Tier 2 SEA; and
- recording the constraints analysis via SEA matrices which enable direct comparison between options within each A96 SEA section, as well as a compilation of data between sections to enable comparisons between complete option extents.

The ten SEA study area sections are shown on Figure 5—1; however, the detailed PES and SEA assessments concentrate on A96 SEA sections 3 to 10, Hardmuir Wood (east of Nairn and Auldearn) to the location of the proposed junction with the Aberdeen Western Peripheral Route (AWPR), now under construction).

This is due to the fact that a preferred option for the A96 Dualling Inverness to Nairn (including Nairn Bypass), in A96 SEA sections 1 and 2 of the A96 study area was announced by Transport Scotland in October 2014.

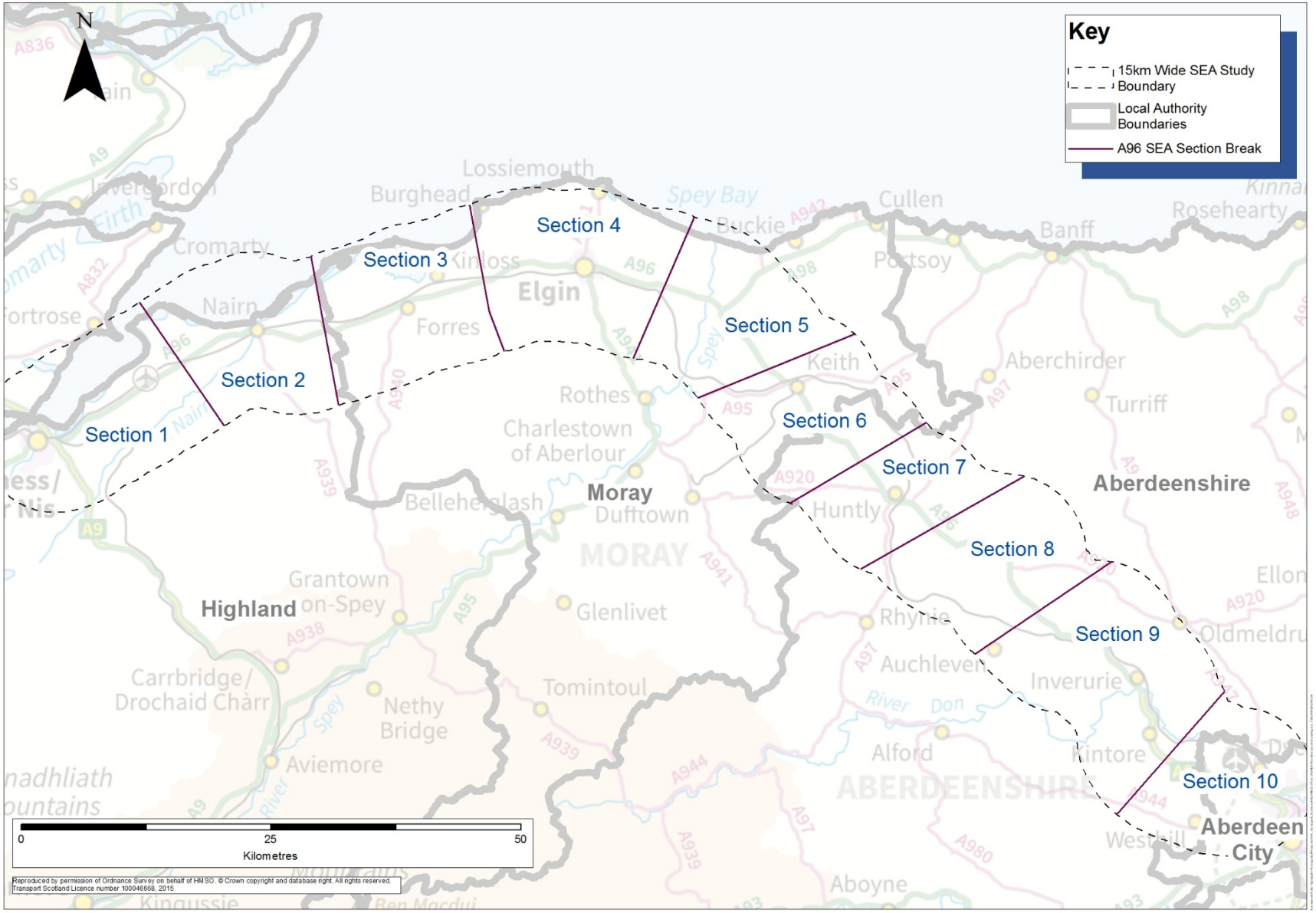


Figure 5—1 Location of A96 SEA Study Area Sections 1-10

Table 5—1 defines the extents of each of the 10 A96 SEA sections from north to south. The table is based on Option B, which is the only improvement strategy option extending throughout the length of the existing A96 trunk road, and references to bypasses identify where Option B splits with variants to the north and south of the towns of Forres, Elgin and Inverurie.

Table 5—1 Extents of A96 SEA Study Area Sections 1-10

Section	Location	Description
1	Raigmore Interchange to Gollanfield	Existing A96 corridor between A96 Raigmore Interchange at Inverness and the bypass of Nairn
2	Gollanfield to Hardmuir Wood	Offline bypass to the south of Nairn
3	Hardmuir Wood to Alves	Offline bypass to the north of Forres Offline bypass to the south of Forres
4	Alves to Lhanbryde	Offline bypass to the north of Elgin Offline bypass to the south of Elgin
5	Lhanbryde to west of Keith	Existing A96 corridor between Lhanbryde and Keith
6	West of Keith to west of Huntly	Offline bypass to the south of Keith
7	West of Huntly to east of Huntly	Existing A96 corridor between the west of Huntly and the east of Huntly
8	East of Huntly to Old Rayne	Existing A96 corridor between Adamstown and Old Rayne
9	Old Rayne to Kintore	Offline bypass to the north of Inverurie Existing A96 bypass of Inverurie Offline bypass to the south of Inverurie
10	Kintore to proposed junction with the AWPR	Existing dual carriageway between Inverurie and the proposed junction with the AWPR

In some SEA study area sections there is only a single option under consideration (for e.g. Option B in section 6) and in other sections there will be two or more options to consider (for e.g. Options B, C and D in section 8, see below).

Figure 5—2 illustrates the approach taken to the sub-division of improvement strategy options within SEA study area sections using section 8 as an example.

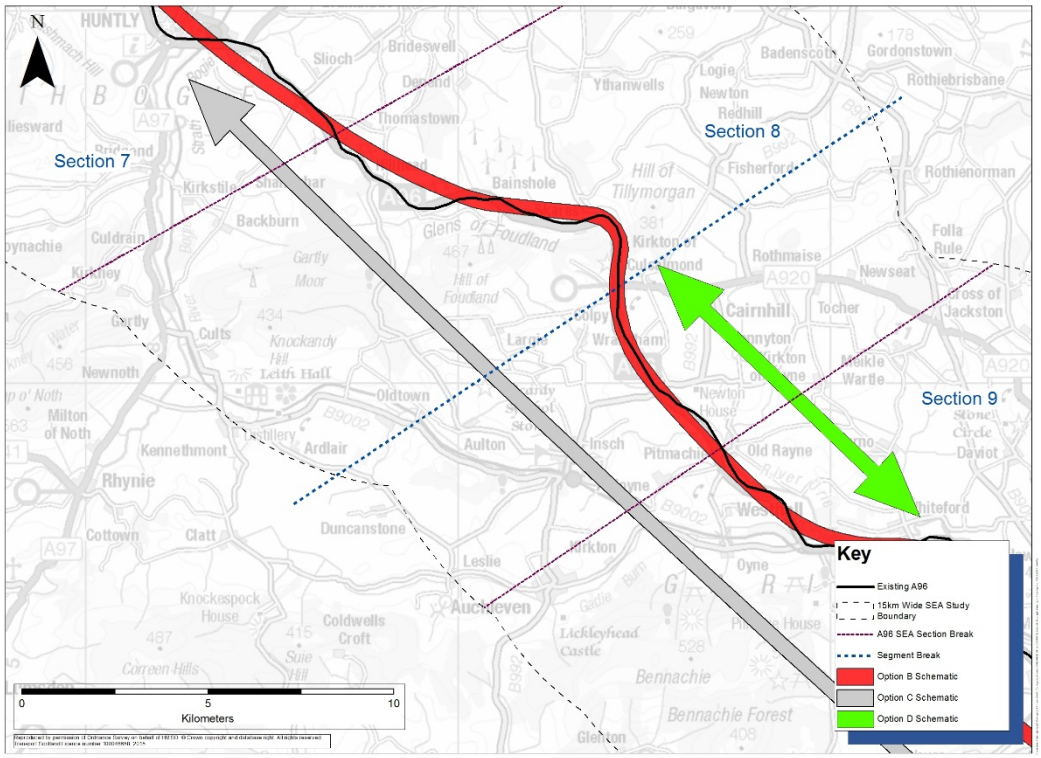


Figure 5—2 Approach to Sections and Segments

For data extraction and analysis purposes, improvement strategy options have been split initially using A96 SEA section breaks, and then further into 'segments' by drawing a line perpendicular to the existing A96 where any other options within that section start or end (for example, see the 'segment break' lines in Figure 5—2).

The purpose of this approach is to ensure that options which do not span the full length of a section, can be compared on a like for like basis with the appropriate 'segments' of alternative options.

The constraints and data extract information for each improvement strategy option (i.e. the attribute data from each layer in the GIS) in each section has been recorded in a series of spreadsheets. These record key quantitative information such as areas of designations in each option/ section for each of the relevant SEA topics and criteria used in the assessment (see Appendix H).

The analysis of constraints and assessment of improvement strategy options has drawn on information from these data extracts, by review of the mapped information and by making use of other key inputs (which are not GIS specific) such as traffic data, findings from the SFRA and inputs from the landscape appraisal (see Section 5.5).

Three sets of matrices have been used to capture the assessments and Figure 5—3 provides an overview of the process.

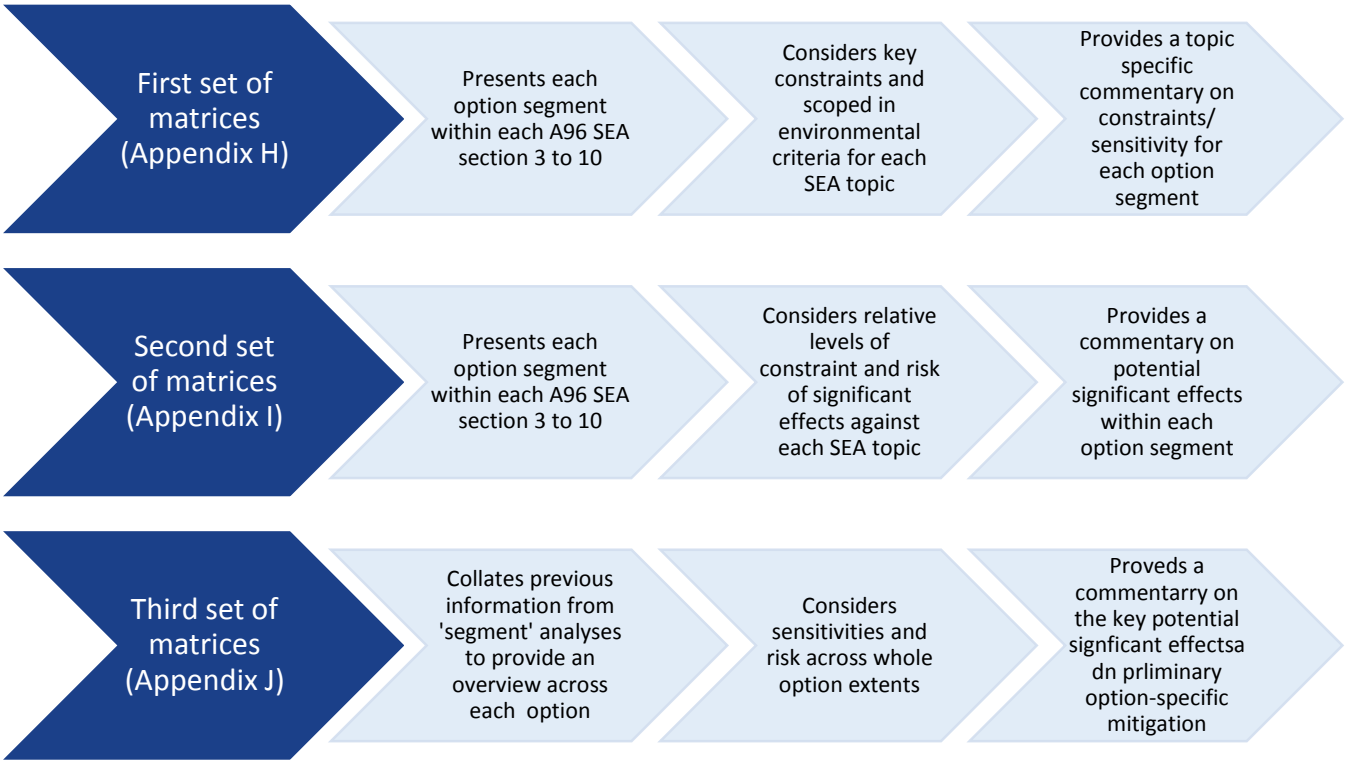


Figure 5—3 Overview of Matrices used in Detailed Assessment Methodology

This methodology has been developed to focus on clear analysis of level of constraint in each segment and then each improvement strategy option.

This approach was adopted because of the strategic level of the SEA, where very broad (2km wide) study areas have been defined for each improvement strategy option, and a future dualled trunk road could take a range of different alignments.

Sufficient detail is provided to begin to identify clear advantages and disadvantages between improvement strategy options. Using informed judgement and a strategic understanding of environmental constraint and potential for significant effects from dualling within each study area, key differences between options can be driven out.

It is not the purpose of the assessment to identify an order of 'preference' for improvement strategy options in environmental terms or to sift out any of the four key improvement strategy options being assessed.

The detailed assessment stage instead provides an increased understanding of relevant constraints and the potential for significant effects of each remaining option to inform DMRB Stage 2. More specific evaluation of significance of environmental effects for dualling can only be undertaken at a later stage when more defined routes are available.

5.3 Defining Levels of Constraint and Sensitivity

Table 5—2 sets out the typical characteristics which have been used to guide the definition of overall sensitivity of each improvement strategy option area. As a constraints led analysis, the sensitivity of each option area has been directly informed by the presence of important environmental designations and features; hence areas with international designations such as Natura sites are more likely to be in the high or medium constraint sensitivity categories (for Biodiversity).

The interpretation of sensitivity takes account of the spatial extent/ coverage of the constraint across the improvement strategy option area as well as the distribution of important features; so that for example the presence of an important but small designation does not necessarily mean the option area is of high sensitivity overall.

Defining sensitivity also takes account of the range of criteria/ constraints considered for each topic, e.g. for biodiversity it considers international/ national designated areas, ancient woodland and locally important sites.

Assignment of sensitivity in the assessment matrices has been based on professional judgement by the SEA assessment team and the criteria in the table have been used as a guide rather than a prescriptive format for determining the extent and materiality of the constraints. This is informed by quantitative information such as area-based extents of designations in option study areas but absolute thresholds for such information were not considered appropriate.

Table 5—2 Defining Level of Constraint for A96 Dualling SEA Tier 2 Assessment

Level of Constraint (Sensitivity)	Indicative Descriptor of Constraint	Typical Characteristics of Sensitivity (one or more may be present)
High	An option area which is heavily constrained by environmental features, including one or more national or international designations which may be extensive across the option extent	• Natura sites present/ adjacent and form an extensive area of sensitivity or constraint to dualling • Extensive areas of settlement extending across option area • Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites • Features with limited capacity to accommodate change or which are already subject to pressures and degradation
Medium	An option area which is moderately constrained by environmental features, including national and possibly international designations in discrete locations, and with limited overall coverage	• Natura sites may be present/ adjacent but likely to be small or in discrete locations that could be avoided within the option extent • Areas of settlement present and extend across parts of the option area • National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent • Features with some capacity to accommodate change and which may already be subject to pressures and degradation
Low	An option area which may include some environmental constraints and features in discrete locations only	• Nationally/ locally designated sites may be present but do not form an extensive constraint, and could be avoided within the option area • Areas of settlement may be present but not extensive • Land uses and general character of the area are of limited sensitivity, or high tolerance to change • Baseline environment not generally subject to pressures and degradation

Negligible	An option area which is unconstrained by designations and contains few other constraints/ features which could be easily avoided by a future dualling route	• Any designations present minimal constraint in the option area • Few other receptors or features of environmental importance

5.4 Defining Potential Risk/ Magnitude of Effects

Due to the 2km wide extent of the improvement strategy option study areas, definitive assessments of impact magnitudes and significance are not possible. The approach therefore bases the potential for effects on estimating the likelihood of an impact occurring, taking account of the nature of dualling proposals, the extent and type of constraints in the option area and the likely opportunity to avoid impacts on receptors.

Table 5—3 sets out the broad factors which have been taken into account in assessing the potential for environmental effects and their likely scale, nature, probability and duration.

The focus of impact evaluation has been on likely permanent, long term and potentially irreversible effects associated with dualling; however, the matrices capture other effects where these are distinguished, and they help to differentiate between likely effects of options.

In all cases, impacts are identified in the assessment matrices as beneficial (positive) or adverse (negative), distinguishing where possible between those that are direct, indirect or secondary effects. The potential for synergistic effects, as a result of interactions between predicted environmental effects, has been taken into account in the assessment matrices.

Table 5—3 Defining Potential Effects for A96 Dualling SEA Tier 2 Assessment

Risk/ Magnitude of Effect	Typical Characteristics of Effects
Major	• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially • Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions • Total loss of, or alteration to, key features of the baseline such that post development characteristics, or quality, would be fundamentally affected • Mitigation through design unlikely to offset, or significantly reduce, the likely scale of the effect
Moderate	• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated • Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions • Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed • Potential to indirectly result in permanent changes to the setting of important or designated sites
Minor	• Potential to result in temporary (short term) but small in scale and/ or reversible changes which are either likely to be avoidable or can be substantially mitigated • Permanent or medium term effects on resources/ features or other receptors which will be small in scale and not likely to result in a material loss of the resource or critical aspects of its functions • Small changes to the baseline resource which are detectable, but the underlying characteristics or quality of the baseline resource would be similar under post-development conditions • Potential to indirectly result in short or medium term effects, such as on the setting of designated sites, which can generally be mitigated
Negligible	• Very slight or no detectable change to baseline resources, features or receptors • Very likely to be avoidable within the option area

As with the identification of constraints, the prediction of environmental impacts has used the criteria in the table above as a guide to inform professional judgement of the potential for significant effects. Where mitigation can be clearly identified at this strategic level as being important to the evaluation process, it has been captured in the option assessment matrices (see Appendices H-J).

5.5 Additional Studies

5.5.1 Strategic Flood Risk Assessment (SFRA)

A Strategic Flood Risk Assessment has been carried out in parallel with Tier 2 SEA to inform the consideration of key areas of flood risk. The approach has been informed by consultation with SEPA and the relevant Local Authorities on flooding issues across the SEA study area sections.

The SFRA collates information on local flood history and supporting data on flooding and flood risk, summarising the key issues associated with impacts of, and impacts on, flooding from the shortlisted set of improvement strategy options within each of the defined SEA study sections.

The findings from the SFRA Report have informed the SEA and are incorporated in the Tier 2 detailed improvement strategy option assessments presented in Section 6. It will also inform the later stages of A96 Dualling design development and environmental assessment. The full report can be found in Appendix F.

The SFRA is presented in a series of logical stages, from baseline data gathering and consideration of local flood history information, to presentation of relevant data via Geographical Information Systems (GIS) mapping, and onto consideration of the likely levels of constraint presented by flood risk issues, when applied to a range of potential A96 improvement strategy options.

Baseline data was collated within the aforementioned 15km wide study area around the current A96 route; however, flood risk issues and constraints within alternative improvement strategy options were considered under narrower 2km wide option study extents.

The assessment presents objective analyses on the relative levels of flood risk related constraints around key locations; for example, floodplain extents and the number of properties at risk from flooding within bypass improvement strategy options to the north and/ or south of Forres, Elgin and Inverurie.

The assessment does not make any recommendations on the retention or removal of any option in favour of another. This is due to the fact that, whilst the consideration of flood risk constraints in isolation may suggest one option is highly likely to be constrained by the number of properties at risk of flooding, it may be that a higher number of properties affects the traffic demand to/ from the A96, which could therefore support the further development of an option.

The SFRA therefore presents a straightforward comparison of improvement strategy options against a range of flood risk issues, providing colour-coded summary assessment tables for each topic. An example of the assessment tables presented in the SFRA is provided below as Figure 5—4.

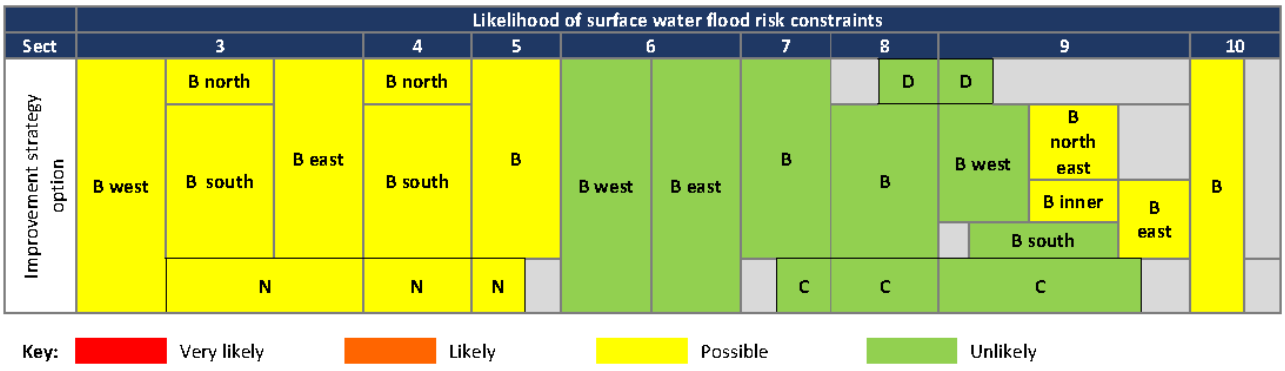


Figure 5—4 Example of assessment tables presented in SFRA

Where the SFRA identifies that improvement strategy options are likely to be constrained in flood risk terms, it recommends further assessment within the context of other engineering and environmental constraints (including via the SEA), as well as traffic demand, before decisions are reached on the removal of options from further consideration at subsequent stages of the development process.

5.5.2 Habitats Regulations Appraisal (HRA)

Habitats Regulations Appraisal (HRA) is the process whereby a proposed plan or project is assessed in relation to its potential to present 'Likely Significant Effects' (LSE) on the conservation objectives and qualifying interests of:

- Special Areas of Conservation (SAC), designated under the EU Habitats Directive;
- Special Protection Areas (SPA), designated under the EU Birds Directive; and
- Ramsar sites, designated under the Ramsar Convention on Wetlands of International Importance.

HRA is a separate process from SEA; however, it is generally considered best practice to integrate the two processes as far as possible at strategic planning and assessment stages.

The Design Manual for Roads and Bridges (DMRB) states that SAC, SPA and Ramsar sites (collectively referred to as International sites) located within 2km, and International sites designated for bats located within 30km, of a proposed road scheme should be included within HRA Screening.

However, there are no International sites designated for bats in Scotland, and SNH guidance (e.g. Tyldesley, 2012) recommends that distance buffers should not be used. Instead, SNH recommend that International sites which are hydrologically, or ecologically, connected to potential works areas should be included in HRA Screening.

Site Selection for HRA Screening

Site selection for A96 Dualling Programme HRA Screening was therefore informed by identification of International sites that may be hydrologically, or ecologically, connected to the 2km-wide Improvement Strategy Option extents.

The findings of the initial scoping of sites are summarised in Table 5—4 below.

Table 5—4 Internationally Designated Sites identified during HRA Pre-Screening

A96 SEA Section	Site	Designation	Reasons for Initial Consideration for HRA Screening
1	*N/A*	***N/A***	***A96 SEA Section 1 is not included in this assessment***
2	*N/A*	***N/A***	***A96 SEA Section 2 is not included in this assessment***
3	Darnaway and Lethen Forest	SPA	• Overlap with Option N (2km extent) • Overlap with Option B South (2km extent) • Adjacent to Option B North
	Lower Findhorn Woods	SAC	• Overlap with Option N (2km extent) • Overlap with Option B South (2km extent) • Adjacent to Option B North
	Moray and Nairn Coast	Ramsar	• Overlap with Option B North (2km extent) • <2km from outer boundary of Option B South
		SPA	• Overlap with Option B North (2km extent) • <2km from outer boundary of Option B South

A96 SEA Section	Site	Designation	Reasons for Initial Consideration for HRA Screening
	Moray Firth	SAC	• Potentially hydrologically connected to Options B (north and south) and N
	Culbin Bar	SAC	• Potentially hydrologically connected to Options B (north and south) and N
4	Loch Spynie	SPA	• Overlap with Option B North (2km extent)
		Ramsar	• Overlap with Option B North (2km extent)
5	River Spey	SAC	• Overlap with Options B and N (2km extents)
	Moray and Nairn Coast	Ramsar	• Overlap with Option B (2km extent) • <2km from outer boundary of Option N (potentially hydrologically connected)
		SPA	• Overlap with Option B (2km extent) • <2km from outer boundary of Option N (potentially hydrologically connected)
	Lower River Spey-Spey Bay	SAC	• Overlap with Option B (2km extent) • <2km from outer boundary of Option N (potentially hydrologically connected)
6	Mortlach Moss	SAC	• <2km from outer boundary of Option B
7	*N/A*	***N/A***	***No international sites identified in Section 7***
8	*N/A*	***N/A***	***No international sites identified in Section 8***
9	*N/A*	***N/A***	***No international sites identified in Section 9***
10	Loch of Skene	SPA	• >2km from outer boundary of Option B
		Ramsar	• >2km from outer boundary of Option B

Table 5—4 notes that A96 SEA Sections 1 and 2 were not included in the HRA Screening as these areas have been geographically 'scoped out', as discussed earlier in this report.

No International sites were identified in A96 SEA Sections 7 – 9; therefore, Improvement Strategy Options within these Sections were also scoped out of the HRA Screening, removing Options C and D from further consideration.

Fifteen distinct International site designations were identified across A96 SEA Sections 3 – 10; however, five of these sites were scoped out from further consideration, as outlined in Table 5—5 below.

Table 5—5 Designated sites scoped out of HRA Screening, and reasons for scoping decision

Site not taken forward to HRA Screening	Qualifying Interests	Justification for removal from further consideration
Moray Firth SAC (A96 SEA Section 3)	• bottlenose dolphin (*Tursiops truncates*) • sub-tidal sandbank habitat	The Moray Firth is potentially hydrologically connected to watercourses within the 2km wide study area extents for Options B (north and south of Forres) and N. However, it is considered that given the distance between the option study boundaries and the Moray Firth, there is minimal associated risk on the SAC qualifying interests. A96 Dualling will include SuDS to current standards, meaning that any surface runoff, when considered in the context of the likely dilution potential before reaching the SAC, enables a conclusion of No Likely Significant Effect (LSE) with respect to bottlenose dolphin. A96 Dualling will not affect sub-tidal sandbanks in the SAC – No LSE.

Site not taken forward to HRA Screening	Qualifying Interests	Justification for removal from further consideration
Culbin Bar SAC (A96 SEA Section 3)	• Coastal shingle vegetation outside the reach of waves, • shifting dunes, • Atlantic salt meadows	The Culbin Bar SAC is not located within any of the Improvement Strategy Option study boundary extents. It is a coastal site, and could therefore be potentially hydrologically connected to watercourses within the 2km wide Option study boundaries in A96 SEA Section 3. However, A96 Dualling will include SuDS to current standards, meaning that any surface runoff, when considered in the context of the likely dilution potential before reaching the SAC, enables a conclusion of No LSE with respect to the SAC qualifying interests. Given the separation between the SAC site and the Option study boundaries, A96 Dualling will not directly affect any of the SAC habitat features – No LSE.
Mortlach Moss SAC (A96 SEA Section 6)	• base-rich fens	This site is not located within any 2km wide Option study area boundaries; however, it is less than 2km from the outer northern extent of the Option B study boundary in A96 SEA Section 6. Given its location on the opposite side of The Bin hill, it is not hydrologically connected to watercourses within the 2km wide Option study boundary and A96 Dualling will not directly affect habitat features within the SAC – No LSE.
Loch of Skene SPA and Ramsar (A96 SEA Section 10)	• Greylag goose (*Anser anser*), non-breeding	This site is not located within any 2km wide Option study area boundaries, and is more than 2km from the outer southern extent of the Option B study boundary in A96 SEA Section 10. The site lies to the opposite side of the A944 between Kirkton of Skene and Dunecht. There are no discernible hydrological or ecological connections between the site and the A96 Dualling Improvement Strategy Option study boundaries. Given the separation between the SPA/ Ramsar site and the Option study boundaries, A96 Dualling will not directly affect the site's greylag goose population – No LSE.

As a result, six International sites (with eight corresponding designations), located across A96 SEA Sections 3, 4 and 5, were taken forward to HRA Screening:

- Darnaway and Lethen Forest SPA (A96 SEA Section 3);
- Lower Findhorn Woods SAC (A96 SEA Section 3);
- Moray and Nairn Coast SPA and Ramsar (A96 SEA Sections 3 and 5);
- Loch Spynie SPA and Ramsar (A96 SEA Section 4);
- River Spey SAC (A96 SEA Section 5); and
- Lower River Spey – Spey Bay SAC (A96 SEA Section 5).

Each of these designated sites has been determined as being either hydrologically or ecologically connected to one or more of the Improvement Strategy Option extents.

HRA Screening requires a precautionary approach to the assessment of Likely Significant Effects and at the strategic assessment stage there remains significant uncertainty on the final location of A96 dualling works. Therefore, HRA Screening had to assume that works could result anywhere within any of the Improvement Strategy Option extents.

Consultation with SNH resulted in the HRA Screening stage removal of:

- Moray and Nairn Coast SPA
  all qualifying interest bird species – no LSE;
- Moray and Nairn Coast Ramsar
  all qualifying interest bird species and all qualifying interest habitats (with the exception of 'Wet woodland' habitat) – no LSE;
- Lower River Spey-Spey Bay SAC
  coastal shingle vegetation outside the reach of waves – no LSE.

HRA Screening at the strategic assessment stage therefore found that, when considered against the conservation objectives for the remaining International sites and qualifying interests, the A96 Dualling Programme could result in LSE, as summarised in Table 5—6.

Table 5—6 HRA Screening outcome – potential for LSE

A96 SEA Section	Site	Designation	A96 Dualling could present LSE on the conservation objectives for:
3	Darnaway and Lethen Forest	SPA	• Capercaillie, breeding
	Lower Findhorn Woods	SAC	• Mixed woodland on base-rich soils associated with rocky slopes
4	Loch Spynie	SPA	• Greylag goose, non-breeding
		Ramsar	• Open water transition fen • Eutrophic loch • Greylag goose, non-breeding
5	River Spey	SAC	• Freshwater pearl mussel • Sea lamprey • Atlantic salmon • European otter
	Moray and Nairn Coast	Ramsar	• Wet woodland
	Lower River Spey-Spey Bay	SAC	• Alder woodland on floodplains

The sites and qualifying interest species/ habitats listed in Table 5—6 will be taken forward to the next stage in the HRA process, known as the 'Appropriate Assessment' (AA).

Each site specific AA will assess all identified LSEs, individually and in-combination, for any potential adverse effect on site integrity (AESI).

Additional objective evidence and discussion may be required to enable the AA to effectively determine potential for AESI, and any mitigation measures required to avoid AESI.

The outcome of the AA stage will be reported in the SEA Post Adoption Statement, along with any required strategic avoidance/ mitigation measures and/ or monitoring recommendations.

5.5.3 Landscape Review

At a SEA Scoping Workshop in December 2013, and in their scoping response in January 2014, SNH made recommendations that landscape issues should be incorporated within the core set of criteria for SEA assessment. It was recognised that landscape character and sensitivity are important issues; therefore, a Landscape Review was undertaken to inform the detailed assessment stage.

There are no nationally or regionally designated landscape areas within the A96 study areas; however, local landscape designations have been identified and considered within the improvement strategy option study boundaries. This has been accompanied by a review of the sensitivity of the Local Character Areas (LCAs), outlined in SNH Landscape Character Assessments for Moray and Nairn, South and Central Aberdeenshire, and Aberdeen.

The SNH wildness map of 2014 identified 42 'wild' areas, none of which lie within the area around the existing A96 or improvement strategy options. The SNH Relative Wildness of Scotland 2014 map, however, was reviewed and considered within the Landscape Review.

Areas of woodland within the SEA study area sections were considered in relation to the possible changes on local landscape character if the woodlands had the potential to be impacted by dualling.

In September 2014, drive throughs along the existing road networks within the improvement strategy options extents were undertaken to develop direct understanding of the terrain and character of the local landscapes. Views were documented with photographs and written commentary on locations and options, throughout.

The Review includes a general landscape character description encompassing a narrative of the alternative improvement strategy options and general area descriptions such as pinch points and openness, rivers and water, landform, communities and visibility.

Table 5—7 sets out indicative criteria for assessing landscape sensitivity, as recommended by DMRB IAN135/10[6]. This criteria was used to provide a landscape sensitivity for each of the improvement strategy options.

In addition to identifying the sensitivity of the landscape within each improvement strategy option, a commentary on landscape character and the predicted risk of effect dualling may have on it, has been provided

The findings from the Landscape Review the Tier 2 detailed assessment and the full report is attached as Appendix G.

[6] Highways Agency (2010) Interim Advice Note 135/10: Landscape and Visual Effects Assessment

Table 5—7 Indicative Criteria for Assessing Landscape Sensitivity

Sensitivity	Criteria
High	Landscapes which by nature of their character would be unable to accommodate change of the type proposed. Typically these would be: • Of high quality with distinctive elements and features making a positive contribution to character and sense of place. • Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale. • Areas of special recognised value through use, perception or historic and cultural associations. • Likely to contain features and elements that are rare and could not be replaced.
Medium	Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically these would be: • Comprised of commonplace elements and features creating generally unremarkable character but with some sense of place. • Locally designated, or their value may be expressed through non-statutory local publications. • Containing some features of value through use, perception or historic and cultural associations. • Likely to contain some features and elements that could not be replaced.
Low	Landscapes which by nature of their character would be able to accommodate change of the type proposed. Typically these would be: • Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place. • Not designated. • Containing few, if any, features of value through use, perception or historic and cultural associations. • Likely to contain few, if any, features and elements that could not be replaced.

5.6 PES Strategies

Five A96 Dualling design strategies have been developed via the Preliminary Engineering Services (PES) workstream on the following themes:

- Junctions
- Laybys
- Rest areas
- Non-motorised users
- Scheme resilience

The strategic nature of the PES work does not allow for any definition of specific locations for junctions, rest areas, etc., within the improvement strategy options being assessed. This is primarily because, within the 2km-wide study extents, it is not possible to define a junction or rest area location with any geographic accuracy until more defined route alignment options are developed.

The strategies are therefore generic in nature, and are intended to support a consistent approach to the development of road infrastructure designs during the DMRB process, drawing on relevant information about current provision on the A96 and key design standards. The broad intention of, and SEA input to, each strategy is summarised in Table 5—8 below[7].

[7] More information about the Strategies is available in the PES DMRB Stage 1 Report which can be accessed from Transport Scotland's website

Table 5—8 SEA Input to PES Design Strategies

PES Strategies	Key Strategy Provisions	SEA Input
Junction Strategy	• Establishes design aspiration of dualling as Category 7A which requires grade separated junctions • Direct access to road to be limited to isolated existing accesses with left-in left-out turns only • Sets out high level design objectives for the strategy including adequate spacing and seeks to rationalise the overall number of junctions • Establishes a hierarchy of four road classes to support decision making on the case for a new (or, for existing dualled sections of the A96, upgraded) junctions • Includes a flow chart to support decision making for junctions based on the four tiers of road type and building in engineering, cost, environmental and stakeholder considerations • Requires assessment and reporting at each stage of design through use of a series of appraisal matrices appended to the Strategy	• Strategy to reflect that junction design will be an iterative process which takes into account environmental constraints including sensitive receptors, areas, designated sites and their setting • Strategy objective to include that landscape and visual impact of new junctions shall be minimised through sensitive design and environmental mitigation • Important to capture the potential environmental effects of side road crossings and realignments as well as new junction infrastructure • Assessment matrices to be expanded to incorporate all relevant environmental topics and opportunities for mitigation to be captured for each option under consideration
Layby Strategy	• DMRB requires that on dual carriageways with a speed limit greater than 40mph, Type A with merge taper lay-bys must be used and specifies design criteria for this type of lay-by • Sets out requirements for siting lay-bys on dual carriageways • Undertake a baseline review to identify user needs and demand for short-term stopping places along the route • Requires a review of existing lay-bys in order to ascertain whether they should be retained as part of the strategy • Requires assessment of proposed lay-by locations through use of assessment matrices which are appended to the strategy	• SEA inputs were provided on a combined layby and rest area strategy (now separated into two strategies) • Strategy to reflect that new lay-by/ rest area facilities will be developed respecting local environmental sensitivities • Tier 2 SEA will include generic environmental mitigation which will influence later stages of the DMRB design and assessment process • Strategy to reflect lay-by/ rest area facilities will take into account locations of key NMU routes such as core paths and how these potentially link with areas where there may be demand for bus services which could require lay-by provision on the trunk road • Strategy to reflect that identification of key roadside viewpoints should take account of local environmental land use and amenity issues from an early stage of location selection and design • Assessment matrices to be expanded to incorporate local ecological, landscape and land use/ adjacent land uses/ amenity typed issues
Rest Area Strategy	• DMRB requires that rest areas are provided, as a minimum, every 45km and no more than 30 minutes driving time apart • Sets out criteria for siting potential rest areas • Assessment of proposed rest area locations can be made through use of assessment matrices which are appended to the A96 Dualling PES Lay-by Strategy	

PES Strategies	Key Strategy Provisions	SEA Input
Non-Motorised Users Strategy	• States that a Cycling Context Report should be produced for the dualling programme and details the necessary information to be included • Includes a flow chart to illustrate the Cycle Audit Process to be followed in parallel with the DMRB Design Process • Includes a flow chart to support decision making for NMUs based on the four categories of NMU type • Requires assessment and reporting at each stage of design through use of appraisal matrices appended to the Strategy	• Strategy to reflect that new NMU facilities will be developed respecting local environmental sensitivities • Assessment matrices to be expanded to incorporate all relevant environmental topics and opportunities for mitigation to be captured for each option under consideration
Scheme Resilience Strategy	• Lists Areas Requiring Special Attention (ARSA) and details appropriate mitigation measures in Appendix A of the Strategy • Details mitigation from Winter Service Plan for monitoring and reacting to snowfall and steep inclines • States requirements for the (maintenance) Operating Company at forecast weather and temperatures below various thresholds • Site specific flood risk assessments for individual A96 dualling projects will be undertaken • Establishes criteria for water crossings • Details flood mitigation measures	• Strategy to take note of areas where the road passes through functional floodplain. • Transport Scotland have replaced Cost Effective Landscape with *Fitting Landscapes* (2014)

The SEA process has involved input to the development of the PES strategies to help define and capture important issues to be addressed in later stages of the design and assessment process. This involved review and iteration of the strategies by the environmental assessment team to ensure that the full range of potential environmental effects associated with strategy development would be addressed.

Whilst the environmental assessment of improvement strategy options has not included location specific appraisal of dualling infrastructure such as junctions, the detailed assessments for Tier 2 SEA have inherently taken account of the potential for environmental effects from such infrastructure.

A precautionary approach was taken to the options assessments detailed in Appendices I and J so that where the presence of a junction or other notable ancillary works could give rise to a higher category of impact than the road dualling in isolation then the higher level of risk of effect has been recorded.

It is recognised that the development of key road infrastructure, particularly grade separated junctions, has the potential to give rise to significant environmental effects. The assessment of developing designs for junctions including options for their locations will be considered further as part of the DMRB Stage 2 scheme assessment process (see Section 2.2).

At this stage the specifics of junction options can be defined allowing a site specific environmental assessment of each option. The findings can then be taken into account in identification of the preferred route option for each scheme/ corridor package[8].

The SEA input to date has identified a number of key environmental issues associated with each strategy. The potential for effects arising from each strategy also helps to set a context for the development of mitigation measures which may be applicable at Stage 2 of the design and assessment process.

An initial set of key issues and mitigation for each strategy is presented in Table 5—9. These will provide the basis for more detailed environmental assessment and mitigation of junctions and other road dualling infrastructure in later stages of design.

[8] Following DMRB methodology, a scheme assessment report will be prepared at Stage 2 for each section of A96 dualling. A preferred route option will be developed by considering route options against engineering, traffic and environmental criteria. This work may well be packaged into manageable sections or 'schemes' so that Transport Scotland can plan, design and promote schemes.

Table 5—9 Potential Environmental Effects and Mitigation of PES Strategies

PES Strategy	Key Infrastructure Elements with Potential for Environmental Effects	Potential Mitigation Responses
Junction Strategy	• Earthworks (cuttings, embankments and drainage) • Structures (over/under bridges, retaining walls, wing walls etc) • Signing and lighting • Diversions and realignments of connecting roads • Retention or grubbing up of former sections of road no longer required	• Mitigation should start with iterative design and location options for new and rationalised junctions taking account of proximity to sensitive receptors • Micro-siting of key infrastructure (including signs, fences, lighting) can help to reduce local impacts • Planting and landscaping proposals should integrate with surrounding landscape and seek to enhance long term biodiversity
Layby Strategy	• Minor earthworks (including drainage) • Signing and lighting • Fencing	• Mitigation should start with iterative design and location options for new and rationalised laybys taking account of proximity to sensitive receptors • Micro-siting of key infrastructure (including signs, fences, lighting) can help to reduce local impacts including for sensitive visual receptors
Rest Area Strategy	• Earthworks (cuttings, embankments and drainage) • Connecting roads • Signing and lighting • Fencing	• Mitigation should start with iterative design and location options for new and rationalised rest areas taking account of proximity to sensitive receptors • Micro-siting of key infrastructure (including signs, fences, lighting or buildings) can help to reduce local impacts including for sensitive visual receptors
Non-Motorised Users Strategy	• Earthworks (cuttings, embankments and drainage) • New crossing structures • New path works • Signing • Fencing	• Mitigation should start with iterative design and location options for new and rationalised NMU areas, paths and crossings • Rationalisation of routes should minimise diversion distances and follow desire lines • Micro-siting of key infrastructure (including signs, fences, lighting) can help to reduce local impacts
Scheme Resilience Strategy	• Earthworks (and drainage) • Signing and lighting • Snow poles • Snow fences and shelter belts	• Mitigation should start with iterative design and location options for new and rationalised infrastructure • Micro-siting of key infrastructure (including signs, fences, lighting, snow poles) can help to reduce local impacts • Operational maintenance scheduling to minimise fuel use/emissions

More detailed mitigation measures, which are based on environmental topics, are addressed in the option specific appraisal findings reported in Section 6 and further mitigation is presented in Section 8.2.

6 Detailed Assessment Findings

6.1 Introduction

This section presents the findings of the detailed environmental assessment of improvement strategy options.

The findings of the detailed constraints analysis in Appendix I and Appendix J have been summarised for presentation in a tabulated format through Sections 6.2 to 6.12.

The findings are presented in geographic order from north to south as:

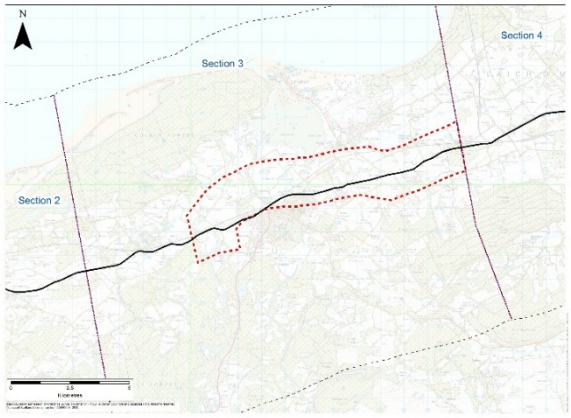
- Forres B North
- Forres B South
- Elgin B North
- Elgin B South
- Option N
- Option C
- Option D
- Inverurie B North
- Inverurie B Inner
- Inverurie B South
- Option B (overall)

The environmental assessment findings on Option B variants, as well as the whole of Option B and strategic point-to-point options C, D and N are reported separately. This allows for a discussion of the comparative effects of each key group of options in Section 6.13, commenting on those options which may represent less constrained areas in environmental terms.

6.2 Forres B North

Table 6—1 Predicted Environmental Effects of Option B (North of Forres)

Option Forres B North		
Location : Route Section 3		**Approximately 13km long and 2630 ha in area**
Assessment Snapshot		
Topic	**Constraint**	**Effect**
Biodiversity	Medium	Minor/ Moderate
Soils and Geodiversity	High	Major
Water and Flooding	High	Major
Air	Low	Minor
Population & Human Health	Medium/ High	Moderate
Historic Environment	High	Moderate
Landscape	Low/Medium	Moderate



Summary of Environmental Constraints and Predicted Effects

Biodiversity

- The option area has been assessed as being moderately constrained with the key sensitivities associated with the Natura[9] and SSSI sites at the edge of the area, the presence of three local nature conservation sites and a relatively small coverage of ancient and native woodland
- It is predicted that effects on designated Natura and SSSI sites could be avoided due to their location at the edge of the option study area. The local sites (SINS) may not be fully avoidable due to their extent although with mitigation significant effects are not predicted. Ancient and native woodland should be generally avoidable and any minor losses are not predicted to be significant
- Overall the risk of effects has been assessed as **minor/ moderate** adverse

Soils and Geodiversity

- The option area is extensively covered by prime agricultural land which extends to nearly half of the land available presenting a high level of constraint to dualling proposals
- Due to their limited extent and spatial distribution in the option significant effects on high carbon soils are not predicted
- Effects on soils are assessed as **major** adverse due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Although the coastal floodplain is avoidable due to its location at the outer edge of the option, almost one third of this option is within the 1:200yr fluvial flood zone, large areas of which span the segment breadth in its entirety, making it unavoidable. Flooding is a key constraint in this option area
- Since a crossing of the River Findhorn is unavoidable, a substantial area of its floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **major** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using busier roads such as the existing A96
- Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but a northern bypass option presents opportunities to move traffic further from population centres in Forres
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

[9] Internationally important sites for biodiversity including Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for habitats

Option Forres B North	
Location : Route Section 3	**Approximately 13km long and 2630 ha in area**

Population and Human Health

- This option skirts Forres, Springfield and Kinloss and as such there is potential for avoidance of these population centres. There remains the potential for demolition or land take impacts on isolated properties depending on final route alignments which will take account of other environmental constraints
- The risk of effects on population and human health for this option has been assessed as **moderate** due to potential effects on properties which may not be avoidable and potential crossings of the National Cycle Route, Moray Coast Trail and core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these properties and effectively bypass Forres there is potential for beneficial effects

Historic Environment

- The historic environment assets in the option represent a high level of constraint due to the presence of nationally designated monuments, buildings and Gardens and Designed Landscapes. Many features; however, are either centred around the Conservation Area of Forres near the edge of the option study area, or widely dispersed throughout the option boundary, allowing considerable potential for avoidance of direct effects on the most important sites
- The overall risk of effects on historic environment features has been assessed as **moderate** adverse taking account of avoidance potential for designated sites and the large number of archaeological sites in the option area
- Secondary impacts on important sites must be carefully considered in future alignment options work and there is considered to be some potential for significant setting effects on Category A Listed Buildings

Landscape

- Whilst there are no national or local landscape designations present within the option, there are areas of woodland which add to the landscape character
- Crossing the River Findhorn, or the railway line which runs through the whole of the option, could have a significant permanent effect on the local character of the landscape as it is flat and therefore sensitive to new vertical features
- The overall risk of effects has been assessed as **moderate** adverse for landscape and visual effects

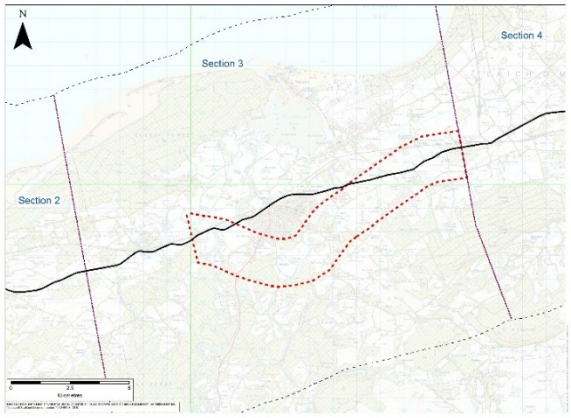
Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option study area. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- Impacts on soils and particularly loss of prime land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

6.3 Forres B South

Table 6—2 Predicted Environmental Effects of Option B (South of Forres)

Option Forres B South		
Location : Section 3		**Approximately 13 km long and 2550 ha in area**
Assessment Snapshot		
Topic	**Constraint**	**Effect**
Biodiversity	High	Moderate
Soils and Geodiversity	Medium	Moderate
Water and Flooding	Medium	Moderate
Air	Low	Minor
Population & Human Health	Medium	Moderate
Historic Environment	High	Major
Landscape	Medium	Moderate



Summary of Environmental Constraints and Predicted Effects

Biodiversity

- The option area has been assessed as being highly constrained with the key sensitivities associated with the Natura and SSSI sites at the edge of the area, the presence of a local nature conservation site (Findhorn Valley) and a relatively wide coverage (over 15% of the option area) of ancient woodland
- It is predicted that effects on designated Natura and SSSI sites could be avoided given their peripheral location in the option area. The local site (SINS) and some areas of ancient woodland may not be fully avoidable due to their extent and there is potential for significant permanent adverse effects from habitat loss
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area includes prime agricultural land which extends to approximately 23% of the land available presenting a moderate level of constraint to dualling proposals
- Due to their limited extent and spatial distribution in the option significant effects on high carbon soils are not predicted
- Effects on soils are assessed as **moderate** adverse due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- The 1:200yr fluvial flood zone extends to approximately 13% of the option area and is primarily associated with the route of the River Findhorn and the Burn of Mosset, which would need to be crossed by a dualled route
- Since a crossing of these watercourses is unavoidable, some areas of their floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **moderate** adverse effect on water and flooding is predicted from the impacts of dualling on flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using busier roads such as the existing A96
- Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but the southern bypass option presents opportunities to move traffic further from population centres in Forres
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Population and Human Health

- This option skirts the town of Forres which lies to the north and as such there is potential for avoidance of this population centre. There remains the potential for demolition or land take impacts on isolated properties in the option area depending on final route alignments which will take account of other environmental constraints
- The risk of effects on population and human health for this option has been assessed as **moderate** due to potential effects on properties which may not be avoidable and potential crossings of the National Cycle Route, the Dava Way and core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these properties and effectively bypass Forres there is potential for beneficial effects

Option Forres B South	
Location : Section 3	**Approximately 13 km long and 2550 ha in area**

Historic Environment

- The historic environment assets in the option represent a high level of constraint due to the presence in particular of an important group of nationally designated monuments and Listed Buildings associated with the Dallas Dhu Distillery site. There are also a large number of local archaeological sites widely dispersed throughout the option boundary and the edge of a Garden and Designed Landscape at the western end of the option study area
- The overall risk of effects on historic environment features has been assessed as **major** adverse taking account of avoidance potential for designated sites, the pinch point around Dallas Dhu, and the large number of archaeological sites in the option area
- Secondary impacts on important sites must be carefully considered in future alignment options work and there is potential for significant setting effects on Category A Listed Buildings, Scheduled Monuments and a Gardens and Designed Landscapes asset

Landscape

- Whilst there are no national or local landscape designations present within the option, there are areas of woodland which add to the landscape character (particularly to the south east of Forres)
- As the landscape is flat, it is sensitive to new vertical features which may be required to cross the River Findhorn, or the railway line which runs through part of the option, and new crossings could have a permanent effect on the character of the landscape which, together with some predicted woodland loss, has the potential to be locally significant
- The overall risk of effects has been assessed as **moderate** adverse for landscape and visual effects

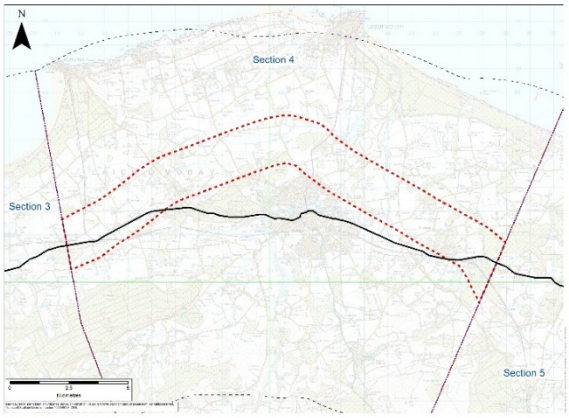
Option Specific Mitigation

- The principle of avoidance should be adopted for the constraints identified. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform route alignment studies and develop project specific mitigation
- In this option, crossings and other accommodation works for core paths and a national cycle network route will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptors, a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

6.4 Elgin B North

Table 6—3 Predicted Environmental Effects of Option B (North of Elgin t)

Option Elgin B North		
Location: Section 4		**Approximately 21 km long and 4220 ha in area**
Assessment Snapshot		
Topic	**Constraint**	**Effect**
Biodiversity	High	Moderate
Soils and Geodiversity	High	Major
Water and Flooding	High	Major
Air	Low	Minor
Population & Human Health	Medium	Major
Historic Environment	High	Moderate
Landscape	Low/ Medium	Moderate



Summary of Environmental Constraints and Predicted Effects

Biodiversity

- The option area has been assessed as highly constrained with key sensitivities associated with Natura and SSSI sites at the edge of the area, Loch Oire SSSI in the centre of the eastern part of the option, the presence of a local nature conservation site which crosses the option area and relatively extensive areas of ancient woodland
- It is predicted that effects on designated Natura and SSSI sites could be avoided. The extent and distribution of ancient woodland means that in some places it is difficult to avoid (particularly in avoiding Loch Oire SSSI) and impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area is extensively covered by prime agricultural land which covers over 40% of the land available presenting a high level of constraint to dualling proposals in relation to agriculture and associated land uses
- Due to their limited extent and spatial distribution in the option, significant effects on high carbon soils are not predicted
- Effects on soils are assessed as **major** adverse due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Although the coastal floodplain is avoidable due to its location at the outer edge of the option, almost one fifth of this option is within the 1:200yr fluvial flood zone, large areas of which span the option breadth in its entirety making it unavoidable. Flooding is therefore a key constraint for this option
- Since a crossing of the River Lossie is unavoidable, a substantial area of its floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **major** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using busier roads such as the existing A96
- Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but the northern bypass option presents opportunities to move traffic further from population centres in Elgin with associated beneficial effects
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Population and Human Health

- This option skirts the town of Elgin and although the population centres of Urquhart, Lhanbryde and Alves are included within its boundary, it is predicted that, as they are dispersed throughout the option study area, they could be avoided through route alignment. There remains the potential for demolition or land take impacts on isolated properties, depending on final route alignments, which will take account of other environmental constraints

Option Elgin B North	
Location: Section 4	**Approximately 21 km long and 4220 ha in area**

- The risk of effects on population and human health for this option has been assessed as **major** adverse due to potential effects on properties which may be unavoidable and potential crossings of the National Cycle Route, a local cycle route and thirteen core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these properties and effectively bypass Elgin there is potential for beneficial population effects

Historic Environment

- The historic environment assets in the option area represent a relatively high level of constraint due to the presence of a large number of B Listed Buildings and local archaeological sites. The key features are either concentrated around the edge of Elgin, or widely dispersed throughout the option boundary, allowing for potential for avoidance of direct effects on the most important sites
- The overall risk of effects on historic environment features has been assessed as **moderate** adverse taking account of avoidance potential for designated sites and wide dispersal of local archaeological sites in the option area
- Secondary impacts on important sites must be carefully considered in future alignment options work and there is considered to be some potential for significant setting effects on Category A Listed Buildings

Landscape

- Whilst there are no national or local landscape designations present within the option, there are some areas of woodland which locally add to the landscape character
- The landscape is flat making it sensitive to development which introduces new vertical features into the landscape, and any new elevated structures required to cross the River Lossie could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant
- The overall risk of effects has been assessed as **moderate** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- In this option, crossings and other accommodation works for core paths and a national cycle network route will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Impacts on soils and particularly loss of prime land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of flood protection measures
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping
- Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area

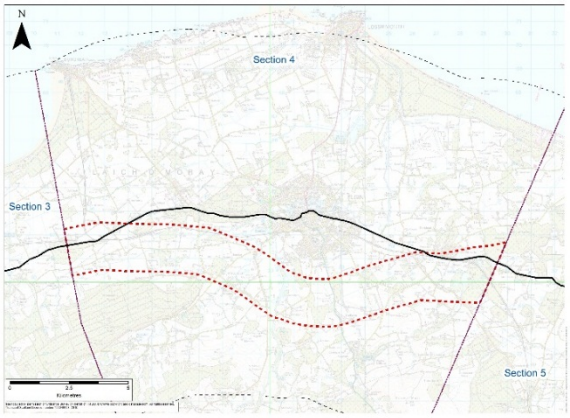
6.5 Elgin B South

Table 6—4 Predicted Environmental Effects of Option B (South of Elgin)

Option Elgin B South

Location: Section 4

Approximately 19 km long and 3790 ha in area



Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	High	Moderate
Soils and Geodiversity	Medium	Moderate
Water and Flooding	High	Major
Air	Low	Minor
Population & Human Health	Low	Moderate
Historic Environment	Medium	Minor
Landscape	Medium	Moderate

Summary of Environmental Constraints and Predicted Effects

Biodiversity

- The option area has been assessed as being highly constrained with the key sensitivities associated with the SSSI site at the edge of the area, Loch Oire SSSI within the option area, and the presence of a local nature conservation site and relatively extensive areas of ancient woodland (12% of the option area)
- It is predicted that effects on designated SSSI sites could be avoided. The extent and distribution of ancient woodland means that in some places it is difficult to fully avoid (particularly at the eastern end of the option where it is more extensive) and impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area includes prime agricultural land which covers around 18% of the land available presenting a medium level of constraint to dualling proposals
- Due to their limited extent and spatial distribution in the option significant effects on high carbon soils are not predicted
- Effects on soils are assessed as **moderate** adverse due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Crossing the River Lossie and many of its tributaries is unavoidable where they span the option breadth in its entirety, and watercourse crossings are therefore key constraints
- Since a crossing of the River Lossie and some large tributaries is unavoidable, substantial areas of floodplain would also be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **major** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using busier roads such as the existing A96 and busier roads at the edge of Elgin
- Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but the northern bypass option presents opportunities to move traffic further from population centres in Elgin with associated beneficial effects
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Population and Human Health

- This option skirts the town of Elgin and although the population centres of Lhanbryde and Alves are included within its boundary, it is predicted that, as they are dispersed throughout the option, they could be avoided through route alignment. There remains the potential for demolition or land take impacts on isolated properties depending on final route alignments which will take account of other environmental constraints

Option Elgin B South	
Location: Section 4	**Approximately 19 km long and 3790 ha in area**

- The risk of effects on population and human health for this option has been assessed as **moderate** adverse due to potential effects on properties which cannot be avoided and potential crossings of core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these properties and effectively bypass Elgin there is potential for beneficial effects

Historic Environment

- The historic environment assets in the option represent a medium level of constraint due to the presence of a number of Scheduled Monuments and A Listed Buildings and local archaeological sites. Key features are either concentrated around the edge of Elgin, or widely dispersed throughout the option boundary, allowing for reasonable potential for avoidance of direct effects on the most important sites
- The overall risk of effects on historic environment features has been assessed as **minor** adverse taking account of avoidance potential for designated sites and wide dispersal of local archaeological sites in the option area

Landscape

- Whilst there are no national or local landscape designations present within the option, there are some areas of woodland which locally add to the landscape character
- The landscape is flat making it sensitive to development which introduces new vertical features into the landscape, and any new elevated structures required to cross the River Lossie and its tributaries, or the railway line, could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant
- The overall risk of effects has been assessed as **moderate** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss native woodland will need to focus on habitat creation including woodland planting using native species typical of the area
- In this option, crossings and other accommodation works for core paths routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Impacts on soils and particularly loss of prime land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures
- Later stages of DMRB design and assessment will likely require a landscape strategy which will be developed and will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

6.6 Option N

Table 6—5 Predicted Environmental Effects of Option N

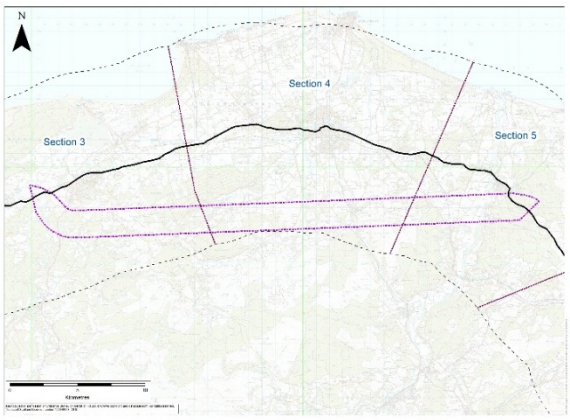
Option N

Location: Sections 3 to 5

Approximately 37 km long and 7450 ha in area

Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	High	Moderate/ Major
Soils and Geodiversity	Low	Moderate
Water and Flooding	High	Major
Air	Low	Minor
Population & Human Health	Medium	Moderate
Historic Environment	Medium	Moderate
Landscape	High	Moderate/ Major



SEA Summary of Environmental Constraints and Predicted Effects

Biodiversity

- Ecological constraints are key within this option, especially for Natura and SSSI sites at the western end of the option, as well as the SAC, SSSI and local nature conservation sites associated with the River Spey
- It is predicted that effects on the designated sites at the River Spey are unavoidable as they cross the entire breadth of the option at the eastern end near Fochabers. However, with mitigation applied, potential impacts may be avoided or reduced such that no adverse effects on site integrity would occur
- In addition, due to its distribution particularly in the western and eastern parts of the option, ancient woodland is unavoidable in places and dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species
- Overall the risk of effects has been assessed as **moderate/ major** adverse

Soils and Geodiversity

- The option area is covered by prime agricultural land which extends to around 4% of the land available presenting a relatively low level of constraint to dualling proposals
- Due to their limited extent and spatial distribution in the option significant effects on high carbon soils are not predicted
- Effects on soils are assessed as **moderate** adverse due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- As crossing the River Spey, as well as the Rivers Findhorn and Lossie and some of their tributaries, is unavoidable watercourse crossings are key constraints in the option study area
- Since a crossing of the River Spey, Findhorn and Lossie and some large tributaries is unavoidable, substantial areas of floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **major** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using busier roads at the edge of Forres to the west and Fochabers to the east, as well as the A941 in the centre of the option. Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but also present the opportunity to move traffic further from current population centres in Forres, Elgin and Fochabers, than the existing A96 alignment
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Population and Human Health

- This option skirts Forres in the west and includes some very small settlements and isolated properties throughout its length. While it is predicted that the isolated properties, clusters of properties and small population centres which are dispersed throughout the segment, could be avoided through route alignment, potential remains for demolition or land take impacts on some properties depending on final route alignment which will take account of other constraints

Option N	
Location: Sections 3 to 5	**Approximately 37 km long and 7450 ha in area**

- The risk of effects on population and human health for this option has been assessed as **moderate** adverse due to potential effects on properties which may not be avoidable, and potential crossings of the long distance paths the Dava Way and Speyside Way as well as local core paths, which would need to be accommodated in the dualling proposals. Where dualling could avoid these constraints and effectively bypass Forres and Elgin there is potential for beneficial effects in parts of the option area

Historic Environment

- The historic environment assets in the option represent a medium level of constraint due to the presence of a number of Scheduled Monuments and A Listed Buildings associated with Dallas Dhu distillery, and the undesignated designed landscape associated, and contemporary with, Westerton House and local archaeological sites. Many features are either concentrated at the west of the option, or widely dispersed throughout the option boundary, allowing for reasonable potential for avoidance of direct effects on the most important sites
- The overall risk of effects on historic environment features has been assessed as **moderate** adverse taking account of the dispersed nature of the remaining historic environment assets throughout the option which offers good avoidance potential; however, the potential for impacts on the setting of designated assets will also need to be considered

Landscape

- Whilst there are no designated landscapes within the option, there are local landscape designations and features which cannot be avoided due to their size and location; these include the Pluscarden AGLV and the Speyside AGLV. There are some areas of woodland which add to the local landscape character and the option area is generally of undulating character with some sensitivity to development which introduces new vertical features into the landscape
- Although the landscape character to the west can be generally be maintained and absorb a new road with some moderate long term effects on the landscape character, moving east the terrain may prove to be challenging due to the more undulating landscape
- Any new elevated structures required to cross the River Spey and its tributaries, for junctions and for crossings of the railway could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant. Where necessary and appropriate, screening can be incorporated to protect views, especially in locations where new infrastructure may be required
- The overall risk of effects has been assessed as **moderate/ major** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- In this option, crossings and other accommodation works for core paths and the long distance paths of the Dava Way and Speyside Way will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Impacts on soils and particularly loss of prime agricultural land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- The 2km wide extent for Option N overlaps with the Lower Findhorn Woods SAC, the Darnaway and Lethen Forest SPA and the River Spey SAC, with associated potential for LSE. The principle of avoidance of A96 Dualling options that encroach into Natura sites will be adopted wherever possible, and site specific mitigation measures will be developed via the HRA Appropriate Assessment to avoid Adverse Effects on Site Integrity
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially Dallas Dhu distillery and Westerton House designed landscape), a suitable strategy will be finalised on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at the River Spey, the Rivers Findhorn and Lossie and some of their tributaries. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

6.7 Option C

Table 6—6 Predicted Environmental Effects of Option C

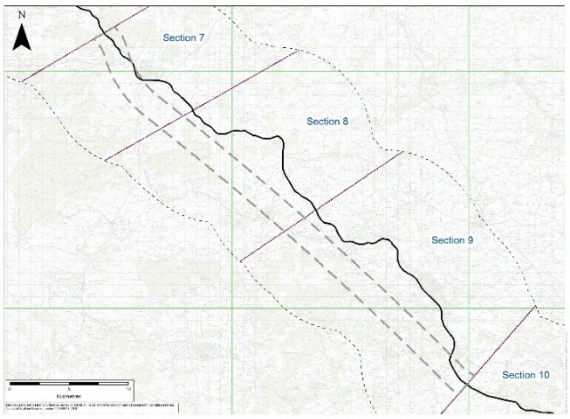
Option C

Location: Sections 7 to 9

Approximately 43 km long and 8600 ha in area

Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	High	Moderate/ Major
Soils and Geodiversity	Medium	Moderate
Water and Flooding	Medium	Moderate
Air	Low	Minor
Population & Human Health	Medium	Moderate
Historic Environment	Medium	Moderate
Landscape	High	Moderate/ Major



Summary of Environmental Constraints and Predicted Effects

Biodiversity

- Ecological constraints are key within this option, and although there are no nationally or internationally designated sites, there are some key areas of ancient and native woodland
- Some areas of woodlands collectively form bands which cross the breadth of the option and present a significant constraint to dualling alignments in several locations. Where unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species
- The other key constraints in the option are locally designated conservation sites (SESAs and LNCSs) around the Binn Hill and the Hill of Foudland in the north, and Benachie and Tom's Forest in the south; many of these are significant constraints as they span all, or almost all, of the option breadth
- Overall the risk of effects has been assessed as **moderate/ major** adverse

Soils and Geodiversity

- The option area is extensively farmed; however, the area covered by prime agricultural land is less than 10% of the land available presenting a medium level of constraint to dualling proposals
- Although carbon rich soils are limited in their area and spatial distribution throughout the option, to the south of the study area, particularly near Benachie, carbon-rich soils are more prevalent
- Effects on soils are assessed as **moderate** adverse primarily due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Watercourse crossings are key constraints in the option area. The option is spanned in a number of places by watercourses including the Rivers Deveron and Bogie in the north and the River Don and its tributary Tuach Burn in the south
- Since a crossing of the Rivers Deveron and Bogie in the north and the River Don and its tributary Tuach Burn in the south is unavoidable, substantial areas of floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **moderate** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using the existing A96 and other busy roads in the areas around Huntly, Insch and Kintore. Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road (particularly near Insch) but also present the opportunity to move traffic further from current population centres in Huntly and Kintore, than the existing A96 alignment.
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Option C	
Location: Sections 7 to 9	**Approximately 43 km long and 8600 ha in area**

Population and Human Health

- This option skirts Huntly in the north and includes the settlement of Insch in its centre and the edge of Kintore to the south. While it is predicted that the isolated properties, clusters of properties and small population centres which are dispersed throughout the segment, could be avoided through route alignment, potential remains for demolition or land take impacts on some properties – particularly given the extent of development at Insch and Kintore – depending on final route alignment which will take account of other constraints
- The risk of effects on population and human health for this option has been assessed as **moderate** adverse due to potential effects on properties which may not be avoidable and potential crossings of local cycle routes, as well as core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these properties and effectively bypass Inverurie there is potential for beneficial effects along part of the option area

Historic Environment

- The historic environment assets in the option area represent a medium level of constraint due to the presence of a number of Scheduled Monuments and Listed Buildings and a large number of local archaeological sites. Many features are either concentrated at central and southern parts of the option with clusters around the population centres of Insch and Kintore or widely dispersed throughout the option boundary, allowing for reasonable potential for avoidance of direct effects on the most important sites
- The overall risk of effects on historic environment features has been assessed as **moderate** adverse taking account of the dispersed nature of the historic environment assets throughout the option which offers good avoidance potential; however, the potential for impacts on the setting of designated assets will also need to be considered and there is potential for significant adverse residual effects on setting

Landscape

- Whilst there are no national landscape designations present within the option, there are a number of historic environment assets and large areas of woodland dispersed throughout the study area, which contribute to this area's sensitive landscape
- The landscape character of the northern and southern extents of the option, close to the existing A96, has the potential to be generally maintained and absorb a new road with some moderate long term adverse effects on the landscape character
- Man-made features, for example the Dummuies windfarm to the north and two overhead power lines which cross the option to the south, partially reduce the sensitivity of the landscape in some areas. However, the option spans a relatively remote landscape with little in the way of settlement and other infrastructure, making it sensitive
- Individual properties and small population centres could be avoided but in more densely populated areas of the option, such as around Insch and Kintore, there is predicted to be potential for significant visual effects
- Where the landscape character consists of undulating terrain with some farmland, it would be very sensitive to change due to its openness and there would be the potential for some moderate long-term effects. Where the landscape is more hilly dualling may be more challenging
- Any new elevated structures required to cross the Rivers Deveron and Bogie in the north, the River Don in the south, or for crossings of the railway, have the potential for locally significant, permanent adverse effect on landscape character
- The overall risk of effects has been assessed as **moderate/ major** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- In this option, crossings and other accommodation works for core paths and local cycling routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Impacts on soils and particularly loss of prime agricultural land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially at Picardy Stone, Gowk Stane, Berry Hill, Maiden Castle and Hatton of Ardoyne stone circle SM, and the A Listed Buildings Westhall House and Harthill Castle), a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at Gadie Burn, River Don, the Shevock, the River Deveron and their tributaries. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures

Option C	
Location: Sections 7 to 9	**Approximately 43 km long and 8600 ha in area**
• Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping	

6.8 Option D

Table 6—7 Predicted Environmental Effects of Option D

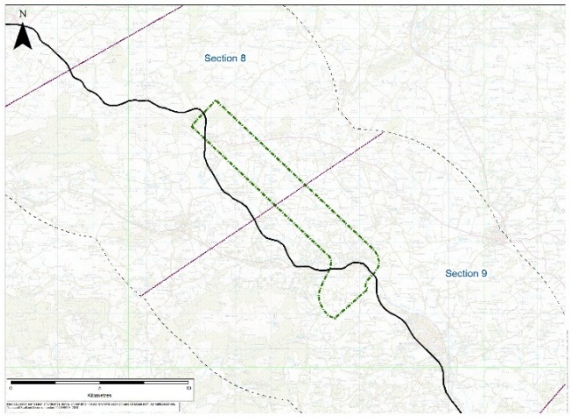
Option D

Location: Sections 8 to 9

Approximately 15 km long and 3090 ha in area

Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	Medium	Moderate
Soils and Geodiversity	High	Major
Water and Flooding	Medium	Moderate
Air	Low	Minor
Population & Human Health	Low	Minor
Historic Environment	High	Major
Landscape	Medium/High	Major



SEA Summary of Environmental Constraints and Predicted Effects

Biodiversity

- Ecological constraints are one of the key issues within this option, and although there are no nationally or internationally designated sites, there are some key areas of locally designated nature conservation sites around the Hill of Foudland (SESA) and the Foudlands LNCS in the northern part of the option
- The other key constraint includes ancient and native woodlands. Ancient woodland spans half of the breadth of the option at both northern and southern extents. Effects of dualling on unavoidable ancient woodland are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area is extensively covered by prime agricultural land which covers around a third of the land available presenting a high level of constraint to dualling proposals
- A small area of carbon-rich soil in the northern half of the option is present; however, the extent and spatial distribution of these soils do not present an extensive constraint to dualling
- Effects on soils are assessed as **major** adverse primarily due to the predicted impacts from extensive loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Watercourse crossings are an important constraint in the option area. The option is spanned in a number of places by watercourses including the River Urie and its tributaries crossing its breadth either fully or partially
- Since a crossing of the River Urie and its tributaries in the north and south of the option study area is unavoidable, some areas of floodplain would be affected by new road infrastructure. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- A **moderate** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally good and typical of rural areas although it may be influenced locally by traffic using the existing A96 and other busy roads in the area, such as the A920 in the north of the option
- Future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road.
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Population and Human Health

- The number of population centres and the population density within the option area is low and it is predicted that isolated properties or clusters of properties, which are dispersed throughout the option, could be avoided through route alignment. There remains; however, the potential for demolition or land take impacts on some isolated properties depending on final route alignments which will take account of other environmental constraints within the option

Option D	
Location: Sections 8 to 9	**Approximately 15 km long and 3090 ha in area**

- The risk of effects on population and human health for this option has been assessed as **minor** adverse due to the relatively limited potential effects on properties. Potential crossings of core paths would all need to be accommodated in the dualling proposals

Historic Environment

- The historic environment assets in the option represent a high level of constraint due to the presence of a number of Scheduled Monuments, Listed Buildings and local archaeological sites such as part of a GDL and Harlaw Inventory Battlefield at the edge of the area. Due to the extent and distribution of these areas it is predicted that there is potential for significant direct or indirect effects on key assets
- The overall risk of effects on historic environment features has been assessed as **major** adverse taking account of the dispersed nature of the historic environment assets throughout the option which offers some avoidance potential; however, the potential for impacts on the setting of designated assets will also need to be considered and there is potential for significant adverse residual effects on setting

Landscape

- Whilst there are no designated landscapes within the option, there are a number of historic environment assets and wooded areas dispersed throughout. Due to its hilly terrain, the option is more constrained at its northern and southern extents by the Hill of Tillymorgan and Gallows Hill respectively. The open landscape of the centre of the option has fewer constraints, but is still sensitive to change due to its topography
- Although man-made features, for example the two overhead power lines, run through the option to the south reducing the landscape sensitivity, generally the landscape character is very sensitive to change and dualling has the potential for significant adverse permanent effects
- The individual properties and villages that currently do not have a view, or only a partial view, of the existing A96 would be visual receptors to a dualled route, and highly sensitive to any new features within this landscape
- Any new elevated structures required to cross the River Urie could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant
- The overall risk of effects has been assessed as **major** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- Impacts on soils and particularly loss of prime agricultural land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially around Kirkton of Culsalmond), a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at The River Urie and its tributaries. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping
- Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss native woodland will need to focus on habitat creation including woodland planting using native species typical of the area

6.9 Inverurie B North

Table 6—8 Predicted Environmental Effects of Option B (North of Inverurie)

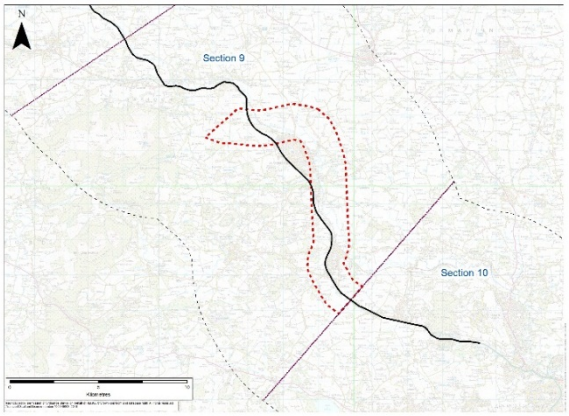
Option Inverurie B North

Location: Section 9

Approximately 16 km long and 3160 ha in area

Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	Medium	Moderate
Soils and Geodiversity	High	Major
Water and Flooding	High	Major
Air	Medium	Minor
Population & Human Health	High	Major
Historic Environment	High	Major
Landscape	High	Major



SEA Summary of Environmental Constraints and Predicted Effects

Biodiversity

- Ecological constraints are important within this option, and although there are no nationally or internationally designated sites, there are some key areas of ancient and native woodland and four local nature conservation sites are distributed across the southern part of the option study area
- The other principal constraint includes ancient and native woodlands. Ancient woodland spans half of the breadth of the option the other half being constrained by the River Don and its flood risk zones and Port Elphinstone. Effects of dualling on unavoidable ancient woodland are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area is extensively covered by prime agricultural land which covers around a quarter of the land available presenting a high level of constraint to dualling proposals
- A small area of carbon-rich soil is present; however, the extent and spatial distribution of these soils do not present an extensive constraint to dualling
- Effects on soils are assessed as **major** adverse primarily due to the predicted impacts from extensive loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Watercourse crossings are one of the key constraints in the option area. The option is spanned in a number of places by watercourses including the Rivers Don and Urie and its tributaries crossing its breadth either fully or partially
- Since a crossing of the Rivers Don and Urie and its tributaries in the north and south is unavoidable, substantial areas of floodplain would be affected as new infrastructure would be required to cross the floodplains. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- Fluvial flooding is another key constraint for the future dualled A96 route and the high number of properties around Inverurie and Kintore which are currently in the fluvial floodplain
- A **major** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally fair although it may be influenced locally by traffic using the existing A96 and other busy roads in the area
- Future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road.
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Option Inverurie B North	
Location: Section 9	**Approximately 16 km long and 3160 ha in area**

Population and Human Health

- The number of population centres and the population density within this option is high and it is predicted that properties will be difficult to avoid completely through route alignment due to the presence of the built up area of Inverurie and Kintore, particularly in the central and southern part of the option. There is potential for demolition or land take impacts on some properties depending on final route alignments which will take account of other environmental constraints within the option
- There is a network of core paths on the northern side of Inverurie which cross the option area in a number of places
- The risk of effects on population and human health for this option has been assessed as **major** adverse due to potential effects on a high number of properties which may be unavoidable and potential crossing of core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these property constraints and effectively bypass Inverurie there is potential for beneficial effects

Historic Environment

- The historic environment assets in the option represent a high level of constraint due to the presence of a number of Scheduled Monuments, as well as Harlaw Battlefield, Keith Hall GDL, Listed Buildings and a large number local heritage receptors. Avoidance is likely to be very challenging and there is a high potential for impacts on the setting and structure of some assets
- The overall risk of effects on historic environment features has been assessed as **major** adverse taking account of the dispersed nature of the remaining historic environment assets throughout the option which offers some avoidance potential; however, the potential for impacts on the setting of designated assets will also need to be considered and there is potential for significant adverse residual effects on setting

Landscape

- Whilst there are no designated landscapes present within the option, the landscape consists mainly of open farmland and there are a number of historic environment assets, small hills and woodland east of Inverurie, which contribute to this area's character and sensitivity
- Although man-made features, for example four overhead power lines which run through the option area, reduce the landscape sensitivity to some extent, generally the landscape character is sensitive to change and dualling could have the potential for significant adverse permanent effects
- Properties to the north-east edge of Inverurie and west of Kintore would be visual receptors to dualling, as would the single/ isolated properties within the option area
- Any new elevated structures required to cross the Rivers Urie and Don, or the railway line, could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant
- The Gardens and Designed Landscapes of Keith Hall span the option and dualling would have a potentially major impact on this highly sensitive part of the option area
- The overall risk of effects has been assessed as **major** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option area. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- In this option, crossings and other accommodation works for core paths and NMU routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Impacts on soils and particularly loss of prime land for agriculture will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at the Rivers Urie and Don, their associated tributaries and floodplains. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially Keith Hall GDL), a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

6.10 Inverurie B Inner

Table 6—9 Predicted Environmental Effects of Option B (Inverurie Inner)

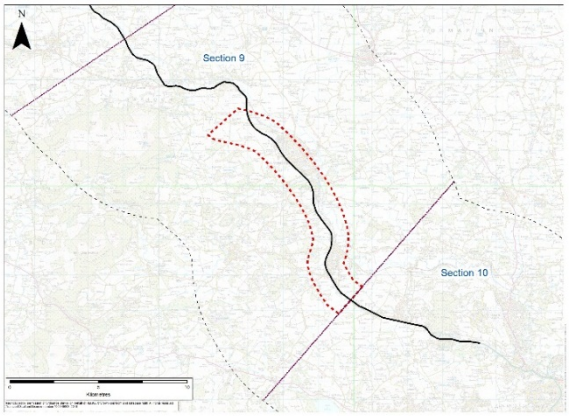
Option Inverurie B Inner

Location: Section 9

Approximately 14 km long and 2710 ha in area

Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	Medium	Moderate
Soils and Geodiversity	Medium	Moderate
Water and Flooding	High	Major
Air	Medium	Minor
Population & Human Health	High	Major
Historic Environment	High	Major
Landscape	Low	Minor



SEA Summary of Environmental Constraints and Predicted Effects

Biodiversity

- Ecological constraints are important within this option, and although there are no nationally or internationally designated sites, there are some key areas of ancient and native woodland and four locally designated sites
- Ancient woodland sites could prove more difficult to avoid along the western side of the option, where woodland areas span almost half of the option breadth, with possible secondary effects on woodland (including protected) species
- There is scope to avoid the four locally designated sites within the option area although there is potential for effects on one site close to Kintore if other constraints (such as flooding) were to be avoided
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area is covered by prime agricultural land which covers around 13% of the land available presenting a medium level of constraint to dualling proposals
- A small area of carbon-rich soil is present; however, the extent and spatial distribution of these soils do not present an extensive constraint to dualling
- Effects on soils are assessed as **moderate** adverse primarily due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Watercourse crossings are one of the key constraints in the option area. The option is spanned in a number of places by watercourses including the Rivers Don and/or Urie and their tributaries which in some places cross the full breadth of the option area
- Since a crossing of at least one of the Rivers Don and Urie and their tributaries in the north and south is unavoidable, substantial areas of floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation
- Fluvial flooding is a key constraint for the future dualled A96 route and there is a risk that dualling could affect the large number of properties around Inverurie and Kintore which are currently in the floodplain
- A **major** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally fair although levels of PM10 are approaching air quality objectives in central Inverurie and air quality will be influenced locally by traffic using the existing A96 and other busy roads in the area
- Future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but also present opportunity to move traffic further from current population centre in Inverurie and Kintore than the existing A96 alignment.
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Option Inverurie B Inner	
Location: Section 9	**Approximately 14 km long and 2710 ha in area**

Population and Human Health

- The number of population centres and the population density within this option is high and it is predicted that it will be difficult to avoid completely through route alignment due to the presence of the built up area of Inverurie, Port Elphinstone and Kintore. There is potential for demolition or land take impacts on properties depending on final route alignments which will take account of other environmental constraints within the option
- The risk of effects on population and human health for this option has been assessed as **major** adverse due to potential effects on a high number of properties which may not be avoidable and potential crossing core paths which would all need to be accommodated in the dualling proposals

Historic Environment

- The historic environment assets in the option represent a high level of constraint due to the presence of a number of Scheduled Monuments, as well as Harlaw Battlefield, Keith Hall GDL, Listed Buildings and a large number of local receptors. While there may be some opportunities for avoidance of some of the designated sites, particularly to the west of the existing A96, this could be at the detriment of others
- The overall risk of effects on historic environment features has been assessed as **major** adverse taking account of the dispersed nature of the remaining historic environment assets throughout the option which offers some avoidance potential; however, the potential for impacts on the setting of designated assets will also need to be considered and there is potential for significant adverse residual effects on setting

Landscape

- The option broadly follows the existing A96, which runs south-west of the towns of Inverurie and Kintore. Although man-made features, for example the four overhead power lines, run through the option reducing the landscape sensitivity, generally the landscape character has some sensitivity to change and dualling has the potential for significant adverse permanent effects
- As there are three settlements within the option, a dualled route would not be out of character. However, there would be some individual properties that currently do not have a view or only partially view the existing A96 that would be visual receptors to dualling
- Any new elevated structures required to cross the Rivers Urie and Don could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant
- The overall risk of effects has been assessed as **minor** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- In this option, crossings and other accommodation works for core paths and NMU routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptors, a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at the Rivers Urie and Don, their associated tributaries and floodplains. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

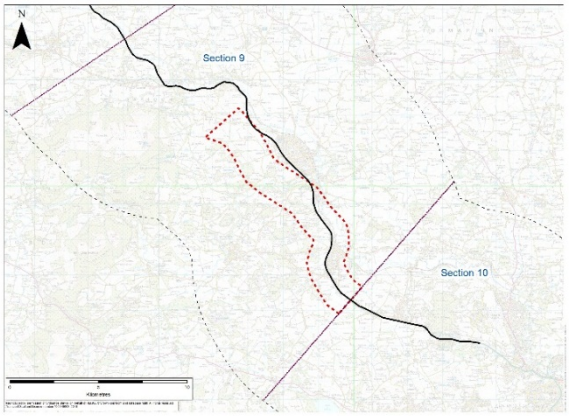
6.11 Inverurie B South

Table 6—10 Predicted Environmental Effects of Option B (South of Inverurie)

Option Inverurie B South

Location: Section 9

Approximately 13 km long and 2670 ha in area



Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	Medium	Moderate
Soils and Geodiversity	Medium	Moderate
Water and Flooding	Medium	Moderate
Air	Medium	Minor
Population & Human Health	Medium	Moderate
Historic Environment	High	Major
Landscape	Medium	Moderate

SEA Summary of Environmental Constraints and Predicted Effects

Biodiversity

- Ecological constraints are important within this option, and although there are no nationally or internationally designated sites, there are some key areas of ancient and native woodland and four locally designated sites
- Ancient woodland sites could prove more difficult to avoid at the centre of the option study area, where woodland spans almost all of the option breadth, with possible secondary effects on woodland (including protected) species
- There is scope to avoid the four locally designated sites within the option area although there is potential for effects on Cairnhall SESA which is located in the centre of the southern part of the option area; however, it is not an extensive area constraint
- Overall the risk of effects has been assessed as **moderate** adverse

Soils and Geodiversity

- The option area includes some prime agricultural land which covers around 7% of the land available presenting a medium level of constraint to dualling proposals
- A small area of carbon-rich soil is present in the option area and this represents an important constraint to dualling particularly on the southern side of the existing A96 route; however, the extent and spatial distribution of these soils is such that they can be avoided and no significant effects are predicted
- Effects on soils are assessed as **moderate** adverse primarily due to the predicted impacts from loss of prime agricultural land and associated effects on local land use such as farm unit fragmentation and severance

Water and Flooding

- Watercourse crossings are one of the key constraints in the option area. The option is spanned in a number of places by watercourses including the Rivers Don and Urie and their tributaries which in some places cross the full breadth of the option area
- Tributaries of the Rivers Urie and Don are unavoidable in both the northern and southern extents of the option and any development in the floodplain of these watercourses as a result of new infrastructure requirements, would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors including properties within or close to the extent of the current 1:200 year flood risk area
- A **moderate** adverse effect on water and flooding is predicted from the impacts of dualling on the flood plain and flood risk

Air

- Air quality in the area is generally fair although levels of PM_{10} are approaching air quality objectives in central Inverurie and air quality will be influenced locally by traffic using the existing A96 and other busy roads in the area
- Future year traffic flows potentially increase the risk of air quality effects for sensitive properties in close proximity to the dualled road but also present an opportunity to move traffic further from the current population centres in Inverurie and Kintore than the existing A96 alignment
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Option Inverurie B South	
Location: Section 9	**Approximately 13 km long and 2670 ha in area**

Population and Human Health

- It is predicted that small population centres, which are dispersed throughout the option, could generally be avoided through route alignment, although the southern part of this option is more constrained by the town of Kintore. There is potential for demolition or land take impacts on properties depending on final route alignments which will take account of other environmental constraints within the option
- The risk of effects on population and human health for this option has been assessed as **moderate** adverse due to potential effects on population centres (especially in the southern end of the option near Kintore) which may not be avoidable and potential crossings of core paths which would all need to be accommodated in the dualling proposals. Where dualling could avoid these constraints and effectively bypass Inverurie there is potential for beneficial effects

Historic Environment

- The historic environment assets in the option represent a high level of constraint due to the presence of a number of Scheduled Monuments, Listed Buildings and a large number local assets. While there may be some opportunities for avoidance of some of the designated sites, this could result in impacts on others
- The overall risk of effects on historic environment features has been assessed as **major** adverse taking account of the dispersed nature of the remaining historic environment assets throughout the option which offers some avoidance potential; however, the potential for impacts on the setting of designated assets will also need to be considered and there is potential for significant adverse residual effects on setting

Landscape

- The option skirts the settlement of Inverurie to the south and west, and then runs past the town of Kintore. Although man-made features, for example four overhead power lines, run through the option reducing the landscape sensitivity, generally the landscape character has some sensitivity to change and dualling has the potential for significant adverse permanent effects
- As there are two settlements within the option, a dualled route would not be out of character. However, there would be some individual properties that currently do not have a view or only partially view the existing A96 that would be visual receptors to dualling
- Any new elevated structures required to cross the River Don could have a permanent adverse effect on the character of the landscape, which has the potential to be locally significant
- The overall risk of effects has been assessed as **moderate** adverse for landscape and visual effects

Option Specific Mitigation

- The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation
- Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptors, a suitable strategy will be finalised on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
- Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping

6.12 Option B Overall

Table 6—11 Predicted Environmental Effects of Option B (Whole Extent)

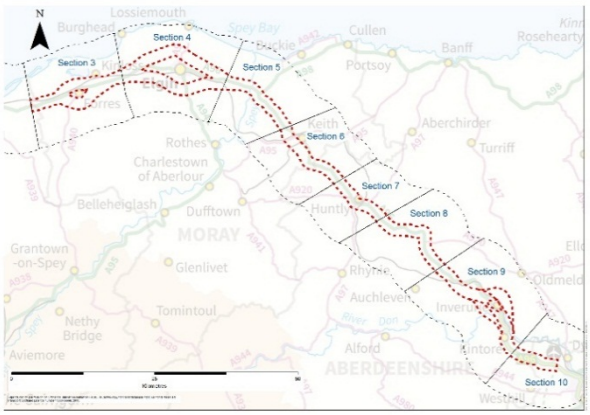
Option B (including all variants around Forres, Elgin and Inverurie)

Location: Sections 3 to 10

Approximately 115 km long and 30510 ha in area

Assessment Snapshot

Topic	Constraint	Effect
Biodiversity	Medium	Moderate/ Major
Soils and Geodiversity	Medium	Moderate/ Major
Water and Flooding	High	Major
Air	Low	Minor
Population & Human Health	Medium	Moderate
Historic Environment	Medium	Moderate/ Major
Landscape	Medium	Moderate



SEA Summary of Environmental Constraints and Predicted Effects

Biodiversity

- There is significant avoidance potential for most Ramsar, Natura and SSSI sites as these are generally located at the outer edge of the 2km wide option study area (or are very limited in spatial coverage) and significant impacts are predicted to be unlikely. Effects on Natura sites will be considered through Habitats Regulations Appraisal (HRA) processes
- The designated sites associated with the River Spey are unavoidable as they cross the entire breadth of the option; however, with mitigation applied, potential impacts may be avoided or reduced such that no adverse effects on site integrity would occur
- A number of locally designated conservation sites are located within the option, and where they span its breadth and are unavoidable, for example around the Glens of Foudland, dualling impacts are predicted to be permanent and potentially significant at the local level
- The risk of impacts from dualling on ancient and native woodland may be difficult to avoid as they are extensive in some areas of the option, and there is potential for significant effects. The risk is greater within the option's southern variant around Forres, within the option around the towns of Lhanbryde and Fochabers, as well as at The Bin Forest
- Overall the risk of effects has been assessed as **moderate/ major** adverse (ranging from minor to major across the option)

Soils and Geodiversity

- Due to the location and small spatial extent within the option, SSSI and GCR sites have the potential to be avoided and significant impacts are not predicted
- Carbon-rich soils may prove difficult to fully avoid throughout the option, in particular for small areas south of Fochabers and north of Inverurie, and there is some potential for significant effects from loss of peat although these are generally not extensive
- Prime agricultural land is unavoidable due to its extent and distribution particularly in the northern and southern parts of the option, and the northern option variants around Forres, Elgin and Inverurie are typically predicted to have greater potential for significant effects than their comparators due to potential loss of prime agricultural land
- Overall the risk of effects has been assessed as **moderate/ major** adverse (ranging from moderate to major across the option)

Water and Flooding

- There is significant avoidance potential for coastal flood zones in the north of the option due to its location at the outer edge of the option boundary; these zones also overlap with the fluvial flood zone in some areas, although it is likely that dualling would avoid these locations
- Crossing several watercourses and their associated floodplains is unavoidable in the northern and southern parts of the option. These include the Rivers Findhorn, Lossie and Spey in the north and the Rivers Urie and Don in the south
- There is potential for significant permanent impacts on flooding through exacerbation of fluvial flood risk (to existing and potentially new sensitive receptors) through dualling, and this would affect the floodplains of all unavoidable watercourses, since crossings are needed and development within flood risk areas has the potential to result in significant impacts, for example through loss of flood storage capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structure
- Overall the risk of effects has been assessed as **major** adverse (ranging from minor to major across the option)

Option B (including all variants around Forres, Elgin and Inverurie)	
Location: Sections 3 to 10	**Approximately 115 km long and 30510 ha in area**

Air

- Air quality throughout most of the option is generally good and typical of rural areas. Towards the southern extent of the option; however, air quality is fair and predicted levels of PM_{10} are close to objective limit levels nearer Inverurie and Kintore
- Air quality will be locally influenced by traffic using the existing A96 and other busy roads in the areas around the population centres throughout the option. These include Forres, Elgin, Lhanbryde and Fochabers in the north, Keith and Huntly in the centre and, Inverurie, Kintore and the edge of Aberdeen in the south
- Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive receptors in close proximity to the dualled route, but the bypass variants also present the opportunity to move traffic further from current population centres than the existing A96 alignment
- Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as **minor** (beneficial and adverse) at this strategic level

Population and Human Health

- This is an online/ near online option broadly following the existing A96 trunk road route with local bypass sub-options to the north and south of Forres, Elgin and Inverurie
- Key constraints will be avoidance of impacts on the properties and population centres throughout the option, as well as impacts on NMU routes, and local trails and cycle routes. It is predicted that isolated properties, clusters of properties and small population centres dispersed throughout the option, could generally be avoided through route alignment
- Potential remains; however, for demolition or land take impacts on some properties, particularly given the proximity of the option to the large settlements of Forres, Elgin, Fochabers, Keith, Huntly, Inverurie and Kintore; impacts will depend on final route alignment which will take account of other constraints. Bypass options offer the potential to reduce adverse impacts on population currently affected by traffic using the existing A96
- There is potential for core paths and other NMU routes to be avoided or otherwise accommodated through scheme design, and the southern variants around Elgin and Inverurie are predicted to have less potential for significant effects than their comparators
- Overall the risk of effects has been assessed as **moderate** adverse with some beneficial effects where options offer bypasses to towns. Effects range from minor to major across the option

Historic Environment

- Generally, Scheduled Monuments and Listed Buildings can be avoided in the north and centre of the option; however, avoidance of some of these assets could be at the detriment of others, and potential impacts on the setting of all assets will need to be carefully considered
- For example, there is the potential for setting impacts on the Gardens and Designed Landscapes of Brodie Castle, Darnaway Castle and Gordon Castle GDLs and Fochabers Conservation Area, as well as on the high value assets around Dallas Dhu Distillery in the southern option variant around Forres
- In the south of the option, the higher number and density of Scheduled Monuments and Listed Buildings means there is a greater risk of direct and/ or indirect effects. There is the potential for effects on assets around Colpy, associated with Williamston House and Newton House GDLs. The northern variant around Inverurie presents greater potential risk of effects on Harlaw Battlefield and Keith Hall GDL than its comparators
- Aberdeenshire and Moray Sites and Monuments Records show a great number of recorded sites within the option, the nature, extent and significance of which are currently not known. Further assessment will be required, and the results of this could present further constraints to development
- The overall risk of effects on historic environment features has been assessed as **moderate/ major** adverse (ranging from minor to major across the option)

Landscape

- There are no national landscape designations within the option study area but there are historic environment assets and areas of woodland throughout which add to the character of the landscape. Parts of the option also broadly follow the existing A96 trunk road which forms an established part of the local landscape
- Where the landscape character consists of undulating terrain with some farmland, it would be very sensitive to change due to its openness and there would be the potential for some moderate adverse long-term effects. Where there is steep terrain or an undulating landscape, dualling may be more challenging
- Although it is predicted that visual effects on individual properties and small population centres could be avoided through route alignment, minimising these effects in more highly populated areas may be challenging
- Crossing a number of watercourses, as well as crossing the railway, is unavoidable within the option and new infrastructure would be required. This would have a potentially permanent adverse visual impact on the landscape and although screening may be appropriate and effective in some locations, any new structures would need to be carefully designed to be in-keeping with their local landscape character
- The overall risk of effects on landscape has been assessed as **moderate** adverse (ranging from minor to major across the option)

Option B (including all variants around Forres, Elgin and Inverurie)	
Location: Sections 3 to 10	**Approximately 115 km long and 30510 ha in area**
Option Specific Mitigation	
• Due to the complexity associated with the multiple local variants to Option B, option specific mitigation has not been presented in this table; a comprehensive table of mitigation measures is detailed in Section 8.2 of this report • The principle of avoidance should be adopted for constraints identified. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform route alignment studies and develop project specific mitigation • The SFRA has developed strategic flood risk mitigation and will inform route alignment studies • Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on the visual impact of the strategy	

6.13 Comparative Assessment of Options

This section presents a comparative assessment of the improvement strategy options and is split into two parts, which reflects their natural geographic grouping. The improvement strategy options have been compared to provide an indication of their respective levels of constraint, and potential for significant effects.

This appraisal is intended to help inform the development of route options in the next stage of the A96 Dualling Programme, rather than to eliminate any options from further consideration at this stage.

To aid comparison, colour coded summary tables have been used for each option set. The colours are representative of the category of predicted effects from the options assessments detailed in Section 5.4, where red = major, orange = moderate and green = minor.

It is important to note that this is a simplified summary, focusing on the key differences between options rather than commenting in detail on all topics. Furthermore, the comparison of options is complex and the summary tables do not represent 'recommendations' for further sifting at this stage.

6.13.1 Options B and N (Forres to Fochabers)

Between Forres and Fochabers (A96 SEA Sections 3 to 5), Option N represents a southerly alternative to the line of Option B which generally follows the existing A96 trunk road. There are variations at Forres (Section 3) and Elgin (Section 4) where Option B splits to provide bypass options to the north and south of the towns.

Option B North at Forres is heavily constrained by an extensive area of fluvial (and coastal) floodplain. Together with a crossing of the River Findhorn there is potential for significant effects on water and flooding. A northern bypass of Forres would also need to cross substantial areas of prime agricultural land, which would be unavoidable in some locations.

To the south of Forres (**Option B South**), flooding is less of a constraint than for Option B North (although the river still requires to be crossed). The key constraints, on a southern bypass of the town, relate to the important group of Scheduled Monuments and Listed Buildings around Dallas Dhu Distillery at the western end of the option, and fairly extensive areas of ancient and native woodland throughout the option area. Significant direct effects on the distillery site could be avoided to the north of the Option extent, although potential would remain for secondary effects on setting and on the wider landscape context.

Effects on biodiversity are predicted as relatively similar between the northern and southern options.

Table 6—12 Option B Variants around Forres: Summary of Comparative Effects

Forres Options	Biodiversity	Soils	Water	Air	Population and Human Health	Historic Environment	Landscape
B North							
B South							

At Elgin, as at Forres, **Option B North** crosses an extensive area constrained by the 1 in 200 year flood risk area, and a crossing of the River Lossie would be needed with potential for significant effects on water and flooding.

A bypass to the north of Elgin would also need to cross areas of prime agricultural land, which would be unavoidable in some locations, and the eastern end of the option area is constrained in biodiversity and landscape terms through a SSSI and areas of ancient woodland.

Option B South at Elgin is also heavily constrained by a combination of flood plain areas stretching across the option extent, and the need to cross the River Lossie and a number of its tributaries. These river crossings will require new bridge structures which could have potentially significant effects on local landscape character.

The southern bypass would affect some prime agricultural land, but less than to the north, and some permanent loss of woodland habitat at the eastern end of the option area would likely be unavoidable with either option.

Both Option B North and B South would affect areas of paths and cycle routes, with the northern option requiring particular attention to accommodation of non-motorised routes to avoid significant effects on their users. The southern bypass option for Elgin has fewer historic environment constraints than a northern option, particularly in relation to Listed Buildings, and a lower risk of significant effects on cultural heritage assets.

Table 6—13 Option B Variants around Elgin: Summary of Comparative Effects

Elgin Options	Biodiversity	Soils	Water	Air	Population and Human Health	Historic Environment	Landscape
B North							
B South							

Option N runs to the south of Option B, between a point west of Forres to just east of Fochabers. It is most extensively constrained in relation to natural heritage topics, particularly for biodiversity and landscape, where significant adverse environmental effects are predicted from dualling in this option area.

This is primarily due to the potential effects of dualling on local nature conservation sites and woodland at the western end of the option area, and ancient woodland at the eastern end in the Spey valley. It is also due to predicted significant adverse landscape effects in the sensitive Spey valley, at the eastern end of the option area, as well as potentially greater effects on landscape (including locally designated areas) generally throughout the option extent compared with Option B.

Option N could potentially affect a large area of agricultural land, although prime land is much less extensive in the option study area than for Option B.

Predicted effects of Option N on water and flooding would be slightly lower than for Option B since it is less heavily constrained by flood risk areas, although there is potential for significant adverse effects in the eastern end of the option, where the River Spey and its broad flood plain need to be crossed.

Option N has relatively low population density and effects on population, human health and air quality are not predicted to be significantly different from those for Option B.

Overall, there are fewer historic environment constraints in Option N than Option B; however, as the far western extent of the option area is constrained by the important sites at Dallas Dhu, it shares the potential for significant adverse effects on cultural heritage with Forres Option B South.

Table 6—14 Option B & N (Forres to Fochabers): Summary of Comparative Effects

Options	Biodiversity	Soils	Water	Air	Population and Human Health	Historic Environment	Landscape
B							
N							

6.13.2 Options B, C and D (Huntly – Kintore – Inverurie)

The area from Huntly to Kintore incorporates two strategic alternatives to Option B through A96 SEA sections 7 to 9. Option C provides an alternative to the west of Option B, from just north of Huntly to Kintore and, in some parts, is separated from Option B by several kilometres.

Option D is a shorter alternative on the east side of Option B, extending approximately from the small settlement of Kirkton of Culsalmond in the north, to Whiteford in the south.

Option B includes three local variants around Inverurie; one each to the north and south of the town and a third variant broadly following the line of the existing A96.

Inverurie Option B Alternatives

Option B North at Inverurie is heavily constrained for a number of key environmental topics assessed for the SEA. This area has a large flood plain, is crossed by two rivers, incorporates areas of prime agricultural land and includes an Inventory Battlefield at Harlaw and the notable garden and designed landscape at Keith Hall.

In addition the option area is relatively densely populated, close to a number of key settlements and has a sensitive landscape. Potentially significant adverse effects from dualling are predicted for one or more of water and flooding, soils and agriculture, population, historic environment and landscape.

The balance of impacts would be influenced by route choice and mitigation but this is a heavily constrained area and some residual significant effects would be expected regardless of the route.

Inverurie Option B South is less heavily constrained and with fewer predicted significant environmental effects than a bypass to the north of Inverurie. This option nevertheless passes through a moderately sensitive landscape with a large number of Scheduled Monuments so potential remains for significant adverse secondary effects on their setting depending on future alignments.

The option study area also includes some flood plain associated with the River Don and a new bridge crossing of the watercourse would be needed.

There is potential for significant effects from permanent loss of key habitats (in particular areas of ancient and native woodland) and from loss of prime agricultural land.

An option closer into the town (**Inverurie B Inner**) has potentially fewer significant adverse environmental effects than Option B North but is considered to be more constrained than the southern bypass option.

This option shares the potential for significant effects on the setting of cultural heritage features with Option B South but has potentially greater adverse impacts on water and flooding due to crossing a larger flood plain and a requirement to cross both the River Don and River Urie.

It is also constrained by proximity of the option to built up areas in Kintore and Inverurie and is predicted to have fewer beneficial effects on air quality than the bypass options offered by B North or South.

Table 6—15 Option B Variants around Inverurie: Summary of Comparative Effects

Inverurie Options	Biodiversity	Soils	Water	Air	Population and Human Health	Historic Environment	Landscape
B North							
B Inner							
B South							

Strategic Alternatives to Option B

Option D provides an alternative to the east of Option B following a 15km section between Kirkton of Culsalmond in the north and Pitcaple in the south, within A96 SEA sections 8 and 9. It has been considered here in comparison with the equivalent sections of Option B which is the only direct alternative.

Whilst there are some variations in the type and extent of biodiversity constraints between these options, the risk of adverse environmental effects on local nature conservation sites and on areas of ancient and native woodland is not materially different.

Similarly, both options are quite heavily constrained by extensive areas of prime agricultural land and there is potential for significant effects on soils and agriculture for both.

The options are also very similar in terms of their flooding and watercourse character associated with the floodplains of the River Urie and no significant difference in potential effects on these topics is predicted between the options.

Both options have broadly comparable level of constraints and effects for people and property based criteria (air quality, population and human health).

Options B and D are heavily constrained for historic environment due to a number of designated areas including GDLs, Scheduled Monuments and Listed Buildings. The assessment has predicted similar and potentially significant adverse effects on setting of some features and direct effects on local archaeological sites.

The primary difference between the options is associated with landscape, where Option B is predicted to have a moderate risk of significant effects but Option D, which passes through a more sensitive landscape, is predicted to have a major risk of adverse effects on landscape.

Table 6—16 Option B & D (Kirkton of Culsalmond to Pitcaple): Summary of Comparative Effects

Options	Biodiversity	Soils	Water	Air	Population and Human Health	Historic Environment	Landscape
B							
D							

Option C represents the final strategic alternative to Option B in A96 SEA sections 7, 8 and 9 between Huntly and Kintore. Like Option D, Option C is particularly constrained by landscape sensitivity and predicted effects of dualling would be significant adverse and greater than for the equivalent section of Option B.

There are some variations in the extent of biodiversity constraints between the options and whilst a similar risk of effect on biodiversity is predicted, Option C has the potential for slightly greater adverse effects on ecology as it potentially affects a larger number of locally designated nature conservation sites which are primarily located in the southern part of the option area.

Whilst there are variations in the total extent of prime agricultural land and carbon rich soils between Options B and C, the distribution of soils is similar and no material difference in potential effects on soils and agricultural land uses is predicted between the options.

Similarly both options have similar levels of constraint and potential risk of effects on water and flooding, except when Option C is compared with the local variants of Option B to the north and centre of Inverurie as these alternatives are predicted to have greater overall adverse effects on flooding than the equivalent section of Option C.

Comparative effects on air quality, population and human health are more difficult to assess since impacts will depend on final route alignments. Option C has the potential for greater effects on people and property in the area of Insch in A96 SEA section 8, whereas Option B variants 'north' or 'inner' around Inverurie would be predicted to have greater effects in A96 SEA section 9 than the equivalent parts of Option C.

Option C has potentially lower adverse effects on historic environment in the northern part of the option but greater effects than Option B in the southern section therefore no clear distinction can be drawn in terms of potential effects on archaeology.

Table 6—17 Option B & C (Huntly to Kintore): Summary of Comparative Effects

Options	Biodiversity	Soils	Water	Air	Population and Human Health	Historic Environment	Landscape
B							
C							

7 Cumulative Assessment

7.1 Introduction

The cumulative effects assessment has taken account of the potential for the A96 dualling programme to have significant effects in two principal ways; 'cumulative effects' and 'in-combination effects'. These are from cumulation of effects on key receptor groups along the length of improvement strategy option extents, and the potential for in-combination effects of A96 dualling proposals with other plans and programmes.

The approach taken to the assessment is presented in this section and the findings of the assessment are reported in Section 7.2. It is important to note that given the strategic nature of the assessment, it is subject to uncertainty arising from the broad option-based appraisals which have been used to inform the cumulative effects assessment, and in particular due to uncertainties associated with the nature and timescales of delivery of other plans and programmes.

The assessments take account of key mitigation measures assumed for the individual improvement strategy options as set out in the detailed options assessments in Section 6 and Appendices I and J. Where additional mitigation is considered appropriate, to reduce or avoid potential significant cumulative effects, this is presented in the findings below.

7.2 Predicted Cumulative Effects

The cumulative effects of the A96 dualling programme are based on the identified environmental effects of Option B presented in Appendix J and reported in Section 6. This is the only shortlisted improvement strategy option which provides an end-to-end option across all A96 study sections.

The findings presented for Option B are based on a worst case; that is they take account of the greatest potential for environmental effects predicted for each variant where Option B passes around the towns of Forres, Elgin and Inverurie.

Table 7—1 presents an indication of types of 'pressures' that combination effects associated with A96 dualling may exert on key environmental and population based receptors. The commentary is necessarily high level given the strategic nature of the dualling proposals at this stage in the programme.

Table 7—1 Potential Cumulative Effects of A96 Dualling

Topic / Receptor Group	Potential Cumulative Effects of A96 Dualling (Based on Option B)
Biodiversity	• Adverse cumulative effects on Natura sites are not predicted as all sites other than the River Spey crossing would be mitigated by avoidance • Where route development cannot completely avoid other designated sites such as SSSIs or local nature conservation sites there is some potential for cumulation of effect from combined effects of habitat loss, severance of linking habitat and edge effects such as disturbance. These would need to be considered in more detail at future stages when route options are more clearly defined and with appropriate mitigation including habitat creation and wildlife passages • Ancient and native woodland is prevalent in areas surrounding the current A96 and is likely to be difficult to avoid in A96 SEA sections 3-5 and 7 (Forres to Fochabers and around Huntly) with associated potential for significant cumulative effects on woodland and woodland species. Where such areas cannot be avoided, mitigation will be developed to reduce or offset habitat loss including replacement planting of native woodland (on and off site)

Topic / Receptor Group	Potential Cumulative Effects of A96 Dualling (Based on Option B)
Soils and Geodiversity	• Prime agricultural land is well represented throughout the option area and presents a particular constraint in the lower lying land around Forres, Elgin, Inverurie and Kintore. Given the scale of dualling proposals there is a potential for cumulative loss of prime land as well as for related impacts on agriculture from farm unit severance and fragmentation, which will need to be mitigated through avoidance of the best land where practicable, careful route selection and agricultural accommodation works • Impacts on important agricultural soils could potentially be reduced via alternative improvement strategy Options N and C which affect less prime land • While some parts of the study extents include small areas of designated geological sites and higher carbon soils, at the strategic level it is predicted that dualling would not have significant cumulative effects on these resources
Water and Flooding	• Parts of Option B pass through very extensive flood risk areas notably around Forres, Elgin and Inverurie and dualling development in these areas could give rise to cumulative hydrological effects for example from combined effect of loss of functional floodplain, river crossings and changes in the surface morphology of the areas crossed • The greatest potential cumulative effects on flooding (and for flood risk to affect the new road) is clearly to avoid flood risk areas (particularly fluvial) wherever possible and the improvement strategy option for Option B to the south of these key towns generally avoid the most extensive flood areas
Air	• Impacts on air quality, primarily from operational traffic use of the dualled route, would need to be assessed at a detailed level once route option alignments are defined • At the strategic level it is not predicted that dualling would result in significant cumulative effects on air quality, particularly as improvement strategy B offers opportunities to move traffic away from congested towns
Population & Human Health	• Cumulative effects on users of core paths and other walking, cycling and equestrian routes may occur in areas where a large concentration of routes are permanently diverted. There are dense networks of core paths in the vicinity of Forres, Fochabers, Huntly and Inverurie for example • The potential for this effect will be mitigated through application of the PES Strategy on NMUs which seeks to maintain and accommodate such crossings with minimal disruption to alignments • Effects of dualling on properties, such as through demolitions where necessary, are significant in their own right but unlikely to present significant cumulative effects • At the strategic level it is not predicted that dualling would result in significant cumulative effects on noise and other amenity issues for people, particularly improvement strategy Option B offers opportunities to move traffic away from congested towns on bypasses
Historic Environment	• Where route development cannot completely avoid area-based designated sites such as Gardens and Designed Landscapes or Inventory Battlefields, there is some potential for cumulation of effect from combined effects of loss of the feature's integrity and indirect effects such as on its setting • These would need to be considered in more detail at future stages when route options are more clearly defined and, where appropriate, mitigation including screening where effects are unavoidable • Dependent on the extent of overall loss of local archaeological sites across the option study area, there is potential for cumulative effects on the historic environment which would need to be assessed in the context of the value of each site, and mitigation as a minimum would involve targeted archaeological investigations • At the northern end of the A96 study area, Option N is less archaeologically constrained than Option B, indicating a potentially greater risk of cumulative effects on the historic environment where dualling is closer to the settlements of Forres and Elgin

Topic / Receptor Group	Potential Cumulative Effects of A96 Dualling (Based on Option B)
Landscape	• There are relatively few areas designated for landscape importance across the A96 study area and, whilst dualling has the potential for significant effects on landscape resources and visual receptors, the potential for cumulative effects would need to be considered at later stages of design more specifically when more is known about different components of the landscape in each character area • The potential for significant cumulative effects on landscape would be expected to be higher in areas of greater landscape sensitivity. These areas are typically associated with the options further away from the existing A96 including Options C, D and N

The table highlights areas of potential for cumulative effects between east of Auldearn and Aberdeen. In all cases the actual significance of cumulative effects will depend on future dualling alignment option selection, and the ability to minimise impact risks across a range of different environmental receptors through avoidance and mitigation.

7.3 Predicted In-Combination Effects with Other Proposals

There is potential for the A96 dualling programme to interact cumulatively with other strategically significant development proposals in the region around the A96. This assessment has focused on the potential for significant environmental effects from dualling proposals in combination with a selected number of national and regional scale development programmes and projects.

7.3.1 Do Minimum

The assessor team have taken into account that a number of other currently committed developments are expected to be in place ahead of future development of the A96 dualling and of the other strategic programmes. These developments are part of the future 'do minimum' and include transport infrastructure proposals including:

- Aberdeen Western Peripheral Route including a new junction on the A96 near Dyce;
- Aberdeen to Inverness Rail Improvements Phase 1 which aims to deliver a 2 hour Inverness to Aberdeen journey time, an hourly service and enhanced commuter services into each city. It will also facilitate the construction of new stations at Kintore and Dalcross by 2019;
- Park and Ride sites adjacent to the rail stations at Dyce & Dalcross;
- A9/ A96 Connections – a link road between the A9 at Inshes and A96 at Smithton on the eastern edge of Inverness;
- A96 Inverness to Nairn (including Nairn Bypass) dual carriageway between Inverness Retail and Business Park and east of Auldearn, including a Nairn Bypass;
- Other A96 road network improvements including at the Haudagain Roundabout (Aberdeen), Threapland Junction and Inveramsay Bridge.

Taking account of these proposals as part of the assessment baseline helps to ensure that the focus of the assessment is on the cumulative effects of future programmes rather than changes to the future baseline from developments which have already been consented.

7.3.2 Plans and Programmes

Table 7—2 sets out the plans and programmes which have been considered for the cumulative assessment and summarises their key components and potential environmental effects (as 'stand-alone' programmes).

The predicted effects of each proposal were identified through reviews of available information, for example Environmental Statement Non-Technical Summaries and the NPF3 SEA Environmental Report.

Table 7—2 Plans and Programmes for In-Combination Effects Assessment

Proposal and Key Elements	Potential In-Combination Effects with A96 Dualling
National Renewables Infrastructure Plan (NRIP) **NRIP sites**: Nigg and Ardersier (Phase 1) and Invergordon, Highland Deephaven, Aberdeen Harbour and Peterhead identified as sites for the development of offshore renewables Onshore support for offshore renewable energy in Moray Firth including offshore windfarm wave and tidal energy	• Increased development activity in coastal areas is likely to result in increased traffic which has the potential to impact air quality and local communities. It may also encourage an increase in population as a result of improved employment opportunities resulting in pressure on current housing allocations • Improved offshore support facilities will likely result in increased vehicle activity during construction and operation which has the potential to impact air quality and amenity of roadside communities • Land take for facilities is unlikely within proximity to the A96 • Potential to affect A96 SEA sections 3 to 10
National Planning Framework 3 **Aberdeen Airport** is identified in NPF 3 as a continuing national development Proposal for enhancement works	• The expansion of Aberdeen Airport will assist in growing the tourism industry in the North of Scotland. This will have wider economic benefits with increased employment opportunities • It will also provide support and improve services for existing offshore industries and assist in growing the low carbon economy providing increased access and connectivity for proposed renewable energy projects • Airport expansion will likely result in increased traffic on the A96 and local roads with associated potential effects on air quality, roadside noise and carbon emissions • Proposed developments could result in permanent soil sealing and loss of semi-natural habitats • Potential loss or damage to cultural heritage resources. Records show 17 defined archaeological sites and features within the Airport boundary • Potential to affect A96 SEA sections 9 and 10
New Housing Allocations in Local Development Plans, including: • Approx. 1500 additional houses allocated within Elgin Housing Market area over next 10 years • Approx. 2500 houses allocated at Inverurie over next 8 years	• The A96 dualling programme will in general support the housing allocations providing improved access and connectivity • The significant increase in housing and improved transport network, if realised, is predicted to result in increased traffic levels on trunk and local roads which could impact local air quality • Impacts to designated sites are possible (primarily indirectly) although it is assumed that new housing would not be constructed on areas designated for natural and cultural heritage • Potential for habitat loss and fragmentation due to land take for new development land • Potential for impact on flood plain areas • Potential to affect A96 SEA sections 3 to 6 and 9 to 10

Proposal and Key Elements	Potential In-Combination Effects with A96 Dualling
Major Onshore Energy Proposals in A96 Corridor	• New energy developments including windfarms and grid reinforcement have the potential for a range of environmental impacts in particular landscape and visual • As the planning horizons for the A96 dualling are generally later than known information about energy projects, these developments cannot be specifically assessed for cumulative effects at this stage of the programme • Future stages of A96 dualling would take account of proposals such as major windfarms and transmission/ grid projects in terms of design integration and in assessing potential combined environmental effects, when greater certainty is available on projects and timescales

The key proposals reviewed in the table above have the potential for a range of significant effects both from direct development within the area of the options being assessed for A96 dualling and indirectly, for example, from increased traffic associated with coastal industrial development.

7.3.3 In-Combination Effects

The potential for in-combination effects between the A96 dualling programme and the other proposals has been assessed and is presented in Table 7—3. The table sets out the assessment by environmental topic grouping and provides, where appropriate, strategic mitigation measures to be taken forward as the dualling proposals progress.

It considers for each SEA topic/ receptor the potential for in-combination effects with these programmes, based on the predicted environmental effects of Option B. Where the other strategic options (C, D and N) have the potential for significantly different effects, these are noted.

Table 7—3 Predicted In-Combination Environmental Effects Assessment

Topic / Receptor Group	Potential Significant Cumulative Effects (with other proposals)
Biodiversity	• The opportunity for the avoidance of designated sites and ancient woodland within the Option B extents may be slightly reduced in and around Forres, Elgin, Fochabers, and Inverurie where additional land take is required for proposed housing allocations • In these locations there is also some potential for cumulative effects from combined impacts of habitat loss (including ancient and native woodland), severance of linking habitat and edge effects such as disturbance These effects would need to be considered in more detail at future stages when route options are more clearly defined • The proposals for offshore support development (NRIP) and Aberdeen airport expansion are not predicted to have significant cumulative effects on biodiversity at the strategic level with A96 dualling • Whilst NRIP developments have the potential to increase traffic (including HGVs) on some primary roads connecting with the A96, and on the trunk road, these are not predicted to result in significant cumulative effects on biodiversity of any of the options • Key mitigation - A96 dualling proposals to consider Local Authority Development Plan proposals (and utilities) to minimise potential cumulative effects of habitat loss and develop integrated mitigation responses to address habitat loss and loss of connectivity between key habitats at a landscape scale
Soils and Geodiversity	• Cumulative development proposals in SEA study area sections (all options) have potential to impact on soils particularly for the strategic housing allocations. However, the effects of these proposals are predicted to be localised and significant in-combination effects on prime agricultural land or high carbon soils with A96 dualling are not predicted at this strategic level • Key mitigation includes adherence to construction best practice to avoid adverse effects on soils such as from contamination, compaction and retention of topsoil seedbanks where appropriate for use in site landscaping
Water and Flooding	• Areas of proposed strategic housing development are generally not located within key flood risk zones; however, there is some potential for a secondary cumulative effect from A96 dualling (Option B) should the road proposals change the extent of flood plains potentially affecting the housing allocations where these are close to existing flood risk areas • No other significant cumulative effects on water and flooding are predicted for the A96 dualling at this strategic level • Key mitigation –A96 dualling to take on board SFRA findings and recommendations
Air	• Cumulative effects may occur for short periods of time should the construction phases of any or all of the potential developments coincide with sections of A96 dualling. These have the potential to result in elevated amenity impacts from cumulative traffic movements on/ around the A96 network for short periods of time but are not predicted to be significant in terms of air quality objectives/ levels • In the longer term, new housing development will increase and change traffic movements around the key towns and the implications of this for local air quality will need to be assessed once details become clearer. The proposed A96 dualling bypass options (all options) have potential to alleviate strategic A96 traffic from key towns and therefore at this strategic level significant cumulative adverse effects on air quality are not predicted • Key mitigation includes co-ordination and management of construction phasing and access arrangements for major developments and the A96 dualling to minimise construction disruption including dust nuisance

Topic / Receptor Group	Potential Significant Cumulative Effects (with other proposals)
Population & Human Health	• Proposed housing developments, particularly around, Forres, Elgin and Fochabers and Inverurie would increase the populated areas in extent and density which has the potential for cumulative effects with A96 dualling for example by bringing properties closer to the future preferred route alignment (for Option B) • Option N would have lower potential for significant cumulative effects on population and populated areas as there are relatively few proposed areas of strategic housing development within the option area • In the longer term new housing development will increase and change traffic movements around the key towns and the implications of this for local amenity and noise will need to be assessed once details become clearer. The proposed A96 dualling bypass options (all options) have potential to alleviate traffic from key towns and therefore at this strategic level significant cumulative effects on population and human health are not predicted • Key mitigation includes attention to alignment (vertical and horizontal) and trunk road design including use of cuttings and noise barriers to reduce the potential for the scheme to adversely affect nearby properties
Historic Environment	• Strategic housing land allocations are zoned in areas surrounding Forres, Elgin, Fochabers, Keith and Inverurie where there is potential for direct and indirect effects on the historic environment. Since it is proposed (for Options B and N) to bypass these towns with the A96 dualling, this reduces the potential for significant cumulative effects; however, there is some potential for an in-combination effect on the setting of important sites and buildings from housing development and dualling • Depending on the timescales for housing development there is also some potential at Forres (Option B South and the western end of Option N) and Inverurie (Option B North) in particular for urban development to reduce the area available for dualling to avoid constraints and this would need to be monitored during later stages of the dualling programme as route option alignments are assessed • The proposals for offshore support development and Aberdeen airport expansion are not predicted to have significant cumulative effects on historic environment assets at the strategic level with A96 dualling although this would need to be confirmed at later stages depending on the effects of physical expansion proposals at the airport on any local archaeological sites • Whilst NRIP developments have the potential to increase traffic (including HGVs) on some primary roads connecting with the A96, and on the trunk road, these are not predicted to result in significant cumulative effects on the historic environment of any of the options • Key mitigation includes monitoring of future route option assessments to avoid cumulative effects on the setting of Scheduled Monuments, Listed Buildings, Inventory Battlefields, Conservation Areas and Gardens and Designed Landscapes
Landscape	• Proposals for new housing development are generally scattered through the A96 study area, and of greatest potential scale around the towns of Forres, Elgin, Fochabers, Keith and Inverurie. Expansion of these settlements will change the character of the urban fringe and potentially increase the number of visual receptors with views towards A96 dualling bypasses but effects are predicted to be primarily of a local scale, dependent on the landscape features affected, and generally not significant from a cumulative landscape perspective • Other developments, including Aberdeen airport expansion, may have localised landscape effects; however, they are not predicted to present cumulative effects with A96 dualling • Key mitigation - A96 dualling proposals to consider Local Authority Development Plan proposals (and utilities) to minimise potential cumulative effects from loss of important landscape features and develop integrated mitigation responses to minimise landscape effects and wherever possible seek opportunities for structural improvements to landscapes particularly in edge of settlement areas

The assessment has identified the potential for cumulative effects between A96 dualling in combination with proposed strategic housing developments, particularly in the northern section of Option B.

These potential effects are predicted primarily on biodiversity and historic environment assets as a result of urban development acting to constrain the areas available for dualling, which could make avoidance of some designated sites more difficult, particularly for example in terms of increased potential for secondary effects on setting.

There is also some potential for cumulative effects from combined impacts of A96 dualling for bypasses and edge of settlement housing development on areas of habitat including woodlands and on non-designated archaeology.

Future housing development, and other related urban development, such as commercial land, has the potential to interact cumulatively with the A96 dualling where they are co-incident with the 1 in 200 year flood risk area.

Whilst it is anticipated that new urban development would generally avoid the functional floodplain, there is some potential for cumulative effects associated with any unavoidable dualling development within the floodplain which could affect the extent of flood risk areas.

It will be important that all developments including the A96 dualling programme closely follow the principles in the Strategic Flood Risk Assessment to avoid potentially significant cumulative effects and more detailed flood risk assessments will be needed as designs develop in specific locations.

Proposed housing developments, particularly around Forres, Elgin, Fochabers and Inverurie would increase the populated area extent and density, which has the potential for cumulative effects with A96 dualling for example by bringing properties closer to the future preferred route alignment. This would particularly be the case for Option B.

Nevertheless, both Options B and N provide opportunities to bypass the main towns and there is potential for significant relief for these communities, through the reduction of existing adverse effects of traffic currently following the A96 through town centres.

Further consideration of the potential for in-combination effects will be undertaken during the next stages of dualling design and assessment, taking account of the high level effects and issues identified in this SEA strategic level assessment.

Consideration should be given, where appropriate, to the timing of construction activities for other developments as timescales become clearer, working with other agencies and local authorities to mitigate potential significant effects where these are identified.

8 Mitigation and Monitoring

8.1 Introduction

Mitigation measures have been derived from the options assessment process where these have been identified to help reduce or offset the potential for significant effects of dualling.

A summary of the key strategic mitigation measures for each SEA topic is presented in Section 8.2.

An example of the proposed approach to monitoring of environmental effects through the development of the A96 Dualling programme is provided in Section 8.3.

The full monitoring framework will be developed and presented in the Post Adoption Statement.

8.2 Mitigation

Mitigation measures have been developed in response to the predicted environmental effects of A96 dualling identified through the options assessment process.

The assessment of improvement strategy options has been based on a core assumption that standard industry good practice would be followed in construction and that the new road infrastructure would be designed in accordance with prevailing standards and good practice relating to safety, aesthetics, drainage and other factors such as appropriate provision for mammal fencing and crossings.

The assessment matrices reported in Appendices I and J of this report additionally capture important strategic mitigation where this has been identified as being necessary to avoid or reduce the potential for significant environmental effects from dualling in each sectional area assessed and for each improvement strategy option as a whole.

Since the assessment has covered a large spatial area and a number of options, mitigation measures are typically of a similar nature across sections and options. The measures have therefore been grouped and presented in Table 8—1 by SEA topic.

The measures are typically strategic in nature, which reflects the level of appraisal for the SEA; however, specific measures have also been captured where relevant.

Table 8—1 Key Mitigation Measures

Key Mitigation Measures
Biodiversity • Local ecology surveys at later design stages will inform locally appropriate mitigation and species management plans • Seek to avoid designated sites and other important areas for nature conservation wherever possible • Maintain species and habitat connectivity where possible • Watercourse crossing designs to avoid or minimise land-take or works affecting the riparian zone in particular for crossing of the River Spey (a designated SAC) • Crossing locations to avoid areas that could adversely impact important salmon spawning or juvenile habitats (River Spey SAC) • In-channel structures and works will be avoided within all watercourses where possible • Avoidance will be adopted for introduction of new/ permanent in-channel barriers to salmon passage and percussive construction works in proximity to the key rivers during sensitive salmon migration periods (particularly for the River Spey) • Road alignment to minimise habitat fragmentation where habitat loss is unavoidable • Road design to incorporate appropriate species crossing infrastructure to minimise habitat fragmentation and severance • Key mitigation measures would include underpasses and wildlife bridges, habitat restoration and creation of new areas of native woodland • Further screening of the potential for options to affect SACs and SPAs (Natura sites) would be required at subsequent stages of design and agreed with Scottish Natural Heritage
Soils and Geodiversity • Seek to avoid nationally and locally designated geological and geodiversity sites • Where avoidance is not possible for the nationally and locally designated sites mitigation to be proposed at project EIA level in consultation with SNH • Seek to avoid areas of prime agricultural land and high carbon content soils • Farm accommodation works to be reviewed in more detail when specific alignments can be considered to minimise severance and fragmentation of farm units • Where avoidance is not possible local level peat ecology, hydrogeology and geotechnical surveys will be required to determine locally appropriate solutions which minimise the potential effects of drainage and desiccation, and inform suitable restoration and management plans • Provision of agricultural accommodation works such as vehicle underpasses
Water and Flooding • Seek to avoid new infrastructure in the functional floodplain (recognising that this may not be achievable in all locations). Where unavoidable, new infrastructure should be restricted to the shortest practical crossing, avoiding extensive construction within the functional floodplain • Before considering flood mitigation measures, route alignment options which avoid the floodplain should be fully investigated at DMRB Stage 2. Where unavoidable, a suitable range of flood mitigation design options should be assessed • Road and bridge designs to minimise loss of storage capacity from flood plain • Use of bridges and culverts which maintain watercourse flows without affecting upstream and downstream hydrology • If it is determined that new road infrastructure/ crossings (following design mitigation measures) increase the risk of flooding to local communities, it will be necessary to include local flood protection measures to reduce risks to an acceptable level • All design should be undertaken in line with the full list of SFRA recommendations and in consultation with SNH and SEPA

Key Mitigation Measures
Air • Scheme effects (beneficial and adverse) on air quality would be dependent on detailed alignment and proximity to property • Mitigation at the route alignment options development and assessment stage will focus on avoiding sensitive residential receptors as far as possible
Population and Human Health • Road design to accommodate crossings with local and national paths and cycleways with minimal disruption to their alignments • Future road alignments to minimise need for property demolition and land take • Route choice to take account of proximity of operational road traffic effects on receptors in populated areas to reduce potential noise and other adverse amenity effects (including community severance) • Use of noise barriers to be considered in locations where road traffic could increase noise impacts at nearby properties, and agreed with the local authority
Historic Environment • In the first instance, avoidance of designated and non-designated cultural heritage assets with future road alignments to preserve their structure and setting in situ • Where preservation of remains in situ is not possible (in the case of non-designated assets) a range of measures may be undertaken to mitigate and offset the adverse impacts on the archaeological resource • The effects of road development on the setting of historic environment assets will be taken into account in the design and mitigation of the road including attention to horizontal and vertical alignment and opportunities to screen the road • For any unavoidable cultural heritage receptor, a suitable strategy will be finalised on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist
Landscape • Avoidance of important areas for landscape wherever possible, taking account of other constraints including visual receptors in properties and settlements • Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location • Minimise impacts on key features and structure of the landscape which contribute to its character and sensitivity including native woodlands, copses and shelterbelts • Respecting topography when developing future alignments so that road designs flow with the contours of the land and the road sits out of sight of visual receptors wherever possible • Follow the principles in Transport Scotland's *Fitting Landscapes* guide • Mitigate landscape and visual aspects of new road infrastructure (e.g. junctions and embanked sections of the road) through well designed screen planting using native species typical of the area • Attention to horizontal and vertical alignment of the road will be required in managing the extent and slope of earthworks • Take account of nearby visual receptors in design and location of other road elements including positioning of signs and lighting gantries

Key Mitigation Measures

Strategic Mitigation

The SEA identified a requirement for mitigation at the strategic level as well as for individual topics/ receptors. This strategic mitigation responds to the assessment of potential effects at later stages of the dualling programme which cannot be defined in specific detail at this stage.

Mitigation identified as part of the assessment of the potential for cumulative effects with other plans and programmes includes:

- A96 dualling proposals to consider Local Authority Development Plan proposals (and utilities) to minimise potential cumulative effects of habitat loss and develop integrated mitigation responses to address habitat loss and loss of connectivity between key habitats at a landscape scale
- adherence to construction best practice to avoid adverse effects on soils such as from contamination, and retention of topsoil seedbanks where appropriate for use in site landscaping
- co-ordination and management of construction phasing and access arrangements for major developments and the A96 dualling to minimise construction disruption including dust nuisance
- attention to alignment (vertical and horizontal) and trunk road design including use of cuttings and noise barriers to reduce the potential for the scheme to adversely affect nearby properties
- monitoring of future route option assessments to avoid cumulative effects on the setting of Scheduled Monuments, Listed Buildings, Inventory Battlefields, Conservation Areas and Gardens and Designed Landscapes
- A96 dualling proposals to consider development plans of local authorities (and utilities) to minimise potential cumulative effects from loss of important landscape features and develop integrated mitigation responses to minimise landscape effects. Wherever possible seek opportunities for structural improvements to landscapes particularly in edge of settlement areas

The following mitigation measures have been identified from the assessment of effects of dualling infrastructure from the PES Strategies for junctions, laybys, rest areas and non-motorised users:

- Mitigation should start with iterative design and location options for new and rationalised junctions taking account of proximity to sensitive receptors
- Micro-siting of key infrastructure (including signs, fences, lighting) can help to reduce local impacts including from sensitive visual receptors
- Planting and landscaping proposals should integrate with surrounding landscape and seek to enhance long term biodiversity
- Rationalisation of routes should minimise diversion distances and follow desire lines
- Operational and winter maintenance scheduling to minimise fuel and emissions

8.3 Monitoring

It is proposed that the SEA monitoring framework acts as a mechanism to ensure that the identified environmental constraints are addressed at each future design stage and used to inform the development of route alignment options.

The framework will be 'section based', capturing the key constraints and issues in each of the eight A96 study area sections. It will be developed for practical use at each of the subsequent DMRB design and assessment stages, to maximise the potential for avoidance of key constraints and sensitivities, and to minimise risks of adverse environmental effects.

The table below provides a preliminary example framework for A96 SEA Section 3 (Hardmuir Woods to Alves). The framework will be developed further to include all A96 SEA sections, and to incorporate any relevant feedback from the Environmental Report public consultation process.

The final monitoring framework will be presented in the SEA Post Adoption Statement.

Table 8—2 Example SEA Monitoring Framework

A96 SEA Section 3 – Hardmuir Wood to Alves			
Key Constraints	**Comment on Key Issues**	**Recommended Monitoring Approach**	**DMRB Stage**
Biodiversity			
Natura Sites (Moray and Nairn Coast, Darnaway and Lethen Forest, Lower Findhorn Woods)	Natura and SSSI sites at the outer edge of the 2km study area	HRA to be revisited in discussion with SNH as further information on route/ alignment options becomes available	DMRB Stage 2 and Stage 3
Nationally Designated Sites (Lower Findhorn Woods, Culbin Sands, Culbin Forest and Findhorn Bay)		Principle of avoidance to be as adopted as the primary approach. Where avoidance is not achievable the effects on sensitive receptors and proposed mitigation will be considered through a project level EIA. Solutions will be informed by best practice guidance and consultation with key stakeholders and specialists	DMRB Stage 2 and 3
Ancient Woodland	Substantial areas of AWI (majority LEPO) and SINS to the south of Forres	Principle of avoidance to be as adopted as the primary approach. Where avoidance is not achievable the effects on sensitive receptors and proposed mitigation will be considered through a project level EIA Solutions will be informed by best practice guidance and consultation with key stakeholders and specialists	DMRB Stage 2 and 3
Soils and Geodiversity			
Nationally Designated Sites (Culbin Sands, Culbin Forest and Findhorn Bay)	The geological SSSI site to the extreme northern edge of the 2km study area	Principle of avoidance to be as adopted as the primary approach Where avoidance is not achievable the effects on sensitive receptors and proposed mitigation will be considered through a project level EIA Solutions will be informed by best practice guidance and consultation with key stakeholders and specialists	DMRB Stage 2 and 3

A96 SEA Section 3 – Hardmuir Wood to Alves			
Key Constraints	**Comment on Key Issues**	**Recommended Monitoring Approach**	**DMRB Stage**
Prime Agricultural Land	Significant areas of prime agricultural land with associated importance for agriculture	Principle of avoidance to be as adopted as the primary approach. Where avoidance is not practical the effects on sensitive receptors and proposed mitigation will be considered through a project level EIA Solutions will be informed by best practice guidance and consultation with key stakeholders and specialists	DMRB Stage 2 and Stage 3
Water and Flooding			
Fluvial and Coastal Flood Zone	Almost one third of the segment area is within the 1:200yr fluvial flood zone, a much lower percentage of the area (~2%) in the coastal flood zone Flood risk zones are likely to be the key positional constraint to dualling alignment options within the 2km segment area	A scoping exercise will be undertaken to determine the level of flood risk assessment required (simple, detailed or exempt)	DMRB Stage 2
		Detailed assessments will be carried out building on the desk based assessment undertaken at DMRB2 exercises potentially including specialist surveys	DMRB Stage 3
Major Water Crossing	Very likely to require a new crossing of the River Findhorn with a large hydrological catchment and large river flows Also likely to be constrained by crossing Muckle Burn, a tributary of the River Findhorn, and Kinloss Burn tributaries	All water-crossings should be screened to determine the level of DMRB assessment required (i.e. simple, detailed or exempt) and then assessed accordingly	DMRB Stage 2 and Stage 3
Air			
No specific constraints on existing or predicted local air quality identified in Section 3		Later stages of route/alignment options development should identify any locally sensitive receptors in line with DMRB guidance and where required develop appropriate mitigation.	DMRB Stage 2 and 3

A96 SEA Section 3 – Hardmuir Wood to Alves			
Key Constraints	**Comment on Key Issues**	**Recommended Monitoring Approach**	**DMRB Stage**
Historic Environment			
National and Local Designations	Features present but not extensive in area/ number and could be avoided within the option extents presented	Principle of avoidance to be considered in preliminary route alignment option development. If avoidance is not possible the effects on sensitive receptors (incl setting) and proposed mitigation will be considered through a project level EIA Solutions will be informed by best practice guidance and consultation with key stakeholders and specialists	DMRB Stage 2 and 3
Garden and Design Landscapes (Darnaway Castle, Brodie Castle)	Avoidance and minimisation of setting impacts on two GDLs could prove difficult given their distribution and proximity the current A96 and to each other	Principle of avoidance to be considered in preliminary route alignment option development. If avoidance is not possible the effects on sensitive receptors (including setting) and proposed mitigation will be considered through a project level EIA Solutions will be informed by best practice guidance and consultation with key stakeholders and specialists	DMRB Stage 2 and 3
Population and Human Health			
Core Paths/ NMUs	Sustrans National Cycle Route 1 The Moray Coast Trail 20 Core paths 8 Aspirational Core paths	In the development of preliminary route alignment options consideration to be given to routes which may require combination and/ or diversions to safer crossing points	DMRB Stage 2
Landscape and Visual			
Landscape character and sensitivity is locally influenced by patterns of woodland, settlement and buildings of historic or architectural importance		Later stages of route/ alignment options development should identify locally sensitive receptors in line with DMRB guidance	DMRB Stage 2 and Stage 3

9 Next Steps

9.1 Environmental Report Consultation Period

A six week consultation period will follow the publication of this Environmental Report, closing on 22 June 2015.

Written feedback is welcomed and should be addressed to:

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Statutory consultees should respond via the Scottish Government SEA Gateway.

All consultation responses will be captured in the Tier 2 SEA Post Adoption Statement.

9.2 Public Consultation Events

A series of A96 dualling public consultation events are planned between 11th and 21st May 2015 at a series of public venues along the A96 between Nairn and Aberdeen.

Representatives of Transport Scotland and the A96 Dualling programme PES and SEA teams will be available to discuss the issues covered by this Environmental Report.

9.3 Consultation Feedback Review

Following the closing date of the Environmental Report consultation period, all written feedback will be collated to inform a final review of the SEA findings and recommendations.

A record of feedback and how it has been taken into consideration will be documented in the SEA Post Adoption Statement.

9.4 Post Adoption Statement and Finalised Monitoring Framework

SEA legislation requires the publication of a SEA Post Adoption Statement (PAS) which must include any revised recommendations and a finalised SEA monitoring framework.

The PAS document must also include a record of consultation and a description of how the SEA process has improved the final plan or programme.

The current target for delivery of the Post Adoption Statement is autumn 2015.

A96 Dualling Programme

Strategic Environmental Assessment

Tier 2 Environmental Report

Transport Scotland

May 2015

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